2020-2021
Syllabus of M.Com.-II (Semester III)
PAPER: MC 301: CONTEMPORARY AUDITING

Time Allowed: 3 Hrs.	Internal Assessment: 30 Marks
Pass Marks-35%	External Assessment: 70 Marks
	Credit : 5

Course Objectives:
The objective of this course is to equip students with knowledge and understanding of the audit process, procedure of auditing and role played by an auditor and the standards followed in audit process

Instructions for Paper Setter/Examiners

The question paper will consist of three sections. Section A and B (Consist of unit I and II of the syllabus, respectively) will have four questions each from respective units and candidates are required to attempt two questions each from section A and B. Each question in section A and B shall carry 10 marks. Section C will consist of 12 short answer type questions covering entire syllabus and the candidates are required to attempt any ten questions. Each question in section C will carry 3 marks.

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UNIT-I

Auditing: Concepts, Nature and limitations of Auditing, Basic Principles governing an audit, Relationship between Accounting and Auditing, Classification of Auditing : different basis of classification, Internal and External Audit, Statutory and Non-Statutory Auditing, Continuous, Interim and periodic audit.

Auditor's Independence: Independence in Mind Vs Independence in Appearance, Threats to Auditor's Independence, Regulatory Framework to ensure auditor's Independence; Standards of Auditing- Overview, Standards on Auditing issued by ICAI: SA 200, SA 210, SA 230, SA 240, SA 299, SA 500, SA 610, SA 701.Auditing practices in digitalized environment, Types of frauds in auditing, Role of auditor in checking corporate frauds, Case studies of Auditing frauds at national and international level, Recent issues in Contemporary auditing practices.

UNIT-II

Company Audit: Preliminaries before commencement of Company Audit, Statutory requirements under Company Act 2013, Concept of true and fair, materiality and audit risk with respect to audit of companies. Company Auditor: Qualification, Disqualification, Appointment, Removal, Remuneration, Audit ceiling- Status, Power, Duties and Liabilities of Auditor.

Auditor Report: Qualifications, disclaimers, Adverse opinion, Disclosures reports and certificates. Management Audit; Cost Audit; Different Audits: environmental Audit, Audit of Banks & Insurance companies, Audit of cooperative societies Auditing in EDP Environment.

Pedagogy:

The instructor is expected to use leading pedagogical approaches in the class room situation, lectures, case study analysis, group discussions, assignment writing and tests, research based methodology, innovative instructional methods, use of technology in the class room and comprehensive assessment practices to strengthen the teaching efforts .

Suggested Readings:

1. Kamal Gupta & Ashok Gupta, “Fundamentals of Auditing”, McGraw Hill Education, New Delhi.
2. R.G. Saxena, “Principles and Practice of Auditing”, Himalaya Publishing House, New Delhi.
3. Spicer and Pegler. “Practical Auditing”, Allied Publications, New Delhi.
4. Relevant Publications of ICAI on Auditing.

2020-21
Syllabus of M.Com.-II (Semester III)
PAPER: MC 303: DIRECT TAX LAWS

Time Allowed: 3 Hrs.	Internal Assessment: 30 Marks
Pass Marks-35%	External Assessment: 70 Marks
	Credit : 5

Course Objectives:

The objective of this course is to impart expert knowledge, aquaintance and familiarity with computation of income as per the latest provisions of Income-tax Act, 1961 and the relevant Rules.

Instructions for Paper Setter/Examiners

The question paper will consist of three sections. Section A and B (Consist of unit I and II of the syllabus, respectively) will have four questions (two theory and two numerical) each from respective units and candidates are required to attempt two questions each from section A and B. Each question in section A and B shall carry 10 marks. Section C will consist of 12 short answer type questions covering entire syllabus and the candidates are required to attempt any ten questions. Each question in section C will carry 3 marks.

. UNIT-I

Introduction to Direct Tax Laws, Definitions, Basis of Charge-Determination of Residential Status under Income Tax Act 1961, Computation of Income under various Heads (Salaries, House Property, Profits and Gains from Business and Profession , Capital Gains, Income from Other Sources).

UNIT-II

Set Off and Carry Forward Losses, Income of other persons to be included in Assessee's Total Income. Deduction out of Gross Total Income, Computation of Income: in case of individuals, HUF, Partnership Firms, Companies. Appellate Authorities and Tribunals

Pedagogy:

The instructor is expected to use leading pedagogical approaches in the class room situation, lectures, case study analysis, group discussions, assignment writing and tests, research based methodology, innovative instructional methods, use of technology in the class room and comprehensive assessment practices to strengthen the teaching efforts .

Suggested Readings:

1. Singhania, Vinod K. and Monica Singhania. Students' Guide to Income Tax, University Edition. Taxmann Publications Pvt. Ltd., New Delhi.
2. Ahuja, Girish and Ravi Gupta. Systematic Approach to Income Tax. Bharat Law House, Delhi.
3. ShalinderSekhon, The Income Tax Law: A Simple guide to theory, SLM Publication.
4. **Software** 1. Vinod Kumar Singhania, e-filing of Income Tax Returns and Computation of Tax, Taxmann Publication Pvt. Ltd, New Delhi. Latest version 2. 'Excel Utility' available at incometaxindiaefiling.gov.in

2020-2021
Syllabus of M.Com.-II (Semester III)
PAPER: MC 304: MARKETING MANAGEMENT

Time Allowed: 3 Hrs	Internal Assessment: 30 Marks
Pass Marks-35%	External Assessment: 70 Marks
	Credit : 5

Course Objectives:

The objective of this course is to provide basic knowledge of concepts, principles, tools and techniques of marketing and to develop their skills so as to have deeper insight into the subject and to manage marketing operations of a business.

Instructions for Paper Setter/Examiners

The question paper will consist of three sections. Section A and B (Consist of unit I and II of the syllabus, respectively) will have four questions each from respective units and candidates are required to attempt two questions each from section A and B. Each question in section A and B shall carry 10 marks. Section C will consist of 12 short answer type questions covering entire syllabus and the candidates are required to attempt any ten questions. Each question in section C will carry 3 marks.

UNIT-I

Marketing : Meaning, importance, scope and various concepts, Tasks of Marketing Manager under different demand situations, Marketing environment. Identifying market segments and selecting target markets.

Product Decisions : Concept of a product, classification of products, major products decisions, product line and product mix; Branding ; Packaging and labeling; Product life cycle-strategic implications; New product development and consumer adoption process.

Pricing Decisions : Factors affecting price determination; Pricing policies and strategies; Discounts and rebates.

UNIT-II

Physical Distribution Decisions: Nature, functions and types of distribution channels, Channel management decisions, retailing and wholesaling.

Promotion Decisions: Communication process; Promotion Mix : advertising, personal selling, sales promotion. Publicity and public relations; Determining advertising budget; copy designing and its testing; Media selection; Advertising effectiveness: Promotion tools and techniques; various steps in selling; Training, Supervising, Motivating the salesforce. Managing Direct and Online Marketing.

Marketing Organisation and Control. Marketing of services : Concept, characteristics and problems; Green marketing. Marketing Research: Meaning, importance, scope and process. Digital marketing: Concept, Importance, Digital marketing plan, Strategies of digital marketing and best practices, Inbound marketing Vs. Digital Marketing, Role of digital marketing to a company.

Pedagogy:

The instructor is expected to use leading pedagogical approaches in the class room situation, lectures, case study analysis relating to marketing practices of the leading companies, group discussions, assignment writing and use of technology in the class room and comprehensive assessment practices to strengthen the teaching efforts .

Suggested Readings:

1. Kotler, Philip, Gary Armstrong, Prafulla Agnihotri and Ehsanul Haque. Principles of Marketing. Pearson Education.
2. J C Gandhi ,Marketing: A Managerial Introduction, Tata MC Graw Hill
3. Michael, J. Etzel, Bruce J. Walker, William J Stanton and Ajay Pandit. Marketing: Concepts and Cases. (Special Indian Edition)., McGraw Hill Education
4. William D. Perreault, and McCarthy, E. Jerome., Basic Marketing. Pearson Education.
5. Dhruv Grewal and Michael Levy, Marketing, McGraw Hill Education

2020-2021
Syllabus of M.Com.-II (Semester III)

ELECTIVE PAPER

GROUP-I: FINANCE

PAPER: MC 306(i): MANAGEMENT OF FINANCIAL SERVICES

Time Allowed: 3 Hrs	Internal Assessment: 30 Marks
.Pass Marks-35%	External Assessment: 70 Marks
	Credit : 5

Course Objectives:

This course aims at acquainting the students with the developments in the areas of financial services and developing their skills to manage financial services .It will give an insight into the strategic, regulatory, operating and managerial issues concerning various financial services.

Instructions for Paper Setter/Examiners

The question paper will consist of three sections. Section A and B (Consist of unit I and II of the syllabus, respectively) will have four questions each from respective units and candidates are required to attempt two questions each from section A and B. Each question in section A and B shall carry 10 marks. Section C will consist of 12 short answer type questions covering entire syllabus and the candidates are required to attempt any ten questions. Each question in section C will carry 3 marks.

UNIT-I

Financial Services: Nature and types; Merchant Banking: Role, Services provided by merchant bankers, Structure of Merchant Banking in India, SEBI regulations, recent developments; Venture Capital: Characteristics, SEBI guidelines, venture capital funds in India; Leasing: Characteristics and types, Leasing and Hire-Purchase. Underwriting: concept, SEBI regulations. NBFC: Concept, types, NBFCs vs. Banks, Functions of NBFCs, Role of NBFCs in Indian Economy.

UNIT-II

Mutual Funds: Meaning, types, measuring return of mutual funds, SEBI guidelines, Performance of Mutual Funds in India, current developments; Credit Rating: Meaning, significance, types; SEBI regulations for credit rating, Credit Rating Agencies; Factoring: characteristics and forms, Factoring in India; Forfeiting. Plastic Money: Concept, various forms of plastic money. Growth and Present Scenario of Plastic Money in India.

Pedagogy:

The instructor is expected to use leading pedagogical approaches in the class room situation, lectures, case study analysis relating to various financial services provided by the financial institutions, group discussions, assignment writing and tests, research based methodology, innovative instructional methods, use of technology in the class room and comprehensive assessment practices to strengthen the teaching efforts .

Suggested Readings:

1. Bansal, L.K., Merchant Banking and Financial Services, Tata McGraw Hill.
2. Bhole, L.M., Financial Institutions and Markets: Structure, Growth and Innovations, Tata McGraw-Hill.
3. Gurusamy, S., Financial Markets and Institutions, Thompson Learning.
4. Khan, M.Y., Management of Financial Services, Tata McGraw-Hill.
5. Gordon &Natarajan, Emerging Scenario of Financial Services, , Himalaya Publishing House
6. Avadhani, Management of Financial Services, Himalaya Publishing House.

2020-2021
Syllabus of M.Com.-II (Semester IV)
PAPER: MC 402: FUNDAMENTALS OF INVESTMENT

Time Allowed: 3 Hrs	Internal Assessment: 30 Marks
Pass Marks- 35%	External Assessment: 70 Marks
	Credit : 5

Course Objectives:

This course seeks to acquaint students with the theoretical and practical aspects of investment analysis for security selection and portfolio management purposes.

Instructions for Paper Setter/Examiners

The question paper will consist of three sections. Section A and B (Consist of unit I and II of the syllabus, respectively) will have four questions each from respective units and candidates are required to attempt two questions each from section A and B. Each question in section A and B shall carry 10 marks. Section C will consist of 12 short answer type questions covering entire syllabus and the candidates are required to attempt any ten questions. Each question in section C will carry 3 marks.

UNIT-I

Investment : Concept, Investment and speculation, Nature and scope of investment analysis; objectives of investment; Risk : Concept, types, measurement of risk ; Return : Meaning and measurement.

Investment alternatives for individuals : Bank deposits, Post office schemes, PF, Public Deposits, Mutual Funds, Shares, Debentures, Government Securities, Derivatives : Options and Futures, Valuation models of equity shares and debentures.

UNIT-II

Investment Analysis: Fundamental analysis covering economic, industry and company analysis.

Technical Analysis and Chartist techniques; Dow Theory, Types of charts used, Technical indicators : Advance-Decline Line, Support and Resistance Levels, Moving Averages.

Efficient Market Theory : Forms and Tests, Random Walk Hypothesis, Portfolio Management; Concept, objectives and significance. Capital Asset Pricing Theory, Arbitrage Pricing Theory.

Pedagogy:

The instructor is expected to use leading pedagogical approaches in the class room situation, lectures, case study analysis group discussions, assignment writing and tests, research based methodology, innovative instructional methods, use of technology in the class room and comprehensive assessment practices to strengthen the teaching efforts .

Suggested Readings:

1. SAPM by Donald E. ***Fischer*** (Author), Ronald J. ***Jordan*** (Author)
2. Alexander, G.J., Sharpe, W.F. and Bailey, J.V., Fundamentals of Investments, Prentice Hall.
3. Avadhani, V.A., Investment Management, Himalaya Publishing House.
4. Bodie, Z., Kane, A., Marcus, A.J. and Mohanty, P., Investments, Tata McGraw-Hill.
5. Chandra, P., Investment Analysis and Portfolio Management, Tata McGraw-Hill.
6. Mayo, H.B., Investments: An Introduction, Thomson Asia
7. Pandian P - Security Analysis and Portfolio Management , Vikas Publications Alexander, G.J., Sharpe, W.F. and Bailey, J.V., Fundamentals of Investments, Prentice Hall.

PGDI: Semester -I

PAPER: PGDI-102:- INSURANCE LEGAL FRAMEWORK

Time Allowed: 3hrs	**Max. Marks: 100**
Pass Marks 35%	**Internal Marks: 30**
Credits: 4	**External Marks: 70**

Objectives: The study of this paper will help the student to learn and understand the principles (law) of insurance, the basic laws and regulations concerning insurance industry and policyholders. Further, it will serve as a foundation for the remaining papers.

INSTRUCTIONS FOR THE PAPER SETTER/ EXAMINERS

The question paper will consist of three sections-A, B and C. Section A will consist of four long questions of 10 marks each from Unit-I of the syllabus. Section B will consist of four long questions of 10 marks each from Unit-II of the syllabus. Section-C will consist of 12 very short answer type questions covering the entire syllabus and candidates are required to attempt any 10 questions of 03 marks each.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt any two questions from Section A& B each carrying 10 marks.
Students should attempt 10 questions from Section C carrying 03 marks each.

UNIT – I

Indemnity: the guiding principle-meaning, purpose, application, measurements, methods, and extensions. Subrogation-meaning, time, rights, effects, and modification.Contribution-meaning, time, essentials, methods, and modification.

Insurable Interest- meaning, nature, purpose, wager, types, persons, and time. Transfer of interest and policy.

Utmost good faith and Proximate Cause.**Utmost good faith**-meaning, purpose, breach, and effect. Non-disclosure and concealment. Misrepresentation and fraud.Modification and recent trends.**Proximate Cause**- meaning, purpose, evolution, rules, and modification.

UNIT – II

Insurance Act 1938, (as amended) (only relevant chapters and sections), Insurance Ombudsman,**Life Insurance Corporation Act 1956,IRDA Act 1999,** Consumer Protection Act 1986, **General Insurance Business (Nationalization) Act 1972.** The RegulatoryBody (IRDAI): Composition, powers and functions. Self-regulatory bodies in the field of insurance- their role.**Right to information Act 2005.**

PEDAGOGY:

The instructor is expected to use leading pedagogical approaches in the classroom situation, lectures, case study analysis, group discussions, assignment writing and tests, innovative instructional methods, use of technology and comprehensive assessment practices to strengthen the teaching efforts.

Suggested Readings:

1. K S N Murthy & K V S Sarma., “ *Modern Law of Insurance In India*”, Lexis Nexis Butterworth India.
2. The Institute of Company Secretaries of India., “ *Banking & Insurance Law*”, Taxmann.
3. K.B. Agrawal, Vandanasingh., “ *Insurance Law in India*”, Kluwer Law International.
4. Bharats., “*Insurance Laws”,* Bharat Law House Pvt. Ltd.
5. W. A. Dinsdale& D. C. Macmurdie, “*Elements of Insurance*”, Pitman Publishing Ltd.,
6. D. S. Hansel',“*Elements of Insurance”*, Macdonald & Evans, London.
7. P.S.Palande, R. S. Shah & M. C. Lunawat, “*Insurance in India”*, Response Books.
8. G. Krishnaswamy., “ *Principles& Practices of Life Insurance*”, Excel Publication.

PGDI: Semester -I

PAPER: PGDI-106:- INTERNSHIP

EXTERNAL EVALUATION: 50

In the first semester every student shall have to undergo an industrial training under the instructor (to be allocated by the company).The instructor shall send the evaluation (out of 50 marks) of the student of the training period in a sealed envelope to the department.

Session 2020-21
B.Com: II (Semester III)
Paper BC 3.1: Company Law

Duration: 3hrs. **Max. Marks: 100**
Pass Marks: 35% **Internal Marks: 30**
Credit:6:5H(L)+1H(T) **External Marks: 70**

Objective: The objective of the course is to impart basic knowledge of the provisions of the Companies Act 2013. Case studies involving issues in company law required to be discussed.

Course Outcome: Students will equip with knowledge of Company rules, regulations and Company Law affairs.

INSTRUCTIONS FOR PAPER SETTER/EXAMINERS

The question paper will consist of three sections-A, B and C. Section A will consist of four long questions 10 marks each from Unit-I of the syllabus. Section-B will consist of four long questions of 10 marks each from Unit-II of the syllabus. Section-C will consist of 12 very short answer type questions covering entire syllabus carrying 03 marks each, total weight of the section-C shall be 30 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt any two questions from Section A & B each carrying 10 marks and any 10 short answer type questions from section C Each carrying 3 marks each.

UNIT-I

Introduction -Definition of a company, Administration of company law, Characteristics of a company; lifting of Corporate veil; types of companies including one person company, small company and dormant company ;Association not-for-profit; illegal association ; formation of company , promoters, their legal position , pre incorporation contract.

Documents- Memorandum of Association, Article of association, Doctrine of constructive notice and indoor management, Prospectus-Meaning, contents, rules for framing, shelf and Red Herring Prospectus, Misstatement in prospectus.

UNIT-II

Management-Classification of directors, Women director, independent director, small shareholder's director; Disqualifications, Director Identity Number (DIN); Appointment; Legal Positions, powers and duties; removal of directors; Key Managerial personnel, managing director, manager;

Meetings of shareholders and board; Types of meeting, convening and conduct of meetings, postal ballot, meeting through video conferencing, e-voting; committees of Board of Directors- Audit committee, Nomination and Remuneration committee, Stakeholders Relationship committee, Corporate social responsibility committee.

Winding up: Concept and modes of winding up.

Pedagogy-The course will be initiated through lectures, case study method, discussions, assignments. A visit to a particular company will also be made.

Suggested Readings:

1. MC Kuchhal, Modern Indian Company Law, Shri Mahaveer book depot (Publisher), Delhi.
2. GK Kapoor and Sanjay Dhamija, Company law, Bharat law House, Delhi.
3. Anil Kumar, Corporate laws, Indian Book house, Delhi.
4. Reena Chadha and Sumant Chadha, Corporate laws, Scholar Tech Press, Delhi.
5. Avtar Singh, Introduction to company law, Eastern Book Company.
6. Ramaiya, A Guide to Companies act, LexisNexis, Wadhwa and Butterworth.
7. A Compenidium of Companies Act 2013, along with rules by Taxmann Publications.
8. Gower and Davies, Principles of Modern Company Law, Sweet & Maxwell.

Note: Latest edition of text books may be used.

Session 2020-21
B.Com: II (Semester III)
Paper BC 3.2: INCOME TAX LAW AND PRACTICE

Duration: 3hrs.	**Max. Marks: 100.**
Pass Marks: 35%	**Internal Marks: 30=20+10(P)**
Credits:6:5H(L)+1H(P)	**External Marks: 70**

Objective: To provide basic knowledge and equip students with application of principles and provisions of Income-tax Act, 1961 and the relevant Rules.

Course Outcome: Students will be able to prepare and file income tax returns and revise the returns etc.

INSTRUCTIONS FOR THE PAPER SETTER/ EXAMINERS

The question paper will consist of three sections-A, B and C. Section A will consist of four long questions (two theory and two numerical) of 10 marks each from Unit-I of the syllabus. Section-B will consist of four long questions (two theory and two numerical) of 10 marks each from Unit-II of the syllabus. Section-C will consist of 12 very short answer type questions (Six theory and six numerical) covering entire syllabus carrying 03 marks each, total weight of the section-C shall be 30 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt any two questions from Section A & B each carrying 10 marks and any 10 short answer type questions from section C Each carrying 3 marks each.

Unit -I

- Introduction-Basic concepts: Income, agricultural income, person, assessee, assessment year, previous year, gross total income, total income, maximum marginal rate of tax.
- Residential status**:** Scope of total income on the basis of residential status
- Exempted income under section 10
- Income from Salaries, Income from house property.

Unit II

- Profits and gains of business or profession; Capital gains; Income from other sources
- Computation of Total Income and Tax Liability
- Income of other persons included in assessee's total income, Aggregation of income and set-off and carry forward of losses; Deductions from gross total income; Rebates and reliefs, Computation of total income of individuals.
- Filing of returns: Manually, On-line filing of Returns of Income & TDS, Provision & Procedures of Compulsory On-Line filing of returns for specified assesses.

Recommended by the Board of Studies

Pedagogy-The teacher is expected to use lectures, case study analysis, group discussion, problem solving approach to strengthen the teaching efforts.

PRACTICAL LAB- INCOME TAX LAW AND PRACTICE CREDIT-1H (P)

Practical: 10 Marks

Objective: To provide basic knowledge to the student for calculation of income tax and filling the returns.

TDS (Form-26 AS), Tax credit statement, PAN application, rectification, TDS: rates, due dates, TDS returns. Preparation of return of income: E-filling of Income Tax Returns and procedure of compulsory on line filling of returns for specified assesses.

Pedagogy-The instructor is expected to use demonstration method by using software for the purpose of dealing issues and problems related to filling income tax returns to strengthen the teaching efforts.

Note: Latest edition of text books and Software may be used.

Suggested readings:

1. Singhania, Vinod K. and Monica Singhania. Students' Guide to Income Tax, Taxmann Publications Pvt. Ltd., New Delhi.
2. Ahuja, Girish and Ravi Gupta. “Systematic Approach to Income Tax”. Bharat Law House, Delhi.

Journals

1. Income Tax Reports. Company Law Institute of India Pvt. Ltd., Chennai.
2. Taxman. Taxman Allied Services Pvt. Ltd., New Delhi.
3. Current Tax Reporter. Current Tax Reporter, Jodhpur.

Software

1. Vinod Kumar Singhania, e-filing of Income Tax Returns and Computation of Tax, Taxmann Publication Pvt. Ltd, New Delhi. Latest version
2. Excel Utility' available at incometaxindiaefilinggov.in

Recommended by the Board of Studies

Session 2020-21
B.Com: II (Semester IV)
Paper- BC 4.1 CORPORATE ACCOUNTING

Max. Marks: 100
Duration: 3hrs **Internal Marks: 30**
Pass Marks 35% **External Marks: 70**
Credits:6:5H(L)+1H(T)

Objectives: To enable the students to acquire the basic knowledge of the corporate accounting and to learn the techniques of preparing the financial statements.

Course Outcome: Students will learn to develop skills to prepare Company Accounts.

INSTRUCTIONS FOR THE PAPER SETTER/ EXAMINERS

The question paper will consist of three sections-A, B and C. Section A will consist of four long questions (two theory and two numerical) of 10 marks each from Unit-I of the syllabus. Section-B will consist of four long questions (two theory and two numerical) of 10 marks each from Unit-II of the syllabus. Section-C will consist of 12 very short answer type questions (Six theory and six numerical) covering entire syllabus carrying 03 marks each, total weight of the section-C shall be 30 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt any two questions from Section A & B each carrying 10 marks and any 10 short answer type questions from section C Each carrying 3 marks each.

UNIT – I

- Issue, forfeiture and reissue of forfeited shares; Issue of rights and bonus shares
- Redemption of preference shares; Issue and Redemption of Debentures (Sinking Fund & Insurance Policy Method)
- Buyback of Shares and their accounting.
- Final Accounts: Preparation of profit and loss account and balance sheet of corporate entities, (excluding calculation of managerial remuneration) Disposal of company profits.

UNIT – II

- Amalgamation of Companies: Concepts and accounting treatment as per Accounting Standard: 14 (IAS) (excluding intercompany holdings)
- Liquidation of Companies
- Accounts of Banking Companies Difference between balance sheet of banking and non-banking companies; Prudential norms; Asset structure of a commercial bank; Non-performing assets (NPA).

Pedagogy- The course will be initiated through lectures, case study method, group discussions, assignments, problem solving approach to strengthen the teaching efforts.

Recommended by the Board of Studies

Suggested Readings:

1. J.R. Monga, Fundamentals of Corporate Accounting. Mayur Paper Backs, New Delhi.
2. M.C. Shukla, T.S. Grewal, and S.C. Gupta. Advanced Accounts.S. Chand & Co., New Delhi.
3. S.N. Maheshwari, and S. K. Maheshwari. Corporate Accounting. Vikas Publishing House, New Delhi.
4. Ashok Sehgal, Fundamentals of Corporate Accounting. Taxman Publication, New Delhi.
5. V.K. Goyal and Ruchi Goyal, Corporate Accounting. PHI Learning.
6. Jain, S.P. and K.L. Narang. Corporate Accounting. Kalyani Publishers, New Delhi.
7. Bhushan Kumar Goyal, Fundamentals of Corporate Accounting, International Book House

Note: Latest edition of text books may be used.

Session 2020-21
B.Com: II (Semester IV)
Paper – BC4.2: COST ACCOUNTING

Duration: 3hrs **Max. Marks: 100**
Pass Marks 35% **Internal Marks: 30**
Credits:6:5H(L)+1H(T) **External Marks: 70**

Objective: To acquaint the student with basic concepts used in cost accounting. Various methods involved in cost ascertainment and cost accounting book keeping systems.

Course Outcome: Students will acquaint with basic concepts used in cost Accounting, various methods involved in cost ascertainment.

Note: Simple calculator (not scientific) is allowed

INSTRUCTIONS FOR THE PAPER SETTER/ EXAMINERS

The question paper will consist of three sections-A, B and C. Section A will consist of four long questions (two theory and two numerical) of 10 marks each from Unit-I of the syllabus. Section-B will consist of four long questions (two theory and two numerical) of 10 marks each from Unit-II of the syllabus. Section-C will consist of 12 very short answer type questions (Six theory and six numerical) covering entire syllabus carrying 03 marks each, total weight of the section-C shall be 30 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt any two questions from Section A & B each carrying 10 marks and any 10 short answer type questions from section C Each carrying 3 marks each.

Unit -I

- **Cost Accounting**: meaning, objectives and advantages of Cost Accounting; Difference between cost accounting and financial accounting; Cost concepts and classifications; Elements of cost; Installation of a costing system; Preparation of cost sheet; Role of a cost accountant in an organization
- **Elements of Cost**: **Material and Labour**; Material/inventory control techniques. Accounting and control of purchases, storage and issue of materials. Methods of pricing of materials issues-FIFO, LIFO, Simple Average, Weighted Average, Replacement, Standard Cost, Treatment of Material Losses
- **Labour**: Accounting and Control of labour cost. Time keeping and time booking. Concept and treatment of idle time, over time, labour turnover and fringe benefits. Methods of wage payment and the Incentive schemes- Halsey, Rowan, Taylor’s Differential piece wage, Flexible wage payment.

Unit -II

- **Overheads**-classification, allocation, apportionment and absorption of overhead; under- and over- absorption, Activity based costing.
- **Methods of Costing**: Job costing, Contract costing, Process costing (process losses, valuation of work in progress, joint and by-products), Services costing (only transport).Reconciliation of cost and financial accounts.

Pedagogy-The course will be initiated through leading pedagogical approaches in the classroom situation, lectures, case study method, group discussions, assignments, problem solving approach will be used to strengthen the teaching efforts.

Suggested Reading:

1. Charles T. Horngren, Srikant M.Datar, Madhav V. Rajan, Cost Accounting: A Managerial Emphasis, Person Education.
2. Jawahar Lal, Cost Accounting, McGraw Hill Education.
3. Nigam, B.M. Lall and I.C. Jain, Cost Accounting: Principles and Practice, PHI Learning.
4. Rajiv Goel, Cost Accounting, International Book House.
5. Singh, Surender. Cost Accounting, Scholar Tech Press, New Delhi.
6. Jain, S.P. and K.L. Narang. Cost Accounting: Principles and Methods, Kalyani Publishers.
7. Arora, M.N. Cost Accounting – Principles and Practice, Vikas Publishing House, New Delhi.
8. Maheshwari, S.N. and S.N. Mittal, Cost Accounting: Theory and Problems,Shri Mahavir Book Depot, New Delhi.

Note: Latest edition of text books may be used.

Session 2020-21
B.Com: II (Semester IV)
Paper BC 4.4 E-Commerce

Duration: 3hrs.	**Max. Marks: 100**
Pass Marks: 35%	**Internal Marks: 30=20+10(P)**
Credits: 4: 3H(L)+1H(P)	**External Marks: 70**

Objectives: To enable the students to become familiar with the mechanism for conducting business transactions through electronic means.

Course Outcome: Students will become familiar with mechanism for conducting business transactions through electronic means.

INSTRUCTIONS FOR THE PAPER SETTER/ EXAMINERS

The question paper will consist of three sections-A, B and C. Section A will consist of four long questions of 10 marks each from Unit-I of the syllabus. Section-B will consist of four long questions of 10 marks each from Unit-II of the syllabus. Section-C will consist of 12 very short answer type questions covering entire syllabus carrying 03 marks each, total weight of the section-C shall be 30 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt any two questions from Section A & B each carrying 10 marks and any 10 short answer type questions from section C Each carrying 3 marks each.

Unit -I

- **E-commerce** -meaning, nature, concepts, advantages, disadvantages and reasons for transacting online, types of E-commerce, E-Commerce Business models(introduction, key elements of business model and categorising major E-Commerce Business models), forces behind e-commerce.
- **Technology used in E-commerce:** The dynamics of World Wide Web and internet (meaning, evolution and features)
- **IT Act 2008**: Definitions, digital signature, Electronic governance, attribution, acknowledgement and dispatch of electronic records, Regulation of certifying authorities, Digital signature certificate, Duties of subscribe Penalties and adjudication, Appellate Tribunal, Offences and Cyber crimes.

Unit -II

- **E-payments** -models and methods of E-payments(Debit card, Credit card, Smart card, e-money), Payment wallets, UPI payments, digital signatures(procedure, working and legal position), payment gateways, online banking (meaning, concepts, importance, electronic fund transfer, automated clearing house, automated ledger posting), risks involved in e-payments.
- **Online Business Transactions**-meaning, purpose, advantages and disadvantages of transacting online, E-Commerce application in various Industries like (banking, insurance payment of utility bills, online marketing, e-tailing (popularity, benefits,

problems and features), online services (financial, travel and career), auctions, online portal, online learning, publishing and entertainment} Online shopping(Amazon, snap deal, alibaba, flipkart etc.)

PRACTICAL LAB- E-COMMERCE **CREDIT-1:1H (P)**
Practical: 10Marks

Online Business Transaction: E-Commerce application in various Industries like (banking, insurance payment of utility bills, online marketing, e-tailing (popularity, benefits, problems and features), online services (financial, travel and career), auctions, online portal, online learning, publishing and entertainment} Online shopping(Amazon, snap deal, alibaba, flipkart etc.) **E-payments** -models and methods of E-payments(Debit card, Credit card, Smart card, e-money), Payment wallets, UPI payments, digital signatures(procedure, working and legal position), payment gateways, online banking (meaning, concepts, importance, electronic fund transfer).

Pedagogy -The instructor is expected to use demonstration method by using different online platforms for the purpose of dealing issues and problems related with online business transaction and E-payments to strengthen the teaching efforts.

Latest edition of text books and Software may be used.

Suggested Readings

1. Kenneth C. Laudon and Carlo Guercio Traver, E-Commerce, Pearson Education.
2. David Whiteley, E-commerce: Strategy, Technology and Applications, McGraw Hill Education.
3. Bharat Bhaskar, Electronic Commerce: Framework, Technology and Application, McGraw Hill Education.
4. PT Joseph, E-Commerce: An Indian Perspective, PHI Learning.
5. KK Bajaj and Debjani Nag, E-commerce, McGraw Hill Education.
6. TN Chhabra, E-Commerce, Dhanpat Rai & Co.
7. Sushila Madan, E-Commerce, Taxmann
8. TN Chhabra, Hem Chand Jain, and Aruna Jain, An Introduction to HTML, Dhanpat Rai & Co.

Semester III
BCAF 3.1: Financial Management
6 CREDITS: 5H (L) +1 H(T)

Duration: 3 hrs.	**Max. Marks: 100**
Pass Marks: 35%	**Internal Assessment: 30 marks**
	Theory Paper: 70 marks

Objectives: The course's objective is to provide a theoretical framework for considering corporate finance problems and issues and to apply these concepts in practice.

INSTRUCTIONS FOR PAPER SETTER/EXAMINERS

The question paper will consist of three sections A, B and C. Section A and B will have four questions each from Unit-I and Unit-II respectively, will carry 10 marks each and with at least two theoretical questions in section A & B. Section C will consist of 12 short answer type questions covering entire syllabus and will carry 3 marks each. Total weightage of Section-C shall be 30 marks.

INSTRUCTIONS FOR CANDIDATES

Candidates are required to attempt two questions each from Section A and B. In Section C candidates are required to attempt any ten questions.
Note: Use of simple calculator is allowed.

Unit-I

Financial Management: Nature, Scope and Objectives of Financial Management, Profit Vs Wealth maximization, Various Sources of finance (Domestic &International)brief introduction, Finance Functions; Investment, Financing, and Dividend Decisions, Role of Financial Manager, Financial Planning: Over Capitalization and Under Capitalization, Time Value of Money.

Capital Investment Decision Making: Process, Discounted and Non-Discounted Techniques for appraising Capital Investments, Capital Rationing, Risk Analysis in Capital Budgeting, Cost of Capital: Concept, Significance of Cost of Capital and Methods of Calculating Cost of Capital.

Unit-II

Operating, Financial and Combined Leverage; Their Measures and Effects, Capital Structure: Meaning, Significance, Theories (Net Income, Net Operating Income, MM Hypothesis and Traditional Approach),

Dividend Decisions: Theories of Relevance (Walter's Model and Gordon's Model) and Irrelevance (MM Hypothesis), Types and Determinants of Dividend. Working Capital Decisions: Concept of Working Capital, Operating and Cash Cycles, Factors Affecting Working Capital Requirement.

Pedagogy:

A variety of teaching and learning techniques can be employed to impart knowledge and skills to students. Lectures, case analysis, group discussions ,numerical exercises and practical project work can be used to develop conceptual and analytical skills and to prepare the students to face the challenges of the complex international business environment. The teacher should assess the students' performance through a continuous system of tests and quizzes to ensure highest academic standards as well as practical orientation.

Suggested Readings:

1. Khan and Jain, “Financial Management” Tata McGraw hill, Delhi.
2. I M Pandey, “Financial Management” Vikas Publishing House, Noida
3. Ravi M. Kishore, “Financial Management” Taxmann, Delhi.
4. Van Horne, “Financial Management and Policy” Prentice Hall.
5. G. Sudarsana Reddy, “Financial Management” Himalayan Publication, Mumbai.
6. Brealey & Meyers," Principles of Corporate Finance", McGraw Hill.
8. Parsana Chandra. "Financial Management", McGraw Hill.

BCAF 3.3: Income Tax Law and Practices

6 CREDITS:5H(L)+1H(P)

Duration: 3 hrs. **Max. Marks: 100**
Pass Marks: 35% **Internal Assessment: 20 marks**
Theory Paper: 70 marks
Practical : 10 marks

Objective: To familiarize and update the students with the basic principles of taxation, Structure of Indian Taxation system and provisions of Income Tax.

INSTRUCTIONS FOR PAPER SETTER/EXAMINERS

The question paper will consist of three sections A, B and C. Section A and B will have four questions each from Unit-I and Unit-II respectively, will carry 10 marks each and with atleast two theoretical questions in section A & B. Section C will consist of 12 short answer type questions covering entire syllabus and will carry 3 marks each. Total weightage of Section-C shall be 30 marks.

INSTRUCTIONS FOR CANDIDATES

Candidates are required to attempt two questions each from Section A and B. In Section C candidates are required to attempt any ten questions.

Note: Use of simple calculator is allowed.

Unit-I

Income Tax Act 1961: Introduction, Exempted Incomes, Basis of Charge: Residential status, Computation of Income under Salary Head, Computation of Income from House Property, Profit and Gains of Business and Profession.

Unit-II

Capital Gains: Long Term and Short-Term Capital Gains, Income from Other Sources, Clubbing of Incomes, Carry Forward and Set off of losses, Deductions u/s 80 C to 80 U out of the Gross total Income. Assessment of Total Income of Individual and Company, Advance Payment of Tax, Deduction of Tax at sources.

Practical Lab: 1 Credit

Objective: To provide the knowledge to the students for calculation of Income Tax and filling the returns.

TDS (Form -26 AS) Tax credit statement, PAN application, rectification, TDS; rates, due dates, TDS returns. Preparation of return of income: Filling of return: Manually, e-filling, Provisions and procedures of compulsory on line filing of returns for specified assesses

Pedagogy:

A variety of teaching and learning techniques can be employed to impart knowledge and skills to students. Lectures, case analysis, group discussions, numerical exercises and practical project work can be used to develop conceptual and analytical skills and to prepare the students to face the challenges of the complex international business environment. The teacher should assess the students' performance through a continuous system of tests and quizzes to ensure highest academic standards as well as practical orientation.

Suggested Readings:

1. Mahesh Joshi, “Income Tax Law and Practice”, Unistar Books.
2. Mehrotra, “Income Tax Law and Accounts including Wealth Tax”, Sahitya Bhawan.
3. V. K. Singhania, “Taxmann Student Guide to Income Tax” ,Taxmann.
4. Parsad Bhagwati, “Income Tax Law and Practice”, WishwaParkashan.
5. Girish Ahuja and Ravi Gupta, Systematic Approach, C.C.H. India Publications, New Delhi.
6. Shalinder Sekhon, "The Income Tax Law: A Simple guide to theory", SLM Publication.
7. Software 1. Vinod Kumar Singhania, e-filing of Income Tax Returns and Computation of Tax, Taxmann Publication Pvt. Ltd, New Delhi. Latest version 2. ‘Excel Utility’ available at incometaxindiaefiling.gov.in

BCAF- 4.2: INDIRECT TAX LAWS
6 CREDITS: 5H (L) +1H (T)

Duration: 3 hrs.	**Max. Marks: 100**
Pass Marks: 35%	**Internal Assessment: 30 marks**
	Theory Paper: 70 marks

Objective: The Objective of this paper is to help the students to acquire the knowledge of indirect tax laws prevailing in India.

INSTRUCTIONS FOR PAPER SETTER/ EXAMINERS

The Question paper will consist of the sections A, B and C. Section A and B will have four questions each from Unit-I and Unit-II respectively, will carry 10 marks each. Section C will consist of 12 short answer type question covering entire syllabus and will carry 3 marks each. Total weightage of section C shall be 30 marks.

INSTRUCTIONS FOR CANDIDATES

Candidates are required to attempt two questions each from Section A and B. In section C Candidates are required to attempt any ten questions.

UNIT –I

Goods and Services Tax: Meaning, Nature & scope; Transition to GST from previous tax regime; Comprehensive structure of GST, Kelkar Shah Model; Benefits and limitations of GST. Registration, Procedure, Amendments and Cancellation. Time Value of Supply. Levy & collection of GST; GST council & Administrative authorities.

UNIT-II

Input tax credit, Tax invoices Debit & Credit Notes; Accounts and records, Return and payments of tax, Inspection, search and seizure, offences & penalties, Appeal & Revision under GST. Customs Act : Basic concept , Types of Custom Duties, valuation of goods , Procedure for import & export, Exemptions From Custom Duty.

Pedagogy:

The instructor is expected to use leading pedagogical approaches in the class room situation, lectures, case study analysis, group discussions, assignment writing and tests, research based methodology, innovative instructional methods, use of technology in the class room and comprehensive assessment practices to strengthen the teaching efforts.

Suggested Readings:

1. Ravi Puliani and Mahesh Puliani : Goods and Services Tax Manual, Bharat Publications.
2. Sanjiv Agarwal: Goods and Services Tax, Bloomsbury Publications.
3. Rakesh Garg and Sandeep Garg: Handbook of GST in India Bloomsbury India publication
4. Nitya Tax associates: Basics of GST, Taxmann’s Publication.
5. Taxmann’s GST manual.

BCAF 4.3: FUNDAMANTELS OF STATISTICS

6 CREDITS: 5 H(L) + 1H (T)

Duration : 3 hrs **Max Marks: 100**
Pass Marks: 35% marks **Internal Assessment: 30**
Theory Paper: 70 marks

Objective: The objective of this paper is to help the students in understanding statistical tools in business decision.

INSTRUCTIONS FOR PAPER SETTER/EXAMINERS

The question paper will consist of three section A,B and C. Section A and B will have four questions each from Unit-I and Unit-II respectively, will carry 10 marks each and with at least two theoretical questions in section A&B. section C will consist of 12 short answer type questions covering entire syllabus and will carry 3 marks each. Total weightage of section-C shall be 30 marks.

INSTRUCTIONS FOR CANDIDATES

Candidates are required to attempt two questions each from Section A and B. In Section C candidates are required to attempt any ten questions.

Note: Use of simple calculator is allowed.

UNIT – I

Statistics: Definition, Scope, Functions, Uses, Importance and limitations of Statistics; Collection of Statistics Data, Organization of Data, Diagrammatic and Graphic Presentation of Data. Measure of Central Tendency – Introduction; Definition of Central Tendency, Mean (A.M., G.M.& H.M.), Median, Mode

Measures of Variability: Range, Percentile Range, Quartile Deviation, Mean Deviation, Standard Deviation, Coefficient of Variation.

UNIT – II

Correlation Analysis – Multiple and Partial Correlation, Regression Analysis, Index Numbers, Analysis of Time Series. Forecasting and Methods of Forecasting, Interpolation and Extrapolation.

Pedagogy:

A variety of teaching and learning techniques can be employed to impart knowledge and skills to students. Lectures, case analysis, numerical exercises, group discussions and practical project work can be used to develop conceptual and analytical skills and to prepare the students to face the challenges of the complex international business environment. The teacher should assess the students' performance through a continuous system of tests and quizzes to ensure highest academic standards as well as practical orientation.

Suggested Readings:

1. S.P. Gupta: statistical methods, sultan Chand and sons.
2. V.K. Kapoor, Business mathematics; sultan Chand and sons.
3. Richard Levin I.& David S Rubin: statistics for management, prentice hall of India.

4. R.P.Hooda, statistics for Business & Economics, Vikas publishing house.
5. S.C.Gupta: Fundamentals of Applied Statistics

B.COM. (Hons.): Semester – III
Paper - BCH 3.1: HUMAN RESOURCE MANAGEMENT

Duration: 3 hrs **Max. Marks: 100**
Pass Marks 35% **Internal Assessment: 30**
Credits: 6: 5H (L) +1H (T) **External Assessment: 70**
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Course objective: The objective of the course is to acquaint students with the techniques and principles to manage human resource of an organization.

Course Learning Outcomes: Developing Knowledge of different aspects of Human Resource and its Management.

INSTRUCTIONS FOR THE PAPER SETTER/ EXAMINERS

The question paper will consist of three sections-A, B and C. Section A will consist of four long questions of 10 marks each from Unit-I of the syllabus. Section B will consist of four long questions of 10 marks each from Unit-II of the syllabus. Section-C will consist of 12 very short answer type questions covering the entire syllabus and candidates are required to attempt any 10 questions of 03 marks each.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt any two questions from Section A & B each carrying 10 marks. Students should attempt 10 questions from Section C carrying 03 marks each.

UNIT – I

Introduction: Human resource management: concept and functions, role, status and competencies of HR manager, HR policies, evolution of HRM. HRM vs HRD. Emerging challenges of human resource management; workforce diversity; empowerment; downsizing; upsizing; re-sizing; VRS; Human resource information system.

Acquisition of Human Resource: Human resource planning – quantitative and qualitative dimensions; job analysis – job description and job satisfaction; Recruitment – concept and sources (both traditional and modern); Selection – concept and process; test and interview; placement and induction.

Training and Development – concept and importance; identifying training and development needs; Designing training programmes; Role-Specific and Competency-Based Training; Evaluating Training Effectiveness; Training Process outsources; Management development; Career Development.

UNIT – II

Performance Appraisal – nature, objective and importance; Modern techniques of performance appraisal; potential appraisal and employee counseling; job changes – transfers and promotions; Compensation: concept and policies; job evaluation; methods of wage payments and incentive plans; fringe benefits; performance linked compensation.

Maintenance: Employee health and safety; employee welfare; social security; Employer-Employee relations- an overview; grievance-handling and redressal; Industrial disputes: causes and settlement machinery.

PEDAGOGY:

The instructor is expected to use leading pedagogical approaches in the classroom situation, lectures, case study analysis, group discussions, assignment writing and tests, innovative instructional methods, use of technology and comprehensive assessment practices to strengthen the teaching efforts.

Suggested Readings:

1. Gary Dessler. *A framework for human resource management*. Pearson education.
2. DeCenzo, D.A. and S.P. Robbins, *personnel/HRM*, Pearson education.
3. Bohlender and Snell, *principles of HRM*. Cengage learning
4. Ivancevich, john M. *human resource management*. McGraw Hill.
5. Wreather and Davis. Human resource management. Pearson education.
6. Robert L. Mathis and john H. Jackson. *Human resource management*. Cengage learning.
7. TN Chhabra, *human resource management*, Dhanpat rai & co., Delhi
8. BiswajeetPattanayak,*human resource management, PHI Learning*

Note: Latest edition of text books may be used.

B.Com. (Hons.): Semester -III
Paper- BCH 3.2: INCOME TAX LAW AND PARCTICE

Duration: 3 hrs	**Max. Marks: 100**
Pass Marks 35%	**Internal Assessment: 20**
Credits: 6: 5H (L) +1H (P)	**Practical : 10**
	External Assessment: 70

Note: Simple calculator (not scientific) is allowed

Objective: To provide basic knowledge and equip students with application of principles and provisions of Income tax act- 1961 and the relevant Rules.

Course Learning Outcomes: Basic knowledge of Residential Status, Different Heads of Income Deductions and Computation of Tax.

INSTRUCTIONS FOR THE PAPER SETTER/ EXAMINERS

The question paper will consist of three sections-A, B and C. Section A will consist of four long questions of 10 marks each from Unit-I of the syllabus. Section B will consist of four long questions of 10 marks each from Unit-II of the syllabus. Section-C will consist of 12 very short answer type questions covering the entire syllabus and candidates are required to attempt any 10 questions of 03 marks each.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt any two questions from Section A & B each carrying 10 marks. Students should attempt 10 questions from Section C carrying 03 marks each.

Unit I

Introduction- Basics concepts- income, agricultural income, person, assessee, assessment year, previous year, gross total income, maximum marginal rate of tax, permanent account number (PAN), Capital and revenue items.

Residential status- Scope of total income on the basis of residential status. Exempted income under section 10

Computation of income under the head salaries, income from house property, profits and gains of business or profession

Unit II

Computation of income under the head Capital gain; Income from other sources

Computation of Total income and tax liability- Income of other persons included in assessee's total income; aggregation of income and set-off and carry forward of losses; deductions from gross total income; Rebates and reliefs

Computation of total income of individuals and firms; Tax liability of an individual and a firm; five leading cases decided by Supreme court.

Preparation of Return of Income- Filing of return: manually, online filing of return of income& TDS; Provisions and procedures of compulsory online filing of returns for specified assessee.

Syllabus to be taught in Practical Lab: Credit-1H(P)

Objective: To provide the knowledge to the students for calculation of Income Tax and filling the returns.

TDS (Form: 26 AS) Tax credit statement, PAN application, rectification, TDS, rates, due dates, TDS returns, Preparation of return of income: Filling of return: Manually, e-filling, Provisions and procedures of compulsory on line filling of returns for specified assesses.

PEDAGOGY:

The instructor is expected to use leading pedagogical approaches in the classroom situation, lectures, practical based assignment writing and tests, innovative instructional methods, use of technology and comprehensive assessment practices to strengthen the teaching efforts.

Suggested readings:

1. Singhania vinod k. and Monica Singhania. Students Guide to Income tax University Edition TaxmannPublication Private limited New Delhi.
2. Ahuja Girish and Ravi Gupta systematic approach toIncomeTax.Bharat law house, Delhi.

Journals

1. Income tax reports Company Law Institute of India Private limited Chennai.
2. Taxman.Taxman Allied Services Private Limited, New Delhi.
3. Current Tax reporter. current tax reporter Jodhpur.

Software

1.Vinod Kumar Singhania, e-Filing of Income Tax Returns and Computation of tax, Taxmannpublication Private Limited New Delhi Latest version.

2. Excel utility available at incometaxindiaefiling.gov.in

Recommended by Board of Studies:

B.Com. (Hons.): Semester -III
Paper- BCH 3.3 CORPORATE ACCOUNTING

Duration: 3hrs **Max. Marks: 100**
Pass Marks 35% **Internal Assessment: 30**
Credits: 6: 5H (L) +1H (T) **External Assessment: 70**
Note: Simple calculator (not scientific) is allowed

Objectives: To help the students to acquire the conceptual knowledge of the corporate accounting and to learn the techniques of preparing the financial statements.

Course Learning Outcomes: Develop the skill of Preparation of Accounts of Various Companies and getting job opportunities in corporate world.

INSTRUCTIONS FOR THE PAPER SETTER/ EXAMINERS

The question paper will consist of three sections-A, B and C. Section A will consist of four long questions of 10 marks each from Unit-I of the syllabus. Section B will consist of four long questions of 10 marks each from Unit-II of the syllabus. Section-C will consist of 12 very short answer type questions covering the entire syllabus and candidates are required to attempt any 10 questions of 03 marks each.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt any two questions from Section A & B each carrying 10 marks. Students should attempt 10 questions from Section C carrying 03 marks each.

UNIT - I

Issue, forfeiture and reissue of forfeited shares; Issue of rights and bonus shares; buy-back of shares (from the view point of accounting implications); Issue and Redemption of Debentures; Final Accounts: Preparation of profit and loss account and balance sheet of corporate entities, including calculation of managerial remuneration; Valuation of Goodwill and Valuation of Share.

UNIT – II

Amalgamation of Companies: Concepts and accounting treatment as per Accounting Standard: 14 (IAS) (excluding inter-company holdings). Internal reconstruction: concepts and accounting treatment excluding scheme of reconstruction; Banking Companies: Difference between balance sheet of banking and non-banking company; prudential norms. Asset structure of a commercial bank. Non-performing assets (NPA); Liquidation of Companies.

Note: 1. The relevant Indian Accounting Standards in line with the IFRS for all the above topics should be covered.

2. Any revision of relevant Indian Accounting Standard would become applicable immediately.

PEDAGOGY:

The instructor is expected to use leading pedagogical approaches like Power point presentation, practical task assignment, proceeding through textbook help, technology- visual and computer based delivery, taking help of diagnostic and remedial test etc.

Suggested Readings:

1. J.R. Monga, Fundamentals of Corporate Accounting. Mayur Paper Backs, New Delhi.
2. M.C. Shukla, T.S. Grewal, and S.C. Gupta. Advanced Accounts. Vol.-II. S. Chand & Co., New Delhi.
3. S.N. Maheshwari, and S. K. Maheshwari. Corporate Accounting. Vikas Publishing House, New Delhi.
4. Ashok Sehgal, Fundamentals of Corporate Accounting. Taxman Publication, New Delhi.
5. V.K. Goyal and Ruchi Goyal, Corporate Accounting. PHI Learning.
6. Jain, S.P. and K.L. Narang. Corporate Accounting. Kalyani Publishers, New Delhi.
7. Bhushan Kumar Goyal, Fundamentals of Corporate Accounting, International Book House
8. P. C. Tulsian and Bharat Tulsian, Corporate Accounting, S.Chand
9. Amitabha Mukherjee, Mohammed Hanif, Corporate Accounting, McGraw Hill Education
10. Compendium of Statements and Standards of Accounting. The Institute of Chartered Accountants of India, New Delhi.

Note: Latest edition of text books may be used.

B.Com. (Hons.): Semester – III
Paper – BCH 3.5: E – COMMERCE

Duration: 3 hrs	**Max. Marks: 100**
Pass Marks 35%	**Internal Assessment: 20**
Credits:6: 5H (L) +1H (P)	**Practical : 10**
	External Assessment: 70

Course objective: To enable the students to became familiar with the mechanism for conducting business transaction through electronic means.

Course Learning Outcomes: Understanding of Electronic usage in Business activities

INSTRUCTIONS FOR THE PAPER SETTER/ EXAMINERS

The question paper will consist of three sections-A, B and C. Section A will consist of four long questions of 10 marks each from Unit-I of the syllabus. Section B will consist of four long questions of 10 marks each from Unit-II of the syllabus. Section-C will consist of 12 very short answer type questions covering the entire syllabus and candidates are required to attempt any 10 questions of 03 marks each.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt any two questions from Section A & B each carrying 10 marks. Students should attempt 10 questions from Section C carrying 03 marks each.

UNIT – I

Introduction: Meaning, nature, concepts, advantages, disadvantages and reasons for transacting online, types of E – Commerce, e- commerce business models (introduction, key elements of a business model and categorizing major E – commerce business models), forces behind e – commerce. Technology used in E – commerce: The dynamics of world wide web and internet (meaning, evolution and features); Designing, building and launching e – commerce website (A systematic approach involving decisions regarding selection of hardware, software, outsourcing vs. in – house development of a website)

Security and Encryption: Need and concepts, the e – commerce security environment: (dimension, definition and scope of e- security), security threats in the E – commerce environment (security intrusions and breaches, attacking methods like hacking, sniffing, cyber – vandalism etc.), technology solutions (Encryption, security channels of communication, protecting networks and protecting servers and clients).

IT Act 2000 and Cyber Crimes: IT Act 2000: Definitions, Digital signature, Electronic governance, Attribution, acknowledgement and dispatch of electronic records, Regulations of certifying authorities, Digital signatures certificates, Duties of subscribers, Penalties and adjudication, Appellate Tribunal, Offences and Cyber – crimes.

UNIT - II

E - payment system: Models and methods of e – payments (Debit Card, Credit Card, Smart Cards , e – money), Payment Wallets, UPI, digital signatures (procedure , working and legal position), payment gateways, online banking (meaning, concepts, importance, electronic fund transfer, automated clearing house, automated ledger posting), risks involved in e – payments.

On – line Business Transactions: Meaning, purpose, advantages and disadvantages of transacting online, E –commerce applications in various industries like {banking, insurance, payment of utility bills, online marketing , e – tailing (popularity, benefits, problems and features), online service (financial , travel and career), auctions, online portal, online learning, publishing and entertainment } Online shopping (amazon, snapdeal, alibaba, flipcart, etc).

Topics to be discussed in Practical Lab: Credit-1H (P)

- Creating E-Commerce Site: Designing and maintaining WebPages. Advertising in the website, Portals and Vortals.
- E-Commerce Interaction: Comparison Shopping in B2C, Exchanges Handling in B2B, Interaction Examples: Virtual Shopping Carts.
- Practical Applications of E-Commerce Applications: Online Store, Online Banking, Credit Card Transaction Processing banking, insurance, payment of utility bills, online marketing , e – tailing (popularity, benefits, problems and features), online service (financial , travel and career), auctions, online portal, online learning, publishing and entertainment } Online shopping (amazon, snapdeal, alibaba, flipcart, etc)

PEDAGOGY:

The instructor is expected to use leading pedagogical approaches in the classroom situation, lectures, case study analysis, group discussions, assignment writing and tests, innovative instructional methods, use of technology and comprehensive assessment practices to strengthen the teaching efforts.

Suggested Reading:

1. Kenneth C. Laudon and Carlo Guercio Traver, *E-Commerce*, Pearson Education.
2. David Whiteley, *E-commerce: Strategy, Technology and Applications*, McGraw HillEducation
3. Bharat Bhaskar, *Electronic Commerce: Framework, Technology and Application, 4th Ed.,* McGraw Hill Education
4. PT Joseph, *E-Commerce: An Indian Perspective*, PHI Learning
5. KK Bajaj and Debjani Nag, *E-commerce,* McGraw Hill Education
6. TN Chhabra, *E-Commerce,* Dhanpat Rai & Co.
7. Sushila Madan, *E-Commerce,* Taxmann
8. TN Chhabra, Hem Chand Jain, and Aruna Jain, *An Introduction to HTML,* Dhanpat Rai & Co.

Recommended by Board of Studies:

B.Com. (Hons.): Semester -IV
Paper – BCH 4.1: COST ACCOUNTING

Duration: 3 hrs **Max. Marks: 100**
Pass Marks 35% **Internal Assessment: 30**
Credits: 6: 5H (L) + 1 H (T) **External Assessment: 70**
Note: Simple calculator (not scientific) is allowed

Objective: To acquaint the student with basic concepts used in cost accounting. Various methods involved in cost ascertainment and cost accounting book keeping systems.

Course Learning Outcomes: To acquaint the students with basic concepts used in cost Accounting, Various methods involved in cost ascertainment.

INSTRUCTIONS FOR THE PAPER SETTER/ EXAMINERS

The question paper will consist of three sections-A, B and C. Section A will consist of four long questions of 10 marks each from Unit-I of the syllabus. Section B will consist of four long questions of 10 marks each from Unit-II of the syllabus. Section-C will consist of 12 very short answer type questions covering the entire syllabus and candidates are required to attempt any 10 questions of 03 marks each.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt any two questions from Section A & B each carrying 10 marks. Students should attempt 10 questions from Section C carrying 03 marks each.

Unit I

Meaning, objectives and advantages of cost accounting; Difference between cost accounting and financial accounting; Cost concepts and classifications; Elements of cost; Installation of a costing system; Role of a cost accountant in an organization

Materials: Material/inventory control techniques. Accounting and control of purchases, storage and issue of material. Methods of pricing and valuation methods of materials issues FIFO, LIFO, Simple Average, Weighted Average, Replacement, Standard Cost, Treatment of Material Losses

Labour: Accounting and Control of labour cost. Time keeping and time booking. Concept and treatment of idle time, over time, labour turnover and fringe benefits. Methods of wage payment (including the flexible wage payment) and the Incentive schemes- Halsey, Rowan, Taylor's Differential piece wage.

Unit II

Classification, allocation, apportionment and absorption of overhead; Under- and over-absorption; Treatments of certain items in costing like interest on capital, packing expenses, bad debts, research and development expenses etc; Activity based cost allocation.

Job costing, Contract costing, Process costing (process losses, valuation of work in progress, joint and by-products), Services costing (only transport).

Reconciliation of cost and financial accounts.

PEDAGOGY:

The instructor is expected to use leading pedagogical approaches like Power point presentation, task assignment, proceeding through textbook help, technology- visual and computer based delivery, taking help of diagnostic and remedial test etc

Suggested Reading:

9. Charles T. Horngren, Srikant M. Datar, Madhav V. Rajan, **Cost Accounting: A Managerial Emphasis, Person Education.**
10. Drury Colin. Management and Cost Accounting. Cengage Learning.
11. Jawahar Lal, Cost Accounting. McGraw Hill Education.
12. Nigam, B.M. Lall and I.C. Jain. Cost Accounting: Principles and Practice. PHI Learning.
13. Rajiv Goel, Cost Accounting. International Book House.
14. Singh Surender. Cost Accounting: Scholar Tech Press, New Delhi.
15. Jain, S.P. and K.L. Narang. Cost Accounting: Principles and Methods, Kalyani Publishers.
16. Arora, M.N. Cost Accounting – Principles and Practice. Vikas Publishing House, New Delhi.
17. Maheshwari, S.N. and S.N. Mittal, Cost Accounting: Theory and Problems. Shri Mahavir Book Depot, New Delhi.
18. Iyengar, S.P. Cost Accounting. Sultan Chand & Sons.
19. H.V. Jhamb, Fundamentals of Cost Accounting, Ane Books Pvt. Ltd.

Note: Latest edition of text books may be used.

B.Com (Hons.): Semester – IV
Paper – BCH 4.4: INDIAN ECONOMY

Duration: 3 hrs **Max. Marks: 100**
Pass Marks 35% **Internal Assessment: 30**
Credits: 6:5 H (L) +1 H (T) **External Assessment: 70**

Objective: This course seeks to enable the student to grasp the major economic problems in India and their solution.
Course Learning Outcomes: Awareness of various issues of Indian Economy like it's' sectors, stages, trends, changes, Policy implications and role in global scenario

INSTRUCTIONS FOR THE PAPER SETTER/ EXAMINERS

The question paper will consist of three sections-A, B and C. Section A will consist of four long questions of 10 marks each from Unit-I of the syllabus. Section B will consist of four long questions of 10 marks each from Unit-II of the syllabus. Section-C will consist of 12 very short answer type questions covering the entire syllabus and candidates are required to attempt any 10 questions of 03 marks each.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt any two questions from Section A & B each carrying 10 marks. Students should attempt 10 questions from Section C carrying 03 marks each.

Unit I

Concept and Measures of Development and Underdevelopment: Human Development Composition of national income and occupational structure, the agrarian scene and industrial structure. The evolution of planning and import substitution industrialization.
Economic Reforms since 1991.Monetary and Fiscal policies with their implications on economy.
The experience of Growth, Development and Structural Change in different phases of growth and policy regimes across sectors and regions. The Institutional Framework: Patterns of assets ownership in agriculture and industry; Policies for restructuring agrarian relations and for regulating concentration of economic power; Changes in policy perspectives on the role of institutional framework after 1991.
Growth and Distribution; Unemployment and Poverty; Human Development; Environmental concerns. Demographic Constraints: Interaction between population change and economic development.

Unit II

Agriculture Sector: Agrarian growth and performance in different phases of policy regimes i.e. pre green revolution and the two phases of green revolution; Factors influencing productivity and growth; the role of technology and institutions; price policy, the public distribution system and food security.

Industry and Services Sector: Phases of Industrialization – the rate and patters of industrial growth across alternative policy regimes; patterns of industry and service sector, Public sector – its role, performance and reforms; The Small-scale sector; Role of Foreign capital. Make in India programme and other recent ongoing programmes.

Financial Sector: Structure, Performance and Reforms, Foreign Trade and balance of Payments: Structural Changes and Performance of India's Foreign Trade and Balance of Payments; Trade Policy Debates; Export policies and performance; Macro Economic Stabilisation and Structural Adjustments; India and the WTO, Role of FDI, Capital account convertibility.

PEDAGOGY:

The instructor is expected to use leading pedagogical approaches in the classroom situation, lectures, case study analysis, group discussions, assignment writing and tests, innovative instructional methods, use of technology and comprehensive assessment practices to strengthen the teaching efforts.

Suggested Reading:

1. Mishra and Puri, Indian Economy, Himalaya Publishing House.
2. IC Dhingra, Indian Economics, Sultan Chand & Sons.
3. Gaurav Dutt and KPM Sundarum, Indian Economy, S. Chand & Company.
4. Bhagwati, J. and Desai, P. India: Planning for Industrialization, OUP, Ch 2.
5. Jhingan, M.L. "The Economics of Development & Planning", 22nd Revised Edition, Konark Publications, New Delhi.
6. Sankaran S, "Indian Economy: Problems, Policies and Development", 1994, Margham Publication, Chennai.
7. RBI Bulletin, Pramit Chaudhury, The Indian Economy, Poverty and Development, Vikas Publishing House, New Delhi.
8. Velayutham, "Foreign Trade, Theory & Practice", S. Chand & Co., New Delhi.

Recommended by Board of Studies:

B.COM. (Hons.): Semester – IV
Paper - BCH 4.5: Entrepreneurship

Duration: 3 hrs **Max. Marks: 100**
Pass Marks 35% **Internal Assessment: 30**
Credits: 4: 3 H (L) +1 H (T) **External Assessment: 70**

Course objective: The purpose of the paper is to orient the learner toward entrepreneurship as a career option and creative thinking and behavior.

Course Learning Outcomes: To make students aware about different aspects of entrepreneurship qualities, factors, starting, documentation and various issues regarding entrepreneurship development

INSTRUCTIONS FOR THE PAPER SETTER/ EXAMINERS

The question paper will consist of three sections-A, B and C. Section A will consist of four long questions of 10 marks each from Unit-I of the syllabus. Section B will consist of four long questions of 10 marks each from Unit-II of the syllabus. Section-C will consist of 12 very short answer type questions covering the entire syllabus and candidates are required to attempt any 10 questions of 03 marks each.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt any two questions from Section A & B each carrying 10 marks. Students should attempt 10 questions from Section C carrying 03 marks each.

UNIT – I

Introduction: Meaning, elements, determinants and importance of entrepreneurship and creative behavior; entrepreneurship and creative response to the society’s problems and at work; Dimensions of entrepreneurship: intrapreneurship, technopreneurship, cultural entrepreneurship international entrepreneurship, netpreneurship, ecopreneurship and social entrepreneurship.

Entrepreneurship and Micro, small and Medium Enterprises: concept of business groups and role of business houses and family business in India; The contemporary role models in Indian business: their values, business philosophy and behavioural orientations; conflicts in family business and its resolution.

Public and Private system of stimulation, support and sustainability of entrepreneurship. Requirement , availability and access to finance, marketing assistance and self-help groups.

UNIT – II

Sources of business ideas and tests of feasibility: significance of writing the business plan/ project proposal; designing business processes, location, layout, operation, planning & control;

preparation of project report (various aspects of the project report such as size of investment, nature of product, market potential may be covered); project submission/presentation and appraisal thereof by external agencies, such as financial/non-financial institutions.

Mobilising Resources: Mobilising resources for start-up. Accommodation. Contract management: basic start-up problems. Start –up India and other new entrepreneurship schemes.

PEDAGOGY:

The instructor is expected to use leading pedagogical approaches in the classroom situation, lectures, case study analysis, group discussions, assignment writing and tests, innovative instructional methods, use of technology and comprehensive assessment practices to strengthen the teaching efforts.

Suggested Readings:
1. Kuratko and Rao, *Entrepreneurship*: *A South Asian Perspective*, Cengage Learning.
2. Robert Hisrich, Michael Peters, Dean Shepherd, *Entrepreneurship*, McGraw- Hill Education
3. Desai, Vasant. *Dynamics of Entrepreneurship Development and Management* ._Mumbai, Himalaya Publishing House.
4. Dollinger, Mare j. *Entrepreneurship: Strategies and Resources.*Illinois, Irwin.
5. Holt, David H. *Entrepreneurship: New Venture Creation.* Prentice-Hall of india, New Delhi.
6. Plsek, Paul E. *Creativity, innovation and quality*. (Eastern Economic Edition), New Delhi: Prentice-hall of india. ISBN-81-203-1690-8.
7. Singh, Nagendra P. *Emerging Trends in Entrepreneurship Development.* New Delhi: ASEED.
8. SS Khanka, *Entrepreneurship Development,* S. Chand & co, Delhi.
9. K Ramachandran ,*Entrepreneurship Development,* McGraw-Hill Education
10. SIDBI Reports on small scale industries sector.

Note: Latest edition of text books may be used.

Session 2020-21
BBA-II (Semester-III)
BBA-3.3: PRODUCTION AND OPERATIONS MANAGEMENT

Teaching Hours per week: 5	**Max Marks: 100**
Time Allowed: 3 Hrs.	**Internal Assessment: 40 Marks**
Pass marks: 35%	**External Assessment: 60 Marks**
Credits: 6:5H(L)+1H(T)	

Objective: The course aims at developing knowledge about various steps of product, design, development, Plant location, Storage, Production Planning and control.

Course Learning Outcomes: After completion of the course, the students shall be able to:

CO1: Understand ever growing importance of Production and Operations Management in uncertain business environment.
CO2: Appreciate the unique challenges faced by firms in services and manufacturing.
CO3: Develop skills to operate competitively in the current business scenario.

INSTRUCTIONS FOR PAPER SETTER/EXAMINERS

The question paper will consist of three sections A, B and C. Section A and B will have four questions each from Unit-I and Unit-II respectively, will carry 10 marks each. Section C will consist of 12 short answer type questions covering entire syllabus and will carry 2 marks each. Total weightage of Section-C shall be 20 marks.

INSTRUCTIONS FOR CANDIDATES

Candidates are required to attempt any two questions from Section A & B each carrying 10 Marks. In Section C candidates are required to attempt any ten questions.

UNIT-I

Production Management: Introduction, Objectives and Concept. Production System, Production Management and Production function. Introduction and Objectives of Operations Management, Scope of Production and Operations Management. Production Planning: Introduction and Meaning, Need for Production Planning, Objectives of Production Planning, Functions of Production Planning, Capacity Planning, Routing, Scheduling. Plant Location And Layout: Introduction and Meaning, Need for Selecting a Suitable Location, Factors influencing Plant Location, Plant Layout, Classification of Layout, Design of Product Layout.

UNIT-II

Production & Quality Control: Introduction and Meaning Need for Control, Objectives of Control, Functions of Control, Fundamental Factors Affecting Quality, Need for Controlling Quality. Total Quality Management: Meaning & Advantages. ISO 9000 Series: objectives and benefits. Waste Management: Introduction and Meaning, Reasons for Generation and Accumulation of Obsolete, Surplus and Scrap Items, identification and Control of Waste, Disposal of Scrap, Introduction to PERT and CPM.

PEDAGOGY:

The teacher is expected to use leading pedagogical approaches in the classroom situation, lectures, case study analysis, group discussions, assignments writing and tests, innovative instructional methods, use of technology and comprehensive assessment practices to strengthen the teaching efforts. An industrial visit of a company can be arranged to draw and observe the plant layout.

Suggested Readings:

1. S.Anil Kumar, N. Suresh, *Production and Operations Management,* New Age International (P) Limited, Publishers.
2. Chase, B.R. Shankar R. Jacobs, F.R and Aquilano, N.J, *Operations & Supply Chain Management*, Tata McGraw Hill Education.
3. Stevenson, W. J, *Operations Management*, Tata McGraw Hill Education.
4. Nair, *Production & Operation management*, Tata McGraw Hill.

Session 2020-21
BBA-II (Semester-III)
BBA 3.4: BUSINESS RESEARCH METHODOLOGY

Teaching Hours per week: 5	**Max Marks: 100**
Time Allowed: 3 Hrs.	**Internal Assessment: 40 Marks**
Pass marks: 35%	**External Assessment: 60 Marks**
Credits: 6:5H(L)+1H(T)	

Objective: The paper aims to at equipping students with an understanding of the Research process, tools and techniques in order to facilitate managerial decision making.

Course Learning Outcomes: After completion of the course, the students shall be able to:

CO1: Explain the objectives and process of conducting research and its application in business.
CO2: Understand the different types of research designs.
CO3: Understand the various techniques of sampling and methods of data collection.

INSTRUCTIONS FOR PAPER SETTER/EXAMINERS

The question paper will consist of three sections A, B and C. Section A and B will have four questions each from Unit-I and Unit -II respectively, will carry 10 marks each. Section C will consist of 12 short answer type question covering entire syllabus and will carry 2 marks each. Total weightage of Section – C shall be 20 marks.

INSTRUCTIONS FOR CANDIDATES

Candidates are required to attempt two questions each from Section A and B. In Section C candidates are required to attempt any ten questions.

UNIT – I

Meaning, Objective and Scope of Business Research, Process of Business Research, Research methods in Social Science, Types of research: Descriptive, Analytical Research, Exploratory Research, Applied Research, Fundamental Research, Qualitative and Quantitative Research.

Research Design: Meaning and Purpose of Research Design, Features of a Good Research Design. Different Research Designs.

UNIT – II

Collection of Data: Primary and Secondary, Interpretation of Data –Techniques of Analysis and Precautions in Interpretation. Qualitative Research Tools: Depth Interviews Focus Groups and Projective Techniques; Measurement & Scaling: Primary Scale of Measurement – Nominal, Ordinal, Interval and Ratio. Sampling: Sampling Techniques, Determination of Sample Size, Introduction to Statistical Tests: Parametric and Non Parametric and Report Writing.

The teacher is expected to use leading pedagogical approaches in the classroom situation, lectures, case study analysis, group discussions, assignments writing and tests, innovative instructional methods, use of technology and comprehensive assessment practices to strengthen the teaching efforts.

Suggested Readings:

1. Zikmund, Babin & Carr: *Business Research Methods*, South – Western.
2. Cooper & Schindler: *Business Research Methods,* McGraw Hill Education,

3. Churchilll: *Marketing Research*: Methodological Foundations, Cengage Learning.
4. Aaker, Kumar, Day – *Marketing Research*. Wiley
5. Naresh Malhotra – *Marketing Research*, Pearson Education
6. S.P. Gupta, *Statistical Methods*, Sultan Chand & Sons,1972

Session 2020-21
BBA-II (Semester-IV)
BBA 4.2 FINANCIAL MANAGEMENT

Teaching Hours per week: 5 **Max Marks: 100**
Time Allowed: 3 Hrs. **Internal Assessment: 40 Marks**
Pass marks: 35% **External Assessment: 60 Marks**
Credits: 6:5H(L)+1H(T)

Objective: To develop a conceptual clarity and basic understanding of the fundamentals of corporate finance among the students. So that it could be benefited in their future for the practical applicability in the corporate world.

Course Learning Outcomes: After completion of the course, the students shall be able:

CO1: Apply financial data for use in decision making by applying financial theory to problems faced by business enterprises.
CO2: Apply modern techniques in capital budgeting analysis.
CO3: Assess dividend policy's impact on share prices and to understand the implications of dividend decisions in financial decision making.

INSTRUCTIONS FOR PAPER SETTER/EXAMINERS

The question paper will consist of three sections A, B and C. Section A and B will have four questions each from Unit - 1 and Unit –II respective, will carry 10 marks each. Section C will consist of 12 short answer type question covering entire syllabus and will carry 2 marks each. Total weightage of section – C shall be 20 marks.

INSTRUCTIONS FOR CANDIDATES

Candidates are required to attempt two questions each from Section A and B. In Section C candidates are required to attempt any ten questions.

UNIT – I

Meaning of Business Finance, Aims, Scope and significance of finance function, Profit vs. wealth maximization decisions, Financial Planning. Sources of Company Finance- Long Term and Short term, Capital Structure: Concept, Theories and Valuation.

UNIT – II

Capital Budgeting, Planning of Capital expenditure, Methods of Capital Budgeting, Dividend: Meaning, Determination, Types of Dividends. Dividend Policies Cost of Capital: Methods of calculating Cost of various components of Capital. Working Capital-Meaning, Types estimation, factor determining working capital requirements.

PEDAGOGY:

The teacher is expected to use leading pedagogical approaches in the classroom situation, lectures, case study analysis, group discussions, assignments writing and tests, innovative instructional methods, use of technology and comprehensive assessment practices to strengthen the teaching efforts.

Suggested Readings:

1. Srivastva, R.M., *Essentials of Business Finance*,Himalaya Publishing House.

2. Pandey, I.M.,*Financial Management,*Vikas Publishing House Pvt. Ltd.

3. Maheshwari, S.N, *Financial Management – Principles & Practice*, Sultan Chand & Sons.

4. Khan, M.Y.and Jain P.K, *Financial Management,Text, Problems & Cases",* Tata McGraw Hill Company

Session 2020-21
BBA-II (Semester-IV)
BBA 4.4 E-COMMERCE

Teaching Hours per week: 5	**Max Marks: 100**
Time Allowed: 3 Hrs.	**Internal Assessment: 40 Marks**
Pass marks: 35%	**External Assessment: 60 Marks**
Credits: 6:5H(L)+1H(T)	

Objective: The subject aims to familiarize the student with the basic concept of e-commerce and to provide them the knowledge of planning, scheduling and controlling a successful e- business.

Course Learning Outcomes: After completion of the course the students will be able to understand:
CO1: To understand the basic concepts of E- commerce.
CO2: To know about the Regulation of certifying authorities and awareness of cyber crimes

INSTRUCTIONS FOR THE PAPER SETTER/ EXAMINERS

The question paper will consist of three sections A, B and C. Section A and B will have four questions each from unit -I and Unit -II respectively, will carry 10 Marks each. Section -C will consist of 12 short answer type questions covering entire syllabus and will carry 2 Marks each. Total weightage of Section-C shall be 20 marks.

INSTRUCTIONS FOR CANDIDATES

Candidates are required to attempt two questions each from Section A and B. In Section C candidates are required to attempt any ten questions.

UNIT -I

Meaning, nature, concepts, advantages, disadvantages and reasons for transacting online, types of E-commerce, E-Commerce Business models (Introduction, key elements of business model and categorising major E-Commerce Business models), forces behind e-commerce. Technology used in e-commerce**:** The dynamics of World Wide Web and internet (meaning, evolution and features)
IT Act 2008: Definitions, digital signature, Electronic governance, attribution, acknowledgment and dispatch of electronic records, Regulation of certifying authorities, Digital signature certificate, Duties of subscribe Penalties and adjudication, Appellate Tribunal, Offences and Cyber crimes.

UNIT-II

Models and methods of E-payments(Debit card, Credit card, Smart card, e-money, wallets and UPS), Digital signatures (Procedure, working and legal position), payment gateways, online banking (meaning, concepts, importance, electronic fund transfer, automated clearing house, automated ledger posting), risks involved in e-payments. Meaning, purpose, advantages and disadvantages of transacting online, E-Commerce application in various Industries like {banking, insurance payment of utility bills, online marketing, e-tailing (popularity, benefits, problems and features), online services (financial, travel and career), auctions, online portal, online learning, publishing and entertainment} Online shopping(Amazon, snap deal, alibaba, flipkart etc.)

PEDAGOGY: The teacher is expected to use leading pedagogical approaches in the classroom situation, lectures, case study analysis, group discussions, assignments writing and tests, innovative instructional methods, use of technology and comprehensive assessment practices to strengthen the teaching efforts.

Suggested Readings:

1. Kenneth C. Laudon and Carlo Guercio I. raver, *E-Commerce*, Pearson Education.
2. David Whiteley, *E-commerce: Strategy Technology and Applications*, Me Cro
3. Rharat Rhaskar, *Electronic Commerce: Framework, Technology and Application* ,McGraw Hill Education
4. P.T. Joseph, *E-Commerce: An Indian Perspective,* PHI Learning
5. KK Bajaj and Debjani Nag, *E-commerce*, McGraw Hill Education.
6. T.N. Chhabra, *E-Commerce*, Dhanpat Rai & Co.
7. Sushila Madan, *E-Commerce*, Taxmann

Session 2020-21
BBA-II (Semester-IV)
BBA 4.5: BUSINESS ENVIRONMENT

Teaching Hours per week: 5 **Max Marks: 100**
Time Allowed: 3 Hrs. **Internal Assessment: 40 Marks**
Pass marks: 35% **External Assessment: 60 Marks**
Credits: 6:5H(L)+1H(T)
Objective: The main objective is to develop knowledge base for Environment factors affecting Business.

Course Learning Outcomes: After studying this paper students will:

CO1: Aware regarding environmental problems related to Business and Commerce.
CO2: The students will come to know the Environmental ethics and this paper inculcate values in them.
CO3: To understand the current economic conditions in developing emerging markets, and evaluate present and future opportunities.

INSTRUCTIONS FOR PAPER SETTER / EXAMINERS

The question paper will consist of three sections A, B and C. section A and B will have four questions each from Unit- I and Unit –Ii respectively , will carry 10 marks each. Section C will consist of 12 short answer type questions covering entire syllabus and will carry 2 marks each. Total weightage of Section C shall be 20 marks.

INSTRUCTIONS FOR CANDIDATES

Candidates are required to attempt two questions each from Section A and B. In Section C candidates are required to attempt any ten questions**.**

UNIT –I

Business Environment: Concept, Importance and components, Internal and External Environment, Analysis of Business Environment, Economic Trends (an overview): National Income, Saving and Investment. Recent trends in Price and Inflation: types, effects, causes, measures to control and suggestions. Indian Economic Planning: Basic Strategy of Indian Planning; Achievements and failures of Indian planning.

UNIT- II

Economic Environment-Elements of Economic Environment, Economic systems: Capitalism, socialism and Mixed Economy; Role of Government: Growth and performance of Public and Private Sector; Monetary and Fiscal Policy. Socio- Cultural Environment: Social Responsibility of Business, Introduction and Concept of Make in India.

PEDAGOGY:

The teacher is expected to use leading pedagogical approaches in the classroom situation, lectures, case study analysis, group discussions, assignments writing and tests, innovative instructional methods, use of technology and comprehensive assessment practices to strengthen the teaching efforts.

Suggested Readings:

1. Aswathappa, K: Essentials of Business Environment-Text, Cases and Exercises -Himalya Publishing House

2. Francis Cherunilam, *Business Environment – Text and Cases*, Himalaya Publishing House.

3. Paul, Justin-*Business Environment- Text and Cases*- McGraw Hill Education.

4. Ramachandara, Archana and Ravi- *Business Environment*, Himalaya Publishing House Pvt. Ltd.

Session 2020-21

B. Voc. Retail Management – II (Semester - IV)

BVRM 406: SEMINAR ON ENTREPRENEURSHIP SKILLS

Teaching Hours per week: 3 Max.

Marks: 50 Time Allowed: 3 Hrs

Internal Assessment: 50 Marks Pass Marks: 35% Credit: 3

Objective: This paper is aimed at providing students with a Entrepreneurship skills Course **Learning Outcomes:** After completing the course, the student shall be able to: The basic objective of the course is to introduce the students to the conceptual knowledge of business and non-business majors with the skills necessary to succeed as an entrepreneur. The fundamentals of starting and operating a business, developing a business plan, obtaining financing, marketing a product or service and developing an effective accounting system will be covered.

Course Contents: Entrepreneurship – Concept, Functions, Need and Importance, Entrepreneurship – The Indian Scenario, ; role and functions of entrepreneur in economic development; economic, social and psychological need for entrepreneurship; Emergence of Entrepreneurial Class; Financing the Entreprenuerial business : Arrangement of funds; Traditional and modern sources of financing, Venture capital. Promotion of a Venture: Opportunities analysis; External environment analysis, Economic, Social and Technological analysis. Entrepreneurial Development programmes (EDP): role, relevance and achievements; Role of government in organizing EDPs; Critical evaluation. Women Entrepreneurship: Need, Growth and development of women Entrepreneurship, Problems faced by Women Entrepreneurs.

INSTRUCTIONS FOR THE CANDIDATE: English and Punjabi will be the medium of instruction and examination.• This course will carry 50 marks which shall be reserved for internal assessment.• The internal assessment marks shall be based on factors such as: (a) Report (20 marks),• Presentation (20 marks), and Attendance and class Participation (10 marks). The minimum marks for passing the examination shall be 35 %

- **Suggested Readings:**

1. Vasant Desai: Dynamics of Entrepreneurial Development and Management

2. SS Khanka: Entrepreneurial Development

3. Bhanu Murthy, K. V. and Usha Krishna: Politics Ethics and Social Responsibilities of Business, Pearson Education, New Delhi.

PHC-1.1.2: MECHANICS

Maximum Marks: 100 (4 Credits)	**Time Allowed: 3 Hours**
External Examination: 75	**Pass Marks: 40 %**
Internal Assessment: 25	**Teaching Hours: 60**

25 marks internal assessment will be based on two mid-semester tests, class tests, written assignments, project work etc. and lecture attendance.

Instruction for the Paper Setter: The question paper will consist of three sections A, B and C. Sections A and B will have four questions from respective sections of the syllabus and Section C will have 9 short answer type questions, which will be set from the entire syllabus uniformly. Each question of sections A and B will carry 12 marks and section C carries 27 marks.

Instruction for the candidates: The candidates are required to attempt any two questions out of four from each sections A and B and the entire section C of the question paper. Each question of sections A and B carries 12 marks and section C carries 27 marks. Use of scientific calculator is allowed.

SECTION A

Co-ordinates: Cartesian co-ordinate system, displacement, velocity, and acceleration of a particle moving in a plane and space in Cartesian co-ordinate system, spherical polar co-ordinate system, displacement, velocity, and acceleration of a particle moving in space in spherical co-ordinate system, solid angle.

Rotational Dynamics: Rigid body, Rotational Inertia, Moment of Inertia of a rigid body, Radius of gyration, Angular momentum, Torque, Theorems of parallel and perpendicular axes, Moment of inertia of rectangular lamina, circular ring, circular disc. Equation for rotational motion of a rigid body, Angular momentum of a rigid body about principal axes, precession, elementary gyroscope and applications of gyroscope (qualitative).

Collision: Elastic and Inelastic collisions, Laboratory and Centre-of Mass co-ordinate systems, Elastic collision in Lab and CM frame of references, Relationship between angles of scattering in Lab and Centre-of-Mass systems for elastic collision in two dimensions, Relation between Recoil Angle in Lab system and Scattering angle in Centre-of Mass system, Cross section for elastic scattering, Impact parameter, Rutherford scattering.

SECTION B

Frames of Reference: Inertial and Non-inertial Frame of Reference, Galilean Transformations, Galilean Invariance of Space and Time Intervals, Transformation of velocity and acceleration under Galilean Transformations, Invariance of Newton’s Laws of motion, Non-inertial frames and fictitious forces, Fictitious forces in non-inertial frame having translational accelerated motion, Fictitious forces in non-inertial frame having uniform rotational motion, Effect of Coriolis force on a particle freely falling under gravity, Effect of Coriolis force on the particle moving on the surface of earth, Geographical consequences of Coriolis force, Foucault pendulum (qualitative).

Special Theory of Relativity: Ether Hypothesis, Michelson-Morley experiment, Postulates of Special Theory of Relativity, Lorentz Transformations, Lorentz contraction. Time dilation, Relativistic addition of velocities, Relativistic Doppler Effect, Variation of Mass with Velocity, Mass-energy Equivalence, Relativistic Energy and momentum, Lorentz Transformation of Energy and Momentum, Minkowski Space.

Text Book:

1. Analytical Mechanics, Satish K. Gupta, Modern Publications, Jalandhar
2. Mechanics, Dr. A.K. Sikri, Paradeep Publications, Jalandhar

Reference Books:

1.
2. An introduction to mechanics, D. Kleppner, R.J. Kolenkow, 1973, McGraw-Hill.
3. Analytical Mechanics, G.R. Fowles and G.L. Cassiday. 2005, Cengage Learning.
4. Feynman Lectures, Vol. I, R.P.Feynman, R.B.Leighton, M.Sands, 2008, Pearson Education
5. Introduction to Special Relativity, R. Resnick, 2005, John Wiley and Sons.
6. University Physics, Ronald Lane Reese, 2003, Thomson Brooks/Cole.

PHC-2.1.1: MATHEMATICAL PHYSICS - II

Maximum Marks: 100 (4 Credits) **Time Allowed: 3 Hours**
External Examination: 70 (Pass Marks: 28) **Pass Percentage: 40%**
Internal Assessment: 30 (Pass Marks: 12) **Teaching Hours: 60**

30 marks internal assessment will be based on two mid-semester tests, class tests, written assignments, project work etc. and lecture attendance.

30 marks internal assessment will be based on two mid-semester tests, class tests, written assignments, project work etc. and lecture attendance.

Instruction for the Paper Setter: The question paper will consist of three sections A, B and C. Sections A and B will have four questions from respective sections of the syllabus and Section C will have 11 short answer type questions, which will be set from the entire syllabus uniformly. Each question of Sections A and B will carry 12 marks and each question of section C carries 2 marks.

Instruction for the candidates: The candidates are required to attempt any two questions out of four from each Section A and B and the entire Section C of the question paper. Each question of sections A and B carries 12 marks and Section C carries 22 marks. **Use of scientific calculator is allowed.**

Course Objective: The purpose of the course is to introduce students to methods of mathematical physics and to develop required mathematical skills to solve problems in quantum mechanics, electrodynamics and other field of physics.

Instructional delivery strategy: The course will be taught using lectures followed up by homework assignments and periodic tests. Discussions of course topics during lectures are encouraged.

Section A

Fourier Series: Periodic functions. Orthogonality of sine and cosine functions, Dirichlet Conditions (Statement only).Expansion of periodic functions in a series of sine and cosine functions and determination of Fourier coefficients. Complex representation of Fourier series. Expansion of functions with arbitrary period. Expansion of non-periodic functions over an interval. Even and odd functions and their Fourier expansions. Application. Summing of Infinite Series. Term-by-Term differentiation and integration of Fourier Series. Parseval Identity.

Legendre and Bessel Functions: Properties of Legendre Polynomials: Rodrigues Formula, Generating Function, Orthogonality. Simple recurrence relations. Expansion of function in a series of Legendre Polynomials. Bessel Functions of the First Kind: Generating Function, simple recurrence relations. Zeros of Bessel Functions ($J_o(x)$ and $J_1(x)$) and Orthogonality.

Section B

Some Special Integrals: Beta and Gamma Functions and Relation between them. Expression of Integrals in terms of Gamma Functions. Error Function (Probability Integral).

Theory of Errors: Systematic and Random Errors. Propagation of Errors. Normal Law of Errors. Standard and Probable Error. Least-squares fit. Error on the slope and intercept of a fitted line.

Partial Differential Equations: Solutions to partial differential equations, using separation of variables: Laplace's Equation in problems of rectangular, cylindrical and spherical symmetry. Wave equation and its solution for vibrational modes of a stretched string, rectangular and circular membranes. Diffusion Equation.

Course learning outcome: Students will have achieved the ability to:

1. Use of Fourier series in various problems
2. Use and solution of Legendre and Bessel polynomials
3. Describe special function and their recurrence relations
4. Explain beta and gamma functions
5. Explain the error theory and its various laws
6. Describe the partial differential equations and its applications

Reference Books:

1. Mathematical Methods for Physicists: Arfken, Weber, 2005, Harris, Elsevier.
2. Fourier Analysis by M.R. Spiegel, 2004, Tata McGraw-Hill.
3. Mathematics for Physicists, Susan M. Lea, 2004, Thomson Brooks/Cole.
4. Differential Equations, George F. Simmons, 2006, Tata McGraw-Hill.
5. Partial Differential Equations for Scientists & Engineers, S.J. Farlow, 1993, Dover Pub.
6. Engineering Mathematics, S.Pal and S.C. Bhunia, 2015, Oxford University Press
7. Mathematical methods for Scientists & Engineers, D.A. McQuarrie, 2003, Viva Books

PHC-2.1.1P: MATHEMATICAL PHYSICS-III LAB

Maximum Marks: 50 (2 Credits) **Time Allowed: 3 Hours**
Pass Marks: 40% (20 Marks) **Teaching Hours: 60**

Instructions: The candidate will mark any four programs on the question paper and the examiner will allot one of these four programs to be executed. The distribution of marks is given below:

1. One full program requiring the student to write algorithm and execution. (30)
2. Viva-Voce (10)
3. Record (Practical File) (10)

Course Objective: The aim of this Lab is to use the computational methods to solve physical problems. Course will consist of lectures (both theory and practical) in the Lab. Evaluation done not on the programming but on the basis of formulating the problem. Scilab based simulation experiments based on Mathematical Physics problems like (any 7-8 programs)

1. Solve differential equations:

$$\frac{dy}{dx} = e^{-x}\ with\ y = 0\ for\ x = 0$$

$$\frac{dy}{dx} + e^{-x}y = x^2$$

$$\frac{d^2y}{dt^2} + 2\frac{dy}{dt} = -y$$

$$\frac{d^2y}{dt^2} + e^{-1}\frac{dy}{dt} = -y$$

2. Dirac Delta Function:
   Evaluate $\frac{1}{\sqrt{2\pi\sigma^2}}\int e^{-(x-2)^2}\,(x+3)dx, for\ \sigma = 1, 0.1, 0.01$ and show it tends to 5.
3. Fourier Series:
   Program to sum $\sum_{n=1}^{\infty}(0.2)^n$
   Evaluate the Fourier coefficients of a given periodic function (square wave)
4. Frobenius method and special functions:

$$\int_{-1}^{+1} P_n(\mu)P_m(\mu)d\mu = \delta_{n,m}$$

$$Plot\ P_n(x), j_v(x)$$

5. Calculation of error for each data point of observations recorded in Experiments done in previous semesters (choose any two).
6. Calculation of least square fitting manually without giving weightage to error.
   Confirmation of least square fitting of data through computer program.

7. Evaluation of trigonometric function e.g. $sin\theta$, Given Bessel's function at N points find its value at an intermediate point. Complex analysis: Integrate $\frac{1}{x^2+2}$ numerically and check with computer integration.
8. Compute the n^{th} roots of unity for n = 2, 3, and 4
9. Find the two square roots of $-5 + 12j$
10. Integral transform: FFT of (exp(x^2)
11. Solve Kirchoff's current law for any node of an arbitrary circuit using Laplace's transform.
12. Solve Kirchoff's voltage law for any node of an arbitrary circuit using Laplace's transform.
13. Perform circuit analysis of a general LCR circuit using Laplace's Transform.

Reference Books:

1. Mathematical Methods for Physics and Engineers, K.F Riley, M.P. Hobson and S. J. Bence, 3rd ed., 2006, Cambridge University Press.
2. Complex Variables, A.S. Fokas & M.J. Ablowitz, 8th Ed., 2011, Cambridge Univ. Press
3. First course in complex analysis with applications, D.G. Zill and P.D. Shanahan, 1940, Jones & Bartlett
4. Computational Physics, D.Walker, 1st Edn., 2015, Scientific International Pvt. Ltd.
5. A Guide to MATLAB, B.R. Hunt, R.L. Lipsman, J.M. Rosenberg, 2014, 3rd Edn., Cambridge University Press
6. Simulation of ODE/PDE Models with MATLAB®, OCTAVE and SCILAB: Scientific and Engineering Applications: A.V. Wouwer, P. Saucez, C.V. Fernández. 2014 Springer
7. Scilab by example: M. Affouf 2012, ISBN: 978-1479203444
8. Scilab (A free software to Matlab): H.Ramchandran, A.S.Nair. 2011 S.Chand& Company
9. Scilab Image Processing: Lambert M. Surhone. 2010 Betascript Publishing
10. www.scilab.in/textbook_companion/generate_book/291

PHC-2.1.2: THERMAL PHYSICS

Maximum Marks: 100 (4 Credits)		**Time Allowed: 3 Hours**
External Examination:	**70 (Pass Marks: 28)**	**Pass Percentage: 40%**
Internal Assessment:	**30 (Pass Marks: 12)**	**Teaching Hours: 60**

30 marks internal assessment will be based on two mid-semester tests, class tests, written assignments, project work etc. and lecture attendance.

Instruction for the Paper Setter: The question paper will consist of three sections A, B and C. Sections A and B will have four questions from respective sections of the syllabus and Section C will have 11 short answer type questions, which will be set from the entire syllabus uniformly. Each question of Sections A and B will carry 12 marks and each question of section C carries 2 marks.

Instruction for the candidates: The candidates are required to attempt any two questions out of four from each Section A and B and the entire Section C of the question paper. Each question of sections A and B carries 12 marks and Section C carries 22 marks. **Use of scientific calculator is allowed.**

Course Objectives:

1. To familiarize them with the various laws of thermodynamics and their applications.
2. To have knowledge of entropy and heat engines.
3. Familiarize with various thermodynamic potentials and application to Clausius-Clapeyorn equation and Joule's-Thomson Effect.
4. To acquaint the concept Kinetic Theory of Gases**.**

Instructional delivery strategy: The course will be taught using lectures followed up by homework assignments and periodic tests. Discussions of course topics during lectures are encouraged.

Section A

Introduction to Thermodynamics: Zeroth and First Law of Thermodynamics: Concept of Heat and Work, Thermodynamic Variables, Thermodynamic Equilibrium, Zeroth Law of Thermodynamics, Equation of State, State Functions, Various Thermodynamical Processes, First Law of Thermodynamics and its Differential Form, Applications and Limitations of First Law. (Book 1).

Second Law of Thermodynamics: 2nd Law of Thermodynamics: Kelvin-Planck and Clausius Statements and their Equivalence. Reversible and Irreversible process with examples. Conversion of Work into Heat and Heat into Work: Heat Engines. General Relation between C_P and C_V, Work Done during Isothermal and Adiabatic Processes Cyclic thermodynamic Processes, Carnot engine & efficiency. Refrigerator & coefficient of performance, Thermoelectric Effect, Peltier Effect, Thomson Effect (Book 2).

Section B

Entropy: Concept of Entropy, Additive nature of entropy, Entropy Changes in Reversible and Irreversible processes with examples. Clausius Theorem. Clausius Inequality, Carnot's Theorem. Temperature–Entropy diagrams for Carnot's Cycle, Principle of Increase of Entropy, Heat death of the Universe. Third Law of Thermodynamics. Unattainability of Absolute Zero (Book 3).

Maxwell's Thermodynamic Relations: Thermodynamic Potentials: Internal Energy, Enthalpy, Helmholtz Free Energy, Gibb's Free Energy, Their Definitions and Properties. Maxwell's thermodynamic relations, Application to Clausius- Clapeyorn equation and Joule's-Thomson Effect, Thomson and Adiabatic Cooling, Expression for ($C_P – C_V$), C_P/C_V, TdS equations. Liquefaction of gases. Low temperatures: Production and measurement of very low temperatures, Adiabatic Demagnetization (Book 1 &Book 4).

Kinetic Theory of Gases, Distribution of Velocities, Mean free path (Zeroth Order), Transport Phenomena: Viscosity, Conduction and Diffusion. Brownian Motion and its Significance (Only Theory) (Book1).

Course learning outcome: On successful completion of this course, students will be able to:

1. Understand the laws of thermodynamics, entropy, and Maxwell's thermodynamic relations etc.
2. Acknowledge the concept Heat Engines, application to Clausius- Clapeyorn equation and Joule's-Thomson effect
3. Understand the basics of Kinetic theory of gases-distribution of velocities etc.

Text Books:

1) Statistical Physics and Thermodynamics-V.S. Bhatia, Punjab University, Chandigarh, 1977.
2) Thermal Physics, A. Kumar and S.P. Taneja, 2014, R. chand Publications.
3) Thermodynamics and Statistical Physics - khandelwal and Loknathan, Shivlal Agnawala, Agna, 1979.
4) Concepts in Thermal Physics, S.J. Blundell and K.M. Blundell, 2nd Ed., 2012, Oxford University Press

Reference Books:

1) Heat and Thermodynamics, M.W. Zemansky, Richard Dittman, 1981, McGraw-Hill.
2) A Treatise on Heat, Meghnad Saha, and B.N.Srivastava, 1958, Indian Press
3) Thermal Physics, S. Garg, R. Bansal and Ghosh, 2nd Edition, 1993, Tata McGraw-Hill

PHC-2.1.2P: THERMAL PHYSICS LAB

Maximum Marks: 50 (2 Credits) **Time Allowed: 3 Hours**
Pass Marks: 40% (20Marks) **Teaching Hours: 60**

Instructions: The candidate will mark any four programs on the question paper and the examiner will allot one of these four programs to be executed. The distribution of marks is given below:

1. One full program requiring the student to write algorithm and execution. (30)
2. Viva-Voce (10)
3. Record (Practical File) (10)

Experimental Skills: General Precautions for measurements and handling of equipment, Presentation of measurements, Fitting of given data to a graph, Results with proper Significant Figures and Limits of Error, Interpretation of results etc.

List of Experiments:

1. Measurement of Planck's constant using black body radiation.
2. To determine Stefan's Constant.
3. To study the adiabatic expansion of a gas and hence to calculate the value of ratio between two specific heats of the gas.
4. To determine the Coefficient of Thermal Conductivity of Cu by Searle's Apparatus.
5. To determine the Coefficient of Thermal Conductivity of Cu by Angstrom's Method.
6. To determine the Coefficient of Thermal Conductivity of a bad conductor by Lee's disc method.
7. To determine the Temperature Coefficient of Resistance by Platinum Resistance Thermometer (PRT).
8. To study the variation of Thermo-emf of a Thermocouple with Difference of Temperature of its Two Junctions.
9. To record and analyze the cooling temperature of hot object as a function of time using a thermocouple and suitable data acquisition system
10. To determine the heating efficiency of an electric kettle with varying voltages.
11. To determine the coefficient of linear expansion for different metals and alloys.

Text Books

1) A Laboratory Manual of Physics for undergraduate classes, D.P. Khandelwal, 1985, Vani Pub.

2) B.Sc. Practical Physics, C.L Arora, S. Chand Pub.
3) Advanced Practical Physics for students, B. L. Flint and H.T. Worsnop, 1971, Asia Publishing House.

Reference Books

1) A Text Book of Practical Physics, I. Prakash & Ramakrishna, 11th Ed., 2011, Kitab Mahal
2) Advanced level Physics Practicals, Michael Nelson and Jon M. Ogborn, 4th Edition, reprinted 1985, Heinemann Educational Publishers

PHC-2.1.3: ANALOG SYSTEMS AND APPLICATIONS

Maximum Marks: 100 (4 Credits) **Time Allowed: 3 Hours**
External Examination: 70 (Pass Marks: 28) **Pass Percentage: 40%**
Internal Assessment: 30 (Pass Marks: 12) **Teaching Hours: 60**

30 marks internal assessment will be based on two mid-semester tests, class tests, written assignments, project work etc. and lecture attendance.

Instruction for the Paper Setter: The question paper will consist of three sections A, B and C. Sections A and B will have four questions from respective sections of the syllabus and Section C will have 11 short answer type questions, which will be set from the entire syllabus uniformly. Each question of Sections A and B will carry 12 marks and each question of section C carries 2 marks.

Instruction for the candidates: The candidates are required to attempt any two questions out of four from each Section A and B and the entire Section C of the question paper. Each question of sections A and B carries 12 marks and Section C carries 22 marks. **Use of scientific calculator is allowed.**

Course Objectives: The main objective of the course is to provide knowledge of basic semiconducting devices such as diodes, transistors, amplifiers, oscillators and their applications.

Section A

Semiconductor Diodes: P and N type semiconductors. Energy Level Diagram. Conductivity and Mobility, Concept of Drift velocity.PN Junction Fabrication (Simple Idea Only). Barrier Formation in PN Junction Diode. Static and Dynamic Resistance. Current Flow Mechanism in Forward and Reverse Biased Diode.

Two-terminal Devices and their Applications: (1) Rectifier Diode: Half-wave Rectifiers. Centre-tapped and Bridge Full-wave Rectifiers, Calculation of Ripple Factor and Rectification Efficiency, π-filter (2) Zener Diode and Voltage Regulation. Principle and structure of (1) LEDs, (2) Photodiode and (3) Solar Cell.

Bipolar Junction transistors: n-p-n and p-n-p Transistors. Characteristics of CB, CE and CC Configurations. Physical Mechanism of Current Flow. Active, Cutoff and Saturation Regions. Current gains α and β, Relations between α and β. DC Load line and Q-point.

Section B

Amplifiers: Transistor Biasing and Stabilization Circuits. Fixed Bias and Voltage Divider Bias. Transistor as 2-port Network. h-parameter Equivalent Circuit. Analysis of a single-stage CE amplifier using Hybrid Model. Input and Output Impedance. Current, Voltage and Power Gains.

Coupled Amplifier: Two stage RC-coupled amplifier and its frequency response.

Feedback in Amplifiers: Voltage and current feedback. Stabilization of gain and reduction of non-linear distortion by negative feedback.

Sinusoidal Oscillators: Barkhausen's Criterion for self-sustained oscillations. Determination of Frequency, Hartley & Colpitts oscillators.

Operational Amplifiers (Black Box approach): Characteristics of an Ideal and Practical Op-Amp. (IC 741) Open-loop and Closed-loop Gain. Frequency Response. CMRR. Slew Rate and concept of Virtual ground. Applications of Op-Amps: (1) Inverting and non-inverting amplifiers, (2) Adder, (3) Subtractor.

Course learning outcome: Students will have achieved the ability to:

1. To understand fundamentals of semiconducting diodes, rectifier diodes, zener diode and applications.
2. To understand about Bipolar Junction Transistor.
3. To understand basic function of single stage amplifier, multistage amplifier and power Amplifier and their working principle.
4. To understand basic construction of feedback circuits and their application in Oscillators
5. To understand basic amplifier and oscillator circuits and their application in analog circuits.
6. To understand Operational Amplifier and its applications.

Text Books:

1. Basic Electronics and Linear Circuits by N. N. Bhargave, D.C. Kulshreshtha and S. C. Gupta
2. Electronic Devices and Circuits: J. B. Gupta (Publ. KATARIA & SONS)
3. Electronic Devices and Circuits: G. K. Mithal, Khanna Publishers
4. Fundamentals of Electronics by D. Chatopadhyay, P.C. Rakshit, B. Saha and N.N.Purkit.
5. OP-Amps and Linear Integrated Circuit, R. A. Gayakwad, 4th edition, 2000, Prentice Hall

Reference Books:

1. Integrated Electronics, J. Millman and C.C. Halkias, 1991, Tata Mc-Graw Hill.
2. Electronics: Fundamentals and Applications, J.D. Ryder, 2004, Prentice Hall.
3. Solid State Electronic Devices, B.G.Streetman & S.K. Banerjee, 6th Edn.,2009, PHI Learning
4. Semiconductor Devices: Physics and Technology, S.M. Sze, 2nd Ed., 2002, Wiley India
5. Electronic Devices, 7/e Thomas L. Floyd, 2008, Pearson India

PHC-2.1.3P: ANALOG SYSTEMS AND APPLICATIONS LAB

Maximum Marks: 50 (2 Credits) **Time Allowed: 3 Hours**
Pass Marks: 40% (20 Marks) **Teaching Hours: 60**

Instructions: The candidate will mark any four programs on the question paper and the examiner will allot one of these four programs to be executed. The distribution of marks is given below:

1. One full program requiring the student to write algorithm and execution. (30)
2. Viva-Voce (10)
3. Record (Practical File) (10)

Experimental Skills: General Precautions for measurements and handling of equipment, Presentation of measurements, Fitting of given data to a graph, Results with proper Significant Figures and Limits of Error, Interpretation of results etc.

List of experiments:

1. To study V-I characteristics of PN junction diode.
2. To find the energy band gap of semiconductor material of a PN junction diode.
3. To study the characteristics of a Light Emitting diode (LED).
4. To study the V-I characteristics of a Zener diode and its use as voltage regulator.
5. To determine the resistivity and band gap of a semiconductor by four probe method at different temperatures.
6. To study the reduction of ripples in the rectified output with RC, LC and π filters.
7. To measure the efficiency and ripple factor for (1) Half wave, (2) full wave rectifier circuits.
8. Study of V-I & power curves of solar cells, and find maximum power point & efficiency.
9. To study the characteristics of a Bipolar Junction Transistor in CE configuration.
10. To plot common base characteristics and determine h-parameters of a given transistor.
11. To study the frequency response of voltage gain of a RC-coupled transistor amplifier.
12. To study the Hartley oscillator.
13. To design inverting amplifier using Op-amp (741,351) and study its frequency response
14. To design non-inverting amplifier using Op-amp (741,351) & study its frequency response
15. To add two dc voltages using Op-amp in inverting and non-inverting mode

Reference Books:

1. Basic Electronics: A text lab manual, P.B. Zbar, A.P. Malvino, M.A. Miller, 1994, Mc-Graw Hill.
2. OP-Amps and Linear Integrated Circuit, R. A. Gayakwad, 4th edition, 2000, Prentice Hall.
3. Electronic Principle, Albert Malvino, 2008, Tata Mc-Graw Hill.
4. Electronic Devices & circuit Theory, R.L. Boylestad& L.D. Nashelsky, 2009, Pearson

SKILL ENHANCEMENT COURSE-1

PHC-2.1.4: RADIATION SAFETY

Maximum Marks: 50 (Credit: 02) **Time: 3 Hours**
Pass Marks: 40% (20 Marks) **Teaching Hours: 45**

OBJECTIVE

To know the general concepts of Interaction of Radiation with Matter: Types of Radiation, Radiation Detection and Monitoring Devices, Radiation Quantities and Units and Radiation Safety Management.

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will be set by appointed external examiner (Subject Expert) on the day of exam and the distribution of marks will be as under:

1. Theory exam from Section A	-	25 Marks
2. Experiments to be performed from Section B	-	15 Marks
3. Viva-voce	-	5 Marks
4. Note-book	-	5 Marks

Section A

Basic Radiation Physics: Atomic Structure, atomic number, mass number, isotopes, radioisotopes, radioactivity, specific activity, types of radioactive disintegrations, electron capture, characteristics of alpha, beta and gamma rays; energy of ionizing radiations, half-life (physical, biological), effective half-life, isomeric transitions, X-rays (characteristic and Bremsstrahlung) [Qualitative Only]

Interaction of Radiation with matter: Interaction of charged particles with matter, bremsstrahlung, range of charged particles, interaction of photon with matter (photoelectric, Compton scattering and pair production), absorption, scattering and attenuation of photons, Half Value Thickness (HVT) and tenth value Thickness (TVT)**.** [Qualitative Only]

Radiation Quantities and Units: Activity (Becquerel & Curie), energy, exposure (C/kg & Roentgen), Linear energy transfer (LET), air kerma, absorbed dose (Gray & rad), radiation weighting factors (WR), tissue weighting factors (WT), equivalent dose (Sievert & rem), effective dose (Sievert & rem), collective effective dose (Person Sv), Annual Limit of Intake {ALI} (Bq) and Derived Air Concentration {DAC} (Bq/m^3).

Biological Effects of Radiation: Interaction of radiation with cell, direct and indirect interactions, effect of radiation on living cells, chromosomal aberration, somatic and genetic effects, deterministic and stochastic (probabilistic) effects, partial body and whole body exposures. [Qualitative Only]

Operational Limits: Introduction to natural background radiation, concept of occupational risk, philosophy of radiation protection, system of dose limitation, ALARA, dose limits to radiation workers and general public, AERB/ICRP recommendations.

Radiation detection: Basic concept and working principle of gas detectors (Ionization Chambers, Proportional Counter, and Geiger Muller Counter), Scintillation Detectors, Solid States Detectors and Thermo luminescent Dosimetry. [Basic Idea Only]

Section B

Experiments:

1. Study the background radiation levels using Radiation meter

   Characteristics of Geiger Muller (GM) Counter:

2. Study of characteristics of GM tube and determination of operating voltage and plateau length using background radiation as source (without commercial source).
3. Study of counting statistics using background radiation using GM counter.
4. Study of radiation in various materials (e.g. KSO_4 etc.). Investigation of possible Radiation in different routine materials by operating GM at operating voltage.
5. Study of absorption of beta particles in Aluminum using GM counter.
6. Detection of α particles using reference source & determining its half-life using spark counter
7. Gamma spectrum of Gas Light mantle (Source of Thorium)

Course learning outcome:

1. Be aware and understand the hazards of radiation and the safety measures to guard against these hazards.
2. Have a comprehensive knowledge about the nature of interaction of matter with radiations like gamma, beta, alpha rays, neutrons etc. and radiation shielding by appropriate materials.
3. Know about the units of radiations and their safety limits, the devises to detect and measure radiation, such as the Geiger-Mueller counter and scintillation counters.
4. The students are expected to learn radiation safety management, biological effects of ionizing radiation, operational limits and basics of radiation hazards evaluation and control, radiation protection standards, ‘International Commission on Radiological Protection’ (ICRP) its principles, justification, optimization, limitation, introduction of safety and risk management of radiation. Nuclear waste and disposal management, brief idea about ‘Accelerator driven Sub-critical System’ (ADS) for waste management.
5. The students are expected to do various experiments based on radiation safety.

Text Books

1. An Introduction to Nuclear Physics by M.R. Bhiday and V.A. Joshi (Orient Longman)
2. Introductory Nuclear Physics by D.C. Tayal (Himalaya Pub.)

Reference Books:

1. W.E. Burcham and M. Jobes – Nuclear and Particle Physics – Longman (1995)
2. G.F. Knoll, Radiation detection and measurements
3. F. A Smith, A primer in applied Radiation physics, World scientific Publishing Co. Pvt.

Ltd.

4. J.R. Greening, “Fundamentals of Radiation Dosimetry”, Medical Physics Hand Book Series, No.6, Adam Hilger Ltd., Bristol 1981.
5. Practical Applications of Radioactivity and Nuclear Radiations, G.C. Lowental

PHC-2.2.1: QUANTUM MECHANICS

Maximum Marks: 100 (4 Credits)
External Examination: 70 (Pass Marks: 28)
Internal Assessment: 30 (Pass Marks: 12)

Time Allowed: 3 Hours
Pass Percentage: 40%
Teaching Hours: 60

30 marks internal assessment will be based on two mid-semester tests, class tests, written assignments, project work etc. and lecture attendance.

Instruction for the Paper Setter: The question paper will consist of three sections A, B and C. Sections A and B will have four questions from respective sections of the syllabus and Section C will have 11 short answer type questions, which will be set from the entire syllabus uniformly. Each question of Sections A and B will carry 12 marks and each question of section C carries 2 marks.

Instruction for the candidates: The candidates are required to attempt any two questions out of four from each Section A and B and the entire Section C of the question paper. Each question of sections A and B carries 12 marks and Section C carries 22 marks. **Use of scientific calculator is allowed.**

Course Objectives- The objective of the course on Quantum Mechanics for the student of B.Sc. (Hons.) Physics is to equip them with the knowledge of wave particle duality, Planck's quantum, fundamental of quantum relations, and related problems and applications.

Section A

Origin of Quantum Mechanics: Brief Introduction to Need and Development of Quantum Mechanics, Wave Particle Duality, de-Broglie Hypothesis, Uncertainty Principle and Its Application, Postulates of Quantum Mechanics, Operator Correspondence and Equation for a Particle Subject to Force.

Wave Mechanics: Gaussian Wave Packet, Schrodinger Equation for a Free Particle, Physical Interpretation of Wave Function, Superposition Principle, Expectation Value, probability current and Conservation of Probability, Admissibility Conditions on the Wave Function, Normalization and Orthogonality Property, Ehrenfest Theorem.

Section B

Operators, Eigenvalues and Eigen function: Operators, Eigenvalues and Eigen function, Linear Operators, Hamiltonian Operator, Linear Momentum and Angular Momentum Operators, Product of Two Operators, Commuting and Non-commuting Operators, Simultaneous Eigen functions, Orthogonal Functions, Hermitian Operators, their Eigenvalues, Hermitian Adjoint Operators, Expectation Value of Position and Momentum Operator.

Problems in One Dimension: Time Dependent Schrodinger Equation, Application to Stationary States for One Dimension, Potential Step, Potential Barrier, Rectangular Potential Well, Degeneracy, Orthogonality, Linear Harmonic Oscillator.

Problem in Three Dimensions: Schrodinger Equation for Spherically Symmetric Potential, Spherical Harmonics, Hydrogen Atom Energy Levels and Eigen Functions, Degeneracy, Angular Momentum.

Course learning outcome: Students will have achieved the ability to:

1. The basic laws of quantum and their relations etc.
2. Interpretation of wave function and its properties
3. Solve Schrodinger equation and related problems
4. One and many atom spectra and related phenomenon

Text Books:

1. Concepts of Modern Physics, Arthur Beiser (McGraw Hill Pub. Co., Delhi, 9th ed.), 1995.
2. Elements of Modern Physics, S.H. Patil (McGraw Hill), 1998.

Reference Books:

1. Concepts of Modern Physics, Arthur Beiser, 2009, McGraw-Hill
2. Modern Physics, J.R. Taylor, C.D. Zafiratos, M.A. Dubson,2009, PHI Learning
3. Quantum Mechanics by V.K. Thankappan.
4. Quantum Mechanics Concepts and Applications by NourdineZettili
5. Quantum Physics, Berkeley Physics,Vol.4. E.H. Wichman, 2008, Tata McGrawHill Co.
6. Modern Physics, G. Kaur and G.R. Pickrell, 2014, McGraw Hill

PHC-2.2.2P: QUANTUM MECHANICS LAB

Maximum Marks: 50 (2 Credits) **Time Allowed: 3 Hours**
Pass Marks: 40% (20 Marks) **Teaching Hours: 60**

Instructions: The candidate will mark any four programs on the question paper and the examiner will allot one of these four programs to be executed. The distribution of marks is given below:

1. One full program requiring the student to write algorithm and execution.
(30)
2. Viva-Voce
(10)
3. Record (Practical File)
(10)

Experimental Skills: General Precautions for measurements and handling of equipment, Presentation of measurements, Fitting of given data to a graph, Results with proper Significant Figures and Limits of Error, Interpretation of results etc.

List of Experiments:

1. Measurement of Planck's constant using photo-detector.
2. To determine the Planck's constant using LEDs of at least 4 different colours.
3. Study of variation of light intensity using photovoltaic cell/inverse square law
4. To study the photoelectric effect and find out the value of Planck's constant.
5. To determine the ionization potential of mercury
6. To determine the capacitance of a capacitor using flashing and quenching of neon bulb.
7. Measurement of reverse saturation current of P-N junction diode and find the approximate value of energy band gap.
8. To show the tunneling effect in tunnel diode using I-V characteristics.

Reference Books:

1. Advanced Practical Physics for students, B.L. Flint and H.T. Worsnop, 1971, Asia Publishing House
2. Advanced level Physics Practicals, Michael Nelson and Jon M. Ogborn, 4th Edition, reprinted 1985, Heinemann Educational Publishers
3. A Text Book of Practical Physics, I.Prakash & Ramakrishna, 11th Edn, 2011,Kitab Mahal

PHC-2.2.2: SPECTROSCOPY

Maximum Marks: 100 (4 Credits) **Time Allowed: 3 Hours**
External Examination: 70 (Pass Marks: 28) **Pass Percentage: 40%**
Internal Assessment: 30 (Pass Marks: 12) **Teaching Hours: 60**

30 marks internal assessment will be based on two mid-semester tests, class tests, written assignments, project work etc. and lecture attendance.

Instruction for the Paper Setter: The question paper will consist of three sections A, B and C. Sections A and B will have four questions from respective sections of the syllabus and Section C will have 11 short answer type questions, which will be set from the entire syllabus uniformly. Each question of Sections A and B will carry 12 marks and each question of section C carries 2 marks.

Instruction for the candidates: The candidates are required to attempt any two questions out of four from each Section A and B and the entire Section C of the question paper. Each question of sections A and B carries 12 marks and Section C carries 22 marks. **Use of scientific calculator is allowed.**

Course Objectives- The objective of the course on Spectroscopy for the student of B.Sc. (Hons.) Physics is to equip them with the knowledge of various theories related to single and multi-atom interaction spectra, various types of orbital coupling and properties and production of X-ray.

Section A

One Electron Atomic Spectra: Excitation of Atom with Radiation, Transition Probability, Spontaneous Transition, Selection Rules and Life Time, Spectrum of Hydrogen Atom, Bohr's Theory and Hydrogen Spectrum, Evidences in favour of Bohr's Theory, Experimental Confirmation of Bohr's Theory, Frank Hertz Experiment, Line Structure, Normal Zeeman Effect.

The Spinning Electron and the Vector Model, Electron Spin, Stern Gerlach Experiment, Spin Orbit Coupling (electron magnetic moment, total angular momentum), Fine Structure, Examples of One Electron Systems, Anomalous Zeeman Effect, Lande-g Factor (sodium D-lines), Paschen-Back Effect, Selection Rules for the Paschen-Back Effect.

Section B

Many Electron System Spectra: Exchange Symmetry of Wave Functions, Exclusion Principle, Shells and Sub shells in Atoms, Atomic Spectra (Helium), LS Coupling, JJ Coupling, Terms of Equivalent and Non Equivalent Electrons, Selection Rules, Regularities in Atomic Spectra, Interaction Energy, Different Series in Alkali Spectra.

Characteristics and Continuous X-ray Spectra, Comparison of Optical and X-ray Spectra, Moseley's Law, Applications of Moseley's Law, Auger Effect, Molecular Bonding, Molecular Spectra, Selection Rules, Symmetric Structures, Rotational, Vibrational and Vibrational-rotational Electronic Levels of a Diatomic Molecule, Raman Spectra.

Course learning outcome: Students will have achieved the ability to:

1. The single and multi atom system spectra
2. Effect of electric and magnetic field on the spectrum
3. Various type of coupling of orbitals
4. Production and properties of x-ray

Text Books:

1. Concepts of Modern Physics, Arthur Beiser (McGraw Hill Pub. Co., Delhi, 9th ed.), 1995.
2. Elements of Modern Physics, S.H. Patil (McGraw Hill), 1998.

Reference Books:

1. Concepts of Modern Physics, Arthur Beiser, 2009, McGraw-Hill
2. Modern Physics, J.R. Taylor, C.D. Zafiratos, M.A. Dubson,2009, PHI Learning
3. Quantum Mechanics by V.K. Thankappan.
4. Quantum Mechanics Concepts and Applications by NourdineZettili
5. Quantum Physics, Berkeley Physics,Vol.4. E.H. Wichman, 2008, Tata McGrawHill Co.
6. Modern Physics, G. Kaur and G.R. Pickrell, 2014, McGraw Hill

PHC-2.2.2P: SPECTROSCOPY LAB

Maximum Marks: 50 (2 Credits) **Time Allowed: 3 Hours**
Pass Marks: 40% (20 Marks) **Teaching Hours: 60**

Instructions: The candidate will mark any four programs on the question paper and the examiner will allot one of these four programs to be executed. The distribution of marks is given below:

1. One full program requiring the student to write algorithm and execution. (30)
2. Viva-Voce (10)
3. Record (Practical File) (10)

Experimental Skills: General Precautions for measurements and handling of equipment, Presentation of measurements, Fitting of given data to a graph, Results with proper Significant Figures and Limits of Error, Interpretation of results etc.

List of Experiments:

1. To determine the refractive index of liquid using spectrometer
2. To determine the minimum deviation of a prism
3. To determine the refractive index of calcite prism
4. To determine the Cauchy's constants
5. To study the refractive index of doubly refracting prism
6. To determine the wave length of a given light using bi-prism
7. To determine the resolving power of a telescope
8. To determine the principal points of a lens system
9. To determine the resolving power of a grating
10. Set up Newton's rings to determine wave length of sodium light
11. To determine the wave length and dispersive power using plane diffraction grating (Use Hg source)
12. To study the absorption spectra of iodine vapours
13. To determine the ionization potential of mercury

Reference Books:

1. Advanced Practical Physics for students, B.L. Flint and H.T. Worsnop, 1971, Asia Publishing House
2. Advanced level Physics Practicals, Michael Nelson and Jon M. Ogborn, 4th Edition, reprinted 1985, Heinemann Educational Publishers
3. A Text Book of Practical Physics, I.Prakash & Ramakrishna, 11th Edn, 2011,Kitab Mahal

PHC-2.2.3: DIGITAL SYSTEMS AND APPLICATIONS

Maximum Marks: 100 (4 Credits)		**Time Allowed: 3 Hours**
External Examination:	**70 (Pass Marks: 28)**	**Pass Percentage: 40%**
Internal Assessment:	**30 (Pass Marks: 12)**	**Teaching Hours: 60**

30 marks internal assessment will be based on two mid-semester tests, class tests, written assignments, project work etc. and lecture attendance.

Instruction for the Paper Setter: The question paper will consist of three sections A, B and C. Sections A and B will have four questions from respective sections of the syllabus and Section C will have 11 short answer type questions, which will be set from the entire syllabus uniformly. Each question of Sections A and B will carry 12 marks and each question of section C carries 2 marks.
Instruction for the candidates: The candidates are required to attempt any two questions out of four from each Section A and B and the entire Section C of the question paper. Each question of sections A and B carries 12 marks and Section C carries 22 marks. **Use of scientific calculator is allowed.**

Course Objective: The main objective of this course is to provide basic knowledge of Digital Electronics to design digital circuits using diodes, transistors; to solve Boolean expressions; to understand various combinational circuits such as logic gates, adders, subtractors, multiplexers, de-multiplexers and to understand various sequential circuits such as flip-flops, shift registers, counters, timing circuits etc.

Section A

Digital Circuits: Difference between Analog and Digital Circuits. Binary Numbers. Decimal to Binary and Binary to Decimal Conversion. BCD, Octal and Hexadecimal numbers. AND, OR and NOT Gates (realization using Diodes and Transistor). NAND and NOR Gates as Universal Gates. XOR and XNOR Gates and application as Parity Checkers.
Boolean algebra: De Morgan's Theorems. Boolean Laws. Simplification of Logic Circuit using Boolean Algebra. Fundamental Products. Idea of Minterms and Maxterms. Conversion of a Truth table into Equivalent Logic Circuit by (1) Sum of Products Method and (2) Karnaugh Map (upto three variables).
Arithmetic Circuits: Binary Addition. Binary Subtraction using 2's Complement. Half and Full Adders.Half & Full Subtractors, 4-bit binary Adder/Subtractor.

Section B

Data processing circuits: Basic idea of Multiplexers, De-multiplexers, Decoders, Encoders.
Sequential Circuits: SR, D, and JK Flip-Flops. Clocked (Level and Edge Triggered) Flip-Flops. Preset and Clear operations. Race-around conditions in JK Flip-Flop. M/S JK Flip-Flop.
Timers: IC 555: block diagram and applications: Astable-multivibrator and Monostable multivibrator. **Shift registers:** Serial-in-Serial-out, Serial-in-Parallel-out, Parallel-in-Serial-out and Parallel-in-Parallel-out Shift Registers (only up to 4 bits).

Counters (4 bits): Ring Counter. Asynchronous counters, Decade Counter. Synchronous Counter.
Integrated Circuits (Qualitative treatment only): Active & Passive components. Discrete components.Advantages and drawbacks of IC's. Scale of integration: SSI, MSI, LSI and VLSI (basic idea and definitions only). Classification of ICs.

Course learning outcome: Students will have achieved the ability to:

1. Understand basic of CRO, Integrated Circuits.
2. To learn function of basic digital circuits and use of transistors to create logic gates in order to perform Boolean logic.
3. To learn different theorems for simplification of basic Digital electronics circuits.
4. Student understands symbols, Truth tables, Boolean equations, & working principle.
5. Understand combinational and logical digital circuits and their differences.
6. Students will be introduced to Flip-flop, shifts register, counters and Semiconductor memory for data Processing circuits.
7. To learn symbol, working principle of basic Digital electronics circuits for data processing application.
8. At the end of this course, students should be able to recognize and analyze the basic digital circuits

Text Books:

1. Digital Principles and Applications: A.P. Malvino & D.P. Leach, Tata McGraw-Hill, New Delhi
2. An Introduction to Digital Electronics: M. Singh, Kalyani Publishers, New Delhi

Reference Books:

1. Fundamentals of Digital Circuits, Anand Kumar, 2nd Edn, 2009, PHI Learning Pvt. Ltd.
2. Digital Circuits and systems, Venugopal, 2011, Tata McGraw Hill.
3. Digital Electronics G K Kharate ,2010, Oxford University Press
4. Digital Systems: Principles & Applications, R.J.Tocci, N.S.Widmer, 2001, PHI Learning

PHC-2.2.3P: DIGITAL SYSTEMS AND APPLICATIONS LAB

Maximum Marks: **50 (2 Credits)** **Time Allowed: 3 Hours**
External Examination: **50 (20Marks)** **Teaching Hours: 60**

Instructions: The candidate will mark any four programs on the question paper and the examiner will allot one of these four programs to be executed. The distribution of marks is given below:

1. One full program requiring the student to write algorithm and execution. (30)
2. Viva-Voce (10)
3. Record (Practical File) (10)

Experimental Skills: General Precautions for measurements and handling of equipment, Presentation of measurements, Fitting of given data to a graph, Results with proper Significant Figures and Limits of Error, Interpretation of results etc.

List of Experiments:

1. To measure (a) Voltage, and (b) Time period of a periodic waveform using CRO.
2. To test a Diode and Transistor using a Multimeter.
3. To design a switch (NOT gate) using a transistor.
4. To verify and design AND, OR, NOT and XOR gates using NAND gates.
5. To design a combinational logic system for a specified Truth Table.
6. To convert a Boolean expression into logic circuit and design it using logic gate ICs.
7. To minimize a given logic circuit.
8. Half Adder, Full Adder and 4-bit binary Adder.
9. Half Subtractor, Full Subtractor, Adder-Subtractor using Full Adder I.C.
10. To build Flip-Flop (RS, Clocked RS, D-type and JK) circuits using NAND gates.
11. To build JK Master-slave flip-flop using Flip-Flop ICs
12. To build a 4-bit Counter using D-type/JK Flip-Flop ICs and study timing diagram.
13. To make a 4-bit Shift Register (serial and parallel) using D-type/JK Flip-Flop ICs.
14. To design an astablemultivibrator of given specifications using 555 Timer.
15. To design a monostable multivibrator of given specifications using 555 Timer.

Reference Books:

1. Modern Digital Electronics, R.P. Jain, 4th Edition, 2010, Tata McGraw Hill.
2. Basic Electronics: A text lab manual, P.B. Zbar, A.P. Malvino, M.A. Miller, 1994, Mc-Graw Hill.
3. Microprocessor Architecture Programming and applications with 8085, R.S. Goankar, 2002, Prentice Hall.

4. Digital Electronics G.K.Kharate ,2010, Oxford University Press
5. Digital Systems: Principles & Applications, R.J.Tocci, N.S.Widmer, 2001, PHI Learning

SKILL ENHANCEMENT COURSE-2
PHC-2.2.4: APPLIED OPTICS

MaximumMarks: 50 (Credit:02) Time: 3Hours
Pass Marks: 40% (20 Marks) Teaching Hours: 45

OBJECTIVE

The aim of this course is not just to impart theoretical knowledge of optics to the students but to enable them to develop an awareness and understanding about its various practical uses in different areas like holography, fibre optics, lasers etc. The practical will provide a hands-on training related to some of the applications.

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will be set by appointed external examiner (Subject Expert) on the day of exam and the distribution of marks will be as under:

1. Theory exam from Section A : 25 Marks
2. Experiments to be performed from Section B : 15 Marks
3. Viva-voce : 5 Marks
4. Note-book : 5 Marks

Section A

Sources and Detectors: Lasers, Spontaneous and stimulated emissions, Theory of laser action, Einstein's coefficients, Light amplification, Characterization of laser beam, He-Ne laser, Semiconductor lasers. (Book 1)
Fourier Optics: Concept of Spatial frequency filtering, Fourier transforming property of a thin lens
Holography: Basic principle and theory: coherence, resolution, Types of holograms, white light reflection hologram, application of holography in microscopy, interferometry, and character recognition (Book 3)
Photonics: Fibre Optics: Optical fibres and their properties, Principal of light propagation through a fibre, The numerical aperture, Attenuation in optical fibre and attenuation limit, Single mode and multimode fibres, Fibre optic sensors: Fibre Bragg Grating (Book 4)

Section B

1. Determination of the grating radial spacing of the Compact Disc (CD) by reflection using He-Ne or solid-state laser.
2. To find the width of the wire or width of the slit using diffraction pattern obtained by a He-Ne or Solid-state laser.
3. To find the polarization angle of laser light using polarizer and analyser
4. V-I characteristics of LED
5. Study the characteristics of solid state laser
6. Photovoltaic Cell
7. Constructing a Michelson interferometer
8. Measuring the refractive index of air

9. To measure the numerical aperture of an optical fibre
10. To study the variation of the bending loss in a multimode fibre

Course Outcomes: Within the course structure offered, students will gain a good understanding of the building blocks of lasers, Fourier optics, holography and fiber optics. In particular, they will be able to:

1. predict fundamental (and ultimate) characteristics of laser systems
2. find the interrelations between Einstein coefficients
3. Understand the basic Fourier optics
4. Understand the basic holography and optical fiber communication

Text Books

1. LASERS: Fundamentals & applications, K. Thyagrajan & A. K. Ghatak, 2010, Tata McGraw Hill
2. Laser and Non-Linear Optics by B B Laud, 2nd Edition, New Age International.
3. A text book of Optics by Subrahmanyam, Brij Lal and Avadhanulu, S.Chand.
4. Optical Fiber Communications: *principles and practice* by John M. Senior, 2nd Edition, Prentice-Hall of India

Reference Books

1. Fibre optics through experiments, M.R. Shenoy, S.K. Khijwania, et.al. 2009, Viva Books
2. Fundamental of optics, F. A. Jenkins & H. E. White, 1981, Tata McGraw hill.
3. Nonlinear Optics, Robert W. Boyd, (Chapter-I), 2008, Elsevier.
4. Optics, Karl Dieter Moller, Learning by computing with model examples, 2007, Springer.
5. Optical Systems and Processes, Joseph Shamir, 2009, PHI Learning Pvt. Ltd.
6. Optoelectronic Devices and Systems, S.C. Gupta, 2005, PHI Learning Pvt. Ltd.
7. Optical Physics, A. Lipson, S.G. Lipson, H. Lipson, 4th Edn., 1996, Cambridge Univ. Press

PH-1.2.3: ADVANCED QUANTUM MECHANICS

Maximum Marks:100 (4 Credits)	**Time Allowed: 3 Hours**
External Examination: 70 (Pass Marks: 25)	**Pass Percentage: 35%**
Internal Assessment: 30 (Pass Marks: 11)	**Teaching Hours: 60**

Out of 100 Marks, internal assessment (based on two mid-semester tests/ internal examination, written assignment/project work etc. and attendance) carries 30 marks, and the final examination at the end of the semester carries 70 marks.

Instruction for the Paper Setter: The question paper will consist of three sections A, B and C. Each of sections A and B will have four questions from respective sections of the syllabus. Section C will have 11 short answer type questions, which will cover the entire syllabus uniformly. Each question of sections A and B carry 12 marks. Section C will carry 22 marks.

Instruction for the candidates: The candidates are required to attempt two questions each from sections A and B, and the entire section C. Each question of sections A and B carries 12 marks and section C carries 22 marks. Use of scientific calculators is allowed.

Course Objectives: To give exposure about the various tools employed to analyze the quantum mechanical problems.

Section A

Identical Particles: Indistinguishability principle, Symmetry and antisymmetry of wave functions, Exchange operators, Spin statistic theorem, Slater determinant, Scattering of identical particles. *Problem*: Hydrogen molecule (Book 1).

Variational Method: Rayleigh Ritz variational method for ground & excited States, *Problem:* Ground state energy of hydrogen, helium and harmonic oscillator (Book 1).

Time Independent Perturbation Theory: First order and second order perturbation theory for non-degenerate case; *Problems*: Anharmonic oscillator, Degenerate perturbation theory, *Problem*: Stark effect (Book 1).

Time Dependent Perturbation Theory: Transition probability for constant and harmonic perturbation, Golden rule, Induced absorption and emission, Einstein coefficients; *Problem*: Radiative transitions (Book 1).

WKB Method in One Dimension: Classical limit, Principle of WKB, Connection formulae for penetration of a barrier; *Problem*: Alpha decay (Book 1).

Section B

Collision Theory: Scattering amplitudes and cross section, Born approximation. Partial wave analysis: Scattering by central potential, short range interaction, Phase shifts, Optical theorem, s and p-wave scattering, scattering length, Effective range, Breit-Wigner formula. *Problem*: Scattering by three dimensional square well potential (Book 1).

Relativistic Quantum Mechanics: Klein-Gordon equation: Probability and current densities, Continuity equation, Difficulties of K.G. equation, Plane wave solution. Dirac equation: Dirac algebra, Plane wave solutions, Positive and negative energy solutions of Dirac equation, positrons, Spin and magnetic moment (Qualitative), Properties of gamma matrices. Dirac spinors: spin and magnetic moment (Book 2).

Course Outcomes: Students will have understanding of

1. Students will be able to apply the mathematical theories of quantum mechanics to real problems in Particle Physics and Classical Physics.
2. This course introduces the method of applying rules of quantum mechanics to understand the quantum properties of particles, radiations, atoms and their interaction.
3. Also this course introduces Application of approximation methods and scattering theories.

Text Books:

1. Advanced Quantum Mecahnics: Satya Prakash
2. Quantum Mechanics: P.M. Mathews and K. Venkatesan, Tata McGraw-Hill Publication, N. Delhi

Reference Books:

1. Quantum Mechanics: M.P. Khanna, Har-Anand Publication, Delhi
2. Modern Quantum Mechanics by J. J. Sakurai (Principal text)-Pearson Education Pvt. Ltd., New Delhi, 2002.
3. Quantum Mechanics: L.I. Schiff, Tata McGraw-Hill Publication.

Quantum Mechanics: V.K. Thankappan, New Age International

PH-2.3.1: CONDENSED MATTER PHYSICS-I

Maximum Marks: 100 (4 Credits) **Time Allowed: 3 Hours**
External Examination:70 (Pass Marks: 25) **Pass Percentage: 35%**
Internal Assessment: 30 (Pass Marks: 11) **Teaching Hours: 60**

Out of 100 Marks, internal assessment (based on two mid-semester tests/ internal examination, written assignment/project work etc. and attendance) carries 30 marks, and the final examination at the end of the semester carries 70 marks.

Instruction for the Paper Setter: The question paper will consist of three sections A, B and C. Each of sections A and B will have four questions from respective sections of the syllabus. Section C will have 11 short answer type questions, which will cover the entire syllabus uniformly. Each question of sections A and B carry 12 marks. Section C will carry 22 marks.

Instruction for the candidates: The candidates are required to attempt two questions each from sections A and B, and the entire section C. Each question of sections A and B carries 12 marks and section C carries 22 marks. Use of scientific calculators is allowed.

Course Objectives: To study some of the basic properties of the condensed phase of matter especially solids. This paper enables the students to understand about crystal structure, Lattice vibration, Free electron theory, Band theory, electrical properties, semiconductors, Fermi surface in metals, Nanotechnology and carbon nanostructures.

Section A

Crystal Structure: Bravais lattice, Reciprocal lattice, Brillouin zones, Diffraction methods, Scattered wave amplitude, Structure factor, Form factor, Quasi Crystals and Bonding of Solids [Book 1]

Lattice vibration and Free electron Theory: Lattice vibrations of mono-atomic and diatomic linear lattices, Concept of Phonons, Heat capacity of metals, Free electron gas in 1-D and 3-D, Drude model of electrical and thermal conductivity, Wiedmann-Franz law, Hall effect.[Book 1]

Band Theory: Nearly free electron model, Bloch functions, Kronig-penny model, Wave equation of electrons in a periodic potential, Solution of the central equation, Solutions near a zone boundary, Number of Orbitals in a band, Metals and insulators.[Book 1]

Section B

Semiconductors and Fermi-surfaces in Metals: Band gap, Equation of motion, properties of holes, Effective mass of electrons (m*), m* in semiconductors, Band structure of Si Ge and GaAs, Thermoelectric Effects, Semimetals, Different zone schemes, Constructions of Fermi surfaces, Experimental methods in Fermi surface studies, Quantization of orbits in a magnetic field, De Haas-Van Alphen effect, Extremal orbits, Fermi surfaces for Cu and Au, Magnetic breakdown.[Book 1]

Nanotechnology and Carbon nanostructures: Introduction to nanoparticles, Metal nano clusters (various types), Properties of semi conducting nanoparticles, Methods of synthesis, Quantum well, Quantum wire and Quantum dots (in brief) and their fabrication. Carbon molecules, Carbon cluster, C_{60} (its crystals and superconductivity), Carbon nano tubes, their fabrication and properties, application of carbon nano tubes.[Book 3]

Course Learning Outcomes: After the completion of the course, students will be able to

1. Understand the physics behind structural and electrical behaviour of the solids.
2. Tailor the properties of the solids with proper understanding.
3. Understand the physical process underlying many solid state devices.
4. Understand the concept of Nanotechnology and Carbon Nanotubes.
5. Pursue the research work in the field of material science and nanotechnology

Text Books:

1. Introduction to Solid State Physics; C. Kittel (7th Ed.) , Wiley Eastern, N. Delhi, 1995
2. Solid State Physics: A.J. Dekker, Mc. Millan India Ltd.
3. Introduction to Nano Technology: Charles P Poople, Jr. and Frank J. Owens, John Wiley & Sons Publications, 2003

Reference Book

1. Solid State Physics; Ashroft and Mermin, Thomson learning International.
2. Elements of Solid State Physics; J.P. Srivastava, 4th Edition, 2015, Prentice-Hall of India Private Limited, N. Delhi.

PH-2.3.2: NUCLEAR PHYSICS

Maximum Marks: 100 (4 Credits) **Time Allowed: 3 Hours**
External Examination: 70 (Pass Marks: 25) **Pass Percentage: 35%**
Internal Assessment: 30 (Pass Marks: 11) **Teaching Hours: 60**

Out of 100 Marks, internal assessment (based on two mid-semester tests/ internal examination, written assignment/project work etc. and attendance) carries 30 marks, and the final examination at the end of the semester carries 70 marks.

Instruction for the Paper Setter: The question paper will consist of three sections A, B and C. Each of sections A and B will have four questions from respective sections of the syllabus. Section C will have 11 short answer type questions, which will cover the entire syllabus uniformly. Each question of sections A and B carry 12 marks. Section C will carry 22 marks.

Instruction for the candidates: The candidates are required to attempt two questions each from sections A and B, and the entire section C. Each question of sections A and B carries 12 marks and section C carries 22 marks. Use of scientific calculators is allowed.

Course Objectives: To impart knowledge about basic nuclear physics properties and nuclear models for understanding of related reaction dynamics.

Section A

Nuclear Properties: Nuclear Radius, Mass and Abundance of Nuclides, Nuclear Binding Energy, Semi-empirical Mass Formula, Nuclear Angular Momentum and Parity, Nuclear Electromagnetic Moments, Nuclear Excited States, Nuclear spin. (Book 1)

Forces between Nucleons: Deuteron problem, Nucleon-Nucleon scattering, Proton- Proton and Neutron-Neutron interactions, Properties of Nuclear Forces, Exchange Force Model. (Book 1)

Nuclear Models: Shell Model (Single and many particle), Even-Z Even-N Nuclei and Collective Structure, Single Particle States in Deformed Nuclei, Rotational spectra. (Book 1)

Section B

Alpha Decay: Why alpha decay occurs? Basic alpha decay processes, Alpha decay systematic. Theory of alpha emission.Angular momentum and Parity in Alpha Decay. (Book 1)

Beta Decay: Energy Released in Beta Decay. Fermi Theory of Beta Decay.Angular Momentum and Parity Selection Rules. Comparative Half Lives and Forbidden Decays. Neutrino Physics.Non-conservation of Parity. (Book 1)

Gamma Decay: Energetic of gamma decay, Angular momentum and Parity selection rules, internal conversion. (Book 1)

Course learning outcomes: Students will have achieved the ability to:

1. Explain the ground state properties of the nucleus for study of the nuclear structure behavior.
2. Explain the deuteron behavior at ground and excited states.
3. Apply deuteron physics and the Nucleon-Nucleon scattering for explaining the nuclear forces.

4. Demonstration of the shell model and collective model descriptions.
5. Apply various aspects of nuclear reactions in view of compound nuclear dynamics.

Text Books:
1. Introductory Nuclear Physics: K.S. Krane, John Wiley & Sons, New York

Reference Books:
1. Nuclear Physics: D. C. Tayal, Himalaya Publishing House.
2. Nuclear Physics: R.R. Roy and B.P. Nigam, New Age Pub.
3. Nuclear Physics: W.E. Burcham and M. Jobes (Ind. Ed.), Addison Wesley.
4. The atomic Nucleus: Robley D. Evans.
5. Basic ideas and concepts in nuclear Physics :K. Heyde
6. Nuclear Physics :H. S. Hans

PH-2.3.3: ADVANCED QUANTUM MECHANICS

Maximum Marks: 100 (4 Credits)		**Time Allowed: 3 Hours**
External Examination:	**70 (Pass Marks: 25)**	**Pass Percentage: 35%**
Internal Assessment:	**30 (Pass Marks: 11)**	**Teaching Hours: 60**

Out of 100 Marks, internal assessment (based on two mid-semester tests/ internal examination, written assignment/project work etc. and attendance) carries 30 marks, and the final examination at the end of the semester carries 70 marks.

Instruction for the Paper Setter: The question paper will consist of three sections A, B and C. Each of sections A and B will have four questions from respective sections of the syllabus. Section C will have 11 short answer type questions, which will cover the entire syllabus uniformly. Each question of sections A and B carry 12 marks. Section C will carry 22 marks.

Instruction for the candidates: The candidates are required to attempt two questions each from sections A and B, and the entire section C. Each question of sections A and B carries 12 marks and section C carries 22 marks. Use of scientific calculators is allowed.

Course Objectives: To give exposure about the various tools employed to analyze the quantum mechanical problems.

Section A

Identical Particles: Indistinguishability principle, Symmetry and antisymmetry of wave functions, Exchange operators, Spin statistic theorem, Slater determinant, Scattering of identical particles. *Problem*: Hydrogen molecule (Book 1).

Variational Method: Rayleigh Ritz variational method for ground & excited States, *Problem:* Ground state energy of hydrogen, helium and harmonic oscillator (Book 1).

Time Independent Perturbation Theory: First order and second order perturbation theory for non-degenerate case; *Problems*: Anharmonic oscillator, Degenerate perturbation theory, *Problem*: Stark effect (Book 1).

Time Dependent Perturbation Theory: Transition probability for constant and harmonic perturbation, Golden rule, Induced absorption and emission, Einstein coefficients; *Problem*: Radiative transitions (Book 1).

WKB Method in One Dimension: Classical limit, Principle of WKB, Connection formulae for penetration of a barrier; *Problem*: Alpha decay (Book 1).

Section B

Collision Theory: Scattering amplitudes and cross section, Born approximation. Partial wave analysis: Scattering by central potential, short range interaction, Phase shifts, Optical theorem, s and p-wave scattering, scattering length, Effective range, Breit-Wigner formula. *Problem*: Scattering by three dimensional square well potential (Book 1).

Relativistic Quantum Mechanics: Klein-Gordon equation: Probability and current densities, Continuity equation, Difficulties of K.G. equation, Plane wave solution. Dirac equation: Dirac algebra, Plane wave solutions, Positive and negative energy solutions of Dirac equation, positrons, Spin and magnetic moment (Qualitative), Properties of gamma matrices. Dirac spinors: spin and magnetic moment (Book 2).

Course Outcomes: Students will have understanding of

4. Students will be able to apply the mathematical theories of quantum mechanics to real problems in Particle Physics and Classical Physics.
5. This course introduces the method of applying rules of quantum mechanics to understand the quantum properties of particles, radiations, atoms and their interaction.
6. Also this course introduces Application of approximation methods and scattering theories.

Text Books:

3. Advanced Quantum Mecahnics: Satya Prakash
4. Quantum Mechanics: P.M. Mathews and K. Venkatesan, Tata McGraw-Hill Publication, N. Delhi

Reference Books:

4. Quantum Mechanics: M.P. Khanna, Har-Anand Publication, Delhi
5. Modern Quantum Mechanics by J. J. Sakurai (Principal text)-Pearson Education Pvt. Ltd., New Delhi, 2002.
6. Quantum Mechanics: L.I. Schiff, Tata McGraw-Hill Publication.
7. Quantum Mechanics: V.K. Thankappan, New Age International

PH-2.3.4: LASER AND FIBER OPTICS

Maximum Marks: 100 (4 Credits)		**Time Allowed: 3 Hours**
External Examination:	**70 (Pass Marks: 25)**	**Pass Percentage: 35%**
Internal Assessment:	**30 (Pass Marks: 11)**	**Teaching Hours: 60**

Out of 100 Marks, internal assessment (based on two mid-semester tests/ internal examination, written assignment/project work etc. and attendance) carries 30 marks, and the final examination at the end of the semester carries 70 marks.

Instruction for the Paper Setter: The question paper will consist of three sections A, B and C. Each of sections A and B will have four questions from respective sections of the syllabus. Section C will have 11 short answer type questions, which will cover the entire syllabus uniformly. Each question of sections A and B carry 12 marks. Section C will carry 22 marks.
Instruction for the candidates: The candidates are required to attempt two questions each from sections A and B, and the entire section C. Each question of sections A and B carries 12 marks and section C carries 22 marks. Use of scientific calculators is allowed.
Course Objectives: The course aims to present various aspects of the foundations, design, operation and application of lasers and Fiber optics.

Section A

Introductory Concepts: Absorption, Spontaneous and stimulated emission, The laser idea, Rates of absorption and stimulated emission, Einstein Coefficient's, Pumping & Pumping Schemes (Basic Idea), Light amplification, Threshold condition, Line broadening mechanisms, Natural broadening, Collision broadening and Doppler broadening, Laser Properties. (Book 1)

Laser rate equation: Introduction, Two level laser system, Three level laser system, and four level laser system, Variation of laser power around threshold, Optimum output coupling, Laser spiking (Book 2)

Optical Resonator: Modes of a Rectangular Cavity & the Open Planar Resonator, the Quality factor, Mode Selection, Q-Switching, Techniques of Q-Switching, Mode Locking (Qualitative), Techniques of Mode Locking (Book 1 & Book 2)

Types of lasers: Ruby lasers, Nd: YAG laser, He-Ne laser, Co_2 laser, N_2 laser, Excimer laser, Dye lasers, Chemical lasers, Semiconductor lasers. (Book 1)

Section B

Optical Fiber Waveguides: Introduction, Ray Theory Transmission, Total Internal Reflection, Acceptance Angle, Numerical Aperture, Skew Rays, Electromagnetic mode theory for optical propagation, Electromagnetic Waves, Modes in a Planar Guide, Evanescent Field (definition only), Goos-Haenchen Shift. Step Index Fibers, Single Mode Fibers, Cutoff Wavelength (Book 3)

Transmission characteristics of Optical Fiber: Introduction, Attenuation, Intrinsic and Extrinsic absorption loses, Linear Scattering losses, Rayleigh Scattering, Mie Scattering, Non-Linear Scattering Losses, Stimulated Brillouin Scattering, Stimulated Raman Scattering, Bending losses, Dispersion (Book 3)

Optical Fiber Connection: Introduction, Fiber alignment and joint loss, Multimode Fiber Joints, Single Mode Fiber Joints, Fiber splices, Fusion Splices, Mechanical Splices, Multiple Splices, Fiber connectors, Cylindrical Ferrule Connectors, Biconical Ferrule Connectors, Double Eccentric Connector (Book 3)

Course Learning Outcomes: Within the course structure offered, students will gain a good understanding of the building blocks of lasers and fiber optics. In particular, they will be able to:

1. predict fundamental (and ultimate) characteristics of laser systems based on specific laser materials, such as output power and lasing threshold
2. assess and design the optical cavities for different laser systems
3. determine the laser behaviour depending on the line broadening mechanism
4. solve the rate equations in steady state for a laser
5. find the interrelations between Einstein coefficients
6. quantitatively describe the key characteristics of pulsed lasers and their interrelation
7. describe concrete major example laser systems in detail and understand their technological challenges Students should therefore gain a significantly enhanced understanding of how lasers work and which types of lasers are most relevant for specific performance specifications and subsequent applications.
8. understand the basic optical fibre communication
9. explain the loss mechanisms, transmission characteristics and in optical fibre
10. able to understand different type of fibre splices and joints

Text Books:

1. Principles of Lasers: O. Svelto,(3rd Ed.), Plenum Press
2. Optical Electronics A.K. Ghatak and K. Thyagrajan, Cambridge Univ Press
3. Optical Fiber Communications: principles and practice byJohn M. Senior, 2nd Edition, Prentice-Hall of India.

Reference Books

1. Lasers and its applications: A.K. Ghatak and K. Thyagrajan, TMH
2. Laser Fundamentals by Silvfast, Cambridge University Press
3. Optical Fiber Communications, 3rd Edition.by Gerd Keiser Mc Graw-Hill.
4. Introduction to Fiber Optics by Ghatak, Cambridge University Press
5. Fibre optics through experiments, M. R. Shenoy, S. K. Khijwania, et.al. 2009, Viva Books

BSC(PHY)-103A: MECHANICS

Maximum Marks:50 (2 Credits)	**Time Allowed: 3 Hours**
External Examination:35 (Pass Marks: 18)	**Pass Percentage: 35%**
Internal Assessment:15 (Pass Marks: 05)	**Teaching Hours: 30**

15 marks internal assessment will be based on two mid-semester tests, class tests, written assignments, project work etc. and lecture attendance.

Instruction for the Paper Setter: The question paper will consist of three sections A, B and C. Sections A and B will have four questions from respective sections of the syllabus and Section C will have 11 short answer type questions, which will be set from the entire syllabus uniformly. Each question of sections A and B will carry 6 marks and section C carries 11 marks.

Instruction for the candidates: The candidates are required to attempt any two questions out of four from each section A and B and the entire section C of the question paper. Each question of sections A and B carries 6 marks and section C carries 11 marks. **Use of scientific calculator is allowed.**

Course Objective: Students will develop their quantitative and mathematical skills needed to describe the co-ordinate system, central forces, rigid bodies, frame of references and relativity.

Section A

Co-ordinates: Cartesian and spherical polar co-ordinates system, area, volume, displacement, velocity, and acceleration in these systems, Solid angle.

Central Forces: Various forces in Nature (brief introduction), Centre of mass, Equivalent one body problem, Central forces, Equation of motion under central force, Equation of orbit in inverse square, Force field and turning points, Kepler laws and their derivation. Satellite in circular orbit and applications. Geosynchronous orbits. Weightlessness. Basic idea of global positioning system (GPS).

Section B

Rigid body motion: Rotational motion, principal moments and axes. Euler's equations.

Inertial and Non Inertial Frames: Frames of reference. Galilean transformation and Invariance, concept of stationary universal frame of reference and ether. Non-Inertial frames. Coriolis force and its applications. Variation of acceleration due to gravity with latitude.

Special Theory of Relativity: Postulates of special theory of relativity, Michelson Morley Experiment, Lorentz transformations, Observer and viewer in relativity, Relativity of simultaneity, Length, Time, Velocities, Relativistic Doppler effect, Variation of Mass with Velocity, Mass-Energy Equivalence, concept of Minkowski space.

Course learning outcome: After going through the course, the student should be able to;

1. Understand laws of motion and their application to various dynamical situations, notion of inertial frames and concept of Galilean invariance. He / she will learn the concept of conservation of energy, momentum, angular momentum and apply them to basic problems.

2. Apply Kepler’s law to describe the motion of planets and satellite in circular orbit, through the study of law of Gravitation.
3. Describe how fictitious forces arise in a non-inertial frame, e.g., why a person sitting in a merry-go-round experiences an outward pull.
4. Describe special relativistic effects and their effects on the mass and energy of a moving object, appreciate the nuances of Special Theory of Relativity (STR).

Text Books

3. Mechanics : H.S. Hans and S.P.Puri, Tata McGraw Hill, New Delhi

Reference Books:

1. University Physics. F.W. Sears, M.W. Zemansky and H.D. Young, 13/e, 1986. Addison-Wesley
2. Mechanics Berkeley Physics, v.1: Charles Kittel, et. al. 2007, Tata McGraw-Hill. Physics – Resnick, Halliday & Walker 9/e, 2010, Wiley
3. Engineering Mechanics, Basudeb Bhattacharya, 2nd edn., 2015, Oxford University Press
4. University Physics, Ronald Lane Reese, 2003, Thomson Brooks

BSC(PHY)-103B: ELECTRICITY & MAGNETISM-I

Maximum Marks: 50 (2 Credits) **Time Allowed: 3 Hours**
External Examination:35 (Pass Marks: 18) **Pass Percentage: 35%**
Internal Assessment: 15 (Pass Marks: 05) **Teaching Hours: 30**

15 marks internal assessment will be based on two mid-semester tests, class tests, written assignments, project work etc. and lecture attendance.

Instruction for the Paper Setter: The question paper will consist of three sections A, B and C. Sections A and B will have four questions from respective sections of the syllabus and Section C will have 11 short answer type questions, which will be set from the entire syllabus uniformly. Each question of sections A and B will carry 6 marks and section C carries 11 marks.

Instruction for the candidates: The candidates are required to attempt any two questions out of four from each section A and B and the entire section C of the question paper. Each question of sections A and B carries 6 marks and section C carries 11 marks. **Use of scientific calculator is allowed.**

Course Objective: This course continues building the foundation in electricity and magnetism and is intended for students to advanced studies in the physical sciences. Topics include vector calculus, electric fields, potential, capacitors,

Section A

Vector Analysis: Review of vector algebra (Scalar and Vector product), gradient, divergence, Curl and their significance, Vector Integration, Line, surface and volume integrals of Vector fields, Gauss-divergence theorem and Stoke's theorem of vectors(statement only).

Electrostatics: Coulomb’s Law, Electrostatic Field, electric flux, Gauss's theorem of electrostatics. Applications of Gauss theorem- Electric field due to point charge, infinite line of charge, uniformly charged spherical shell and solid sphere, plane charged sheet, charged conductor.

Section B

Electric Potential: Electric potential as line integral of electric field, potential due to a point charge, electric dipole, uniformly charged spherical shell and solid sphere. Calculation of electric field from potential.

Capacitance: Concept of capacitor, Capacitance of an isolated spherical conductor. Parallel plate, spherical and cylindrical condenser. Energy per unit volume in electrostatic field. Dielectric medium, Polarisation, Displacement vector. Gauss's theorem in dielectrics. Parallel plate capacitor completely filled with dielectric.

Course Outcome: By the end of this course, you should be able to:

1. Apply the tools of vector calculus, and demonstrate a working understanding of the divergence and curl of vector fields, as well as the divergence and curl integral theorems.

2. Demonstrate a mastery of Coulomb’s law for the electric field, and apply it to systems of point charges as well as line, surface, and volume distributions of charges.
3. Demonstrate an understanding of the relation between electric field and potential, exploit the potential to solve a variety of problems, and relate it to the potential energy of a charge distribution.
4. Demonstrate an understanding of the behaviour of electric conductors.

Reference Books

1. Electricity and Magnetism. Berkeley Physics Course. Vol.II by E.M.Purcell, McGraw-Hill, 1965.
2. Fundamentals of Electricity and Magnetism by Author F. Kip. McGraw Hill (1969)
3. Introduction to Classical Electrodynamics by David Griffith. Prentice Hall of India, New Delhi.
4. EM Waves and Radiating Systems by Edward C. Jordan and K.G. Balmain. Prentice Hall of India, New Delhi.

BSC(PHY)-103P: PHYSICS LAB

Maximum Marks: 50 (2 Credits)	**Time Allowed: 3 Hours**
External Examination: 50 (Pass Marks: 18)	**Teaching Hours: 60**

Instructions: The candidate will mark any four programs on the question paper and the examiner will allot one of these four programs to be executed. The distribution of marks is given below:

1. One full program requiring the student to write algorithm and execution.	(30)
2. Viva-Voce	(10)
3. Record (Practical File)	(10)

Experimental Skills: General Precautions for measurements and handling of equipment, Presentation of measurements, Fitting of given data to a graph, Results with proper Significant Figures and Limits of Error, Interpretation of results etc.

1. To measure the volume of a small cylindrical body by using a Vernier callipers.
2. To find the thickness of a given sheet/paper with the help of a screw gauge.
3. To determine the moment of inertia of a fly-wheel about its axis of rotation.
4. To study the rotational motion using a flywheel and hence show that the torque is proportional to angular acceleration.
5. To show that Moment of Inertia depends upon the distribution of mass by using objects of different geometrical shapes but of the same mass.
6. To determine the value of ‘g’ and the moment of inertia of a bar about C.G. by means of a bar pendulum.
7. To determine the value of ‘g’ by means of Kater’s reversible pendulum.
8. To find the relationship between the longitudinal strain and lateral strain in case of a rubber tube and hence to find the Poission’s ratio for rubber.
9. To determine the value of the modulus of rigidity of the material of a given wire by using Maxwell’s needle.
10. To determine the Young’s modulus of the material of a given beam supported on two knife edges and loaded at the middle point.
11. To determine elastic constants of the material of a given wire by Searle’s method.
12. To study the one-dimensional elastic collision using two hanging spheres.
13. To study the variation of moment of inertia of a system with the variation in the distribution of mass and hence to verify the theorem of parallel axes.
14. To determine the height of a tower by using a Sextant.

Text and Reference Books:

1. B.Sc. Practical Physics, By C.L. Arora, S.Chand & Co.
2. A Laboratory Manual of Physics for undergraduate classes by D.P.Khandelwal

BSC(PHY)-203A: OSCILLATIONS AND WAVES

Maximum Marks: 50 (2 Credits)	**Time Allowed: 3 Hours**
External Examination: 35 (Pass Marks: 18)	**Pass Percentage: 35%**
Internal Assessment:15 (Pass Marks: 05)	**Teaching Hours: 30**

15 marks internal assessment will be based on two mid-semester tests, class tests, written assignments, project work etc. and lecture attendance.

Instruction for the Paper Setter: The question paper will consist of three sections A, B and C. Sections A and B will have four questions from respective sections of the syllabus and Section C will have 11 short answer type questions, which will be set from the entire syllabus uniformly. Each question of sections A and B will carry 6 marks and section C carries 11 marks.

Instruction for the candidates: The candidates are required to attempt any two questions out of four from each section A and B and the entire section C of the question paper. Each question of sections A and B carries 6 marks and section C carries 11 marks. **Use of scientific calculator is allowed.**

Course Objective: Students will develop their quantitative and mathematical skills needed to describe the oscillations in mechanical and electrical medium under various conditions, Electromagnetic waves and related Maxwell's equations.

Section A

Oscillations: Simple harmonic motion, energy of a SHO. Compound pendulum, Electrical oscillations. **Damped Oscillations:** Decay of free vibrations due to damping. Differential equation of motion, types of damping. Determination of damping co-efficient logarithmic decrement, relaxation time and Q-Factor. **Forced Oscillations:** Differential equation for forced mechanical and electrical oscillators. Transient and steady state oscillation. Displacement and velocity variation with driving force frequency, Power supplied to an oscillator, Q value of a forced oscillator and band width.

Section B

Coupled oscillations: Two coupled pendulums, Normal co-ordinates and normal modes of vibration. Inductance coupling of electrical oscillators, Types of waves, Wave equation (transverse) and its solution, the string as a forced oscillator, Characteristic impedance of a string. Impedance matching.

EM Waves: Physical interpretation of Maxwell's equations. Electromagnetic waves and wave equation in a medium having finite permeability and permittvity but with conductivity $\sigma=0$. Pointing vector. Impedance of a dielectric to EM waves, EM waves in a conducting medium and skin depth. Reflection and transmission of EM waves at a boundary of two dielectric media for normal incidence. Reflection of EM waves from the surface of a conductor at normal incidence.

Course Learning Outcomes: After going through the course, the student should be able to;

1. Demonstrate the idea of Oscillations of mechanical and electrical oscillator.
2. Oscillations in various conditions
3. Electromagnetic waves and related Maxwell's equations
4. Wave nature in various mediums

Text Books:

1. Fundamentals of Vibrations and Waves by S.P.Puri, Tata McGraw Hill, New Delhi.
2. Physics of Vibrations and Waves by H. J. Pain, Wiley & Sons, New Delhi

Reference Books:

1. University Physics. F.W. Sears, M.W. Zemansky and H.D. Young, 13/e, 1986. Addison-Wesley
2. Mechanics Berkeley Physics, v.1: Charles Kittel, et. al. 2007, Tata McGraw-Hill. Physics – Resnick, Halliday& Walker 9/e, 2010, Wiley
3. Engineering Mechanics, Basudeb Bhattacharya, 2nd edn., 2015, Oxford University Press
4. University Physics, Ronald Lane Reese, 2003, Thomson Brooks

BSC(PHY)-203B: ELECTRICITY & MAGNETISM-II

Maximum Marks: 50 (2 Credits)	**Time Allowed: 3 Hours**
External Examination: 35 (Pass Marks: 18)	**Pass Percentage: 35%**
Internal Assessment: 15 (Pass Marks: 05)	**Teaching Hours: 30**

15 marks internal assessment will be based on two mid-semester tests, class tests, written assignments, project work etc. and lecture attendance.

Instruction for the Paper Setter: The question paper will consist of three sections A, B and C. Sections A and B will have four questions from respective sections of the syllabus and Section C will have 11 short answer type questions, which will be set from the entire syllabus uniformly. Each question of sections A and B will carry 6 marks and section C carries 11 marks.

Instruction for the candidates: The candidates are required to attempt any two questions out of four from each section A and B and the entire section C of the question paper. Each question of sections A and B carries 6 marks and section C carries 11 marks. **Use of scientific calculator is allowed.**

Course Objective: At the end of reading the course, the student should be able to demonstrate an understanding of the concepts of Electricity and Magnetism which include the concept of magnetostatics, the magnetic properties of materials, Faraday’s Laws and Maxwell equations.

Section A

Magnetism: Biot-Savart's law & its applications- straight conductor, circular coil, solenoid carrying current. Divergence and curl of magnetic field. Magnetic vector potential. Ampere's circuital law. Magnetic properties of materials: Magnetic intensity, magnetic induction, permeability, magnetic susceptibility. Brief introduction of dia-, para- and ferro-magnetic materials.

Section B

Electromagnetic Induction: Faraday's laws of electromagnetic induction, Lenz's law, self and mutual inductance, L of single coil, M of two coils. Energy stored in magnetic field.

Maxwell`s equations and Electromagnetic wave propagation: Equation of continuity of current, Displacement current, Maxwell's equations, Poynting vector, energy density in electromagnetic field, electromagnetic wave propagation through vacuum and isotropic dielectric medium, transverse nature of EM waves, polarization.

Course Learning Outcomes: Having successfully completed this module, student will be able to demonstrate knowledge and understanding of:

1. The Biot-Savart’s law & its application, the Magnetic properties of Materials.

2. The use of Faraday’s Law of electromagnetic induction, Lenz’s Law, self and mutual induction.
3. Maxwell’s equations and electromagnetic wave propagation

Reference Books

1. Electricity and Magnetism. Berkeley Physics Course. Vol.II by E.M. Purcell, McGraw-Hill, 1965.
2. Fundamentals of Electricity and Magnetism by Author F.Kip. McGraw Hill (1969)
3. Introduction to Classical Electrodynamics by David Griffith. Prentice Hall of India, New Delhi.
4. EM Waves and Radiating Systems by Edward C.Jordan and K.G.Balmain. Prentice Hall of India, New Delhi.

BSC(PHY)-203P: PHYSICS LAB

Maximum Marks: 50 (2 Credits) **Time Allowed: 3 Hours**
External Examination: 50 (Pass Marks: 18) **Teaching Hours: 60**

Instructions: The candidate will mark any four programs on the question paper and the examiner will allot one of these four programs to be executed. The distribution of marks is given below:

1. One full program requiring the student to write algorithm and execution. (30)
2. Viva-Voce (10)
3. Record (Practical File) (10)

Experimental Skills: General Precautions for measurements and handling of equipment, Presentation of measurements, Fitting of given data to a graph, Results with proper Significant Figures and Limits of Error, Interpretation of results etc.

1. Measurement for logarithmic decrement, co-efficient of damping, relaxation time and quality factor of a damped simple pendulum.
2. To set up CRO for Sine and Square wave and to find their frequency and amplitude.
3. To study the magnetic field produced by a current carrying solenoid using a search coil and to find the value of permeability of air.
4. To determine the value of air capacitance by de-Sauty method and to find the permittivity of air and also to determine the dielectric constant of medium.
5. To determine the frequency of AC mains using a sonometer and an electro magnet.
6. To determine the frequency of A.C. mains or of an electric vibrator by Melde's experiment,
   using: (i) Transverse arrangement (ii) Longitudinal arrangement
7. To verify the laws of vibrating strings by Melde's experiment and to show that $\frac{\lambda^2}{T} =$ constant.
8. To determine the restoring force per unit extension of a spiral spring and also determine the mass of the spring.
9. Determination of unknown capacitance by flashing and quenching of neon lamp.
10. Study the phase relationships between voltage and current using impedance triangle for LCR series circuit..
11. To study the resonance in series LCR circuit for different resistances and find Q-value.
12. To study the resonance in parallel LCR circuit for different resistances and find Q-value.
13. To determine the given inductance by Anderson's bridge.
14. To determine the specific resistance of copper using standard low resistance Kelvin's double bridge.
15. To study the e.m.f. produced as a function of the velocity of the magnet.
16. To compare the capacitances of two capacitors (C_1, C_2) by de-Sauty's method.
17. To study the working of energy meter.

Text and Reference Books:

1. B.Sc. Practical Physics, By C.L.Arora, S.Chand & Co.
2. A Laboratory Manual of Physics for undergraduate classes by D.P.Khandelwal

BSC(PHY)-303A: STASTISTICAL PHYSICS

Maximum Marks: 50 (2 Credits)	**Time Allowed: 3 Hours**
External Examination: 35 (Pass Marks: 18)	**Pass Percentage: 35%**
Internal Assessment: 15 (Pass Marks: 05)	**Teaching Hours: 30**

15 marks internal assessment will be based on two mid-semester tests, class tests, written assignments, project work etc. and lecture attendance.

Instruction for the Paper Setter: The question paper will consist of three sections A, B and C. Sections A and B will have four questions from respective sections of the syllabus and Section C will have 11 short answer type questions, which will be set from the entire syllabus uniformly. Each question of sections A and B will carry 6 marks and section C carries 11 marks.

Instruction for the candidates: The candidates are required to attempt any two questions out of four from each section A and B and the entire section C of the question paper. Each question of sections A and B carries 6 marks and section C carries 11 marks. **Use of scientific calculator is allowed.**

Course Objective: This course develops concepts of statistical mechanics, statistical interpretation of thermodynamics, the methods of statistical mechanics are used to develop the statistics for Bose-Einstein, Fermi-Dirac and photon gases, various laws related to radiation are discussed.

Section A

Statistical Mechanics: Scope of statistical Physics, Basic ideas of probability, Case of box divided into equal sized compartments, Distribution of 4 distinguishable particles in 2 compartments of equal size, Microstate and Macrostate, Distribution of n particles in 2 compartments, State of maximum probability, Stirling formula, Deviation from the state of maximum probability, Equilibrium state of a dynamic system, Distribution of n distinguishable particles in k compartments of unequal size.

Phase space, Division of phase space into cells, Three kinds of statistics, Basic approach in three statistics, Maxwell Boltzmann statistics applied to an ideal gas in equilibrium, Derivation of most probable speed, average speed, and root mean square speed of the gas molecules using Maxwell-Boltzmann's law of molecular speeds, Experimental verification of the Maxwell-Boltzmann law of distribution of molecular speeds.

Section B

Quantum Statistics– Need of quantum statistics, Bose-Einstein statistics, Application of Bose-Einstein statistics to photon gas and derivation of Plank's law of black body radiation, Spectral energy distribution of black body radiations, Deduction of Wien's Displacement law from Plank's law, Deduction of Stefan Boltzmann's law from Plank's law of radiation.

Fermi-Dirac statistics, Application of Fermi-Dirac statistics to free electrons inside conductors, Fermi energy, Average energy of electron at zero Kelvin, Average speed of electrons at zero Kelvin, Comparison of M-B, B-E, and F-D statistics.

Course Learning Outcomes: This course develops concepts in statistical mechanics, statistical interpretation of thermodynamics, micro canonical, canonical and grant canonical ensembles; the methods of statistical mechanics are used to develop the statistics for Bose-

Einstein, Fermi-Dirac and photon gases; selected topics from low temperature physics and electrical and thermal properties of matter are discussed. The concept of Black body radiation and various laws related to Black Body Radiation are also discussed.

Text Books:

1. A Text Book of Statistical Physics and Thermodynamics, V.K. Sharma, Dr. Renu Bedi, Sangeeta Sharma, PV Books, Jalandhar)

Reference Books

1. Statistical Mechanics: An Introductory Text, Bhattacharjee, J.K. (Allied Pub., Delhi)2000.
2. Statistical Physics and Thermodynamics, V.S. Bhatia (Sohan Lal Nagin Chand, Jalandhar)
3. Statistical Mechanics, B.B. Laud (Macmillan India Ltd), 1981.
4. A Treatise on Heat, M.N. Saha & B.N. Srivastava, (The Indian Press Pvt. Ltd., Allahabad) 1965.

BSC(PHY)-303B: QUANTUM MECHANICS

Maximum Marks: 50 (2 Credits)	**Time Allowed: 3 Hours**
External Examination: 35 (Pass Marks: 18)	**Pass Percentage: 35%**
Internal Assessment:15 (Pass Marks: 05)	**Teaching Hours: 30**

15 marks internal assessment will be based on two mid-semester tests, class tests, written assignments, project work etc. and lecture attendance.

Instruction for the Paper Setter: The question paper will consist of three sections A, B and C. Sections A and B will have four questions from respective sections of the syllabus and Section C will have 11 short answer type questions, which will be set from the entire syllabus uniformly. Each question of sections A and B will carry 6 marks and section C carries 11 marks.

Instruction for the candidates: The candidates are required to attempt any two questions out of four from each section A and B and the entire section C of the question paper. Each question of sections A and B carries 6 marks and section C carries 11 marks. **Use of scientific calculator is allowed.**

Course Objectives- The objective of the course on Quantum Mechanics for the student of B.Sc. Non-Medical is to equip them with the knowledge of wave particle duality, Planck's quantum, fundamental of quantum relations, and related problems and applications.

Section A

Formalism of Wave Mechanics: Brief introduction to need and development of quantum mechanics, Wave-particle duality, de-Broglie hypothesis, Complimentarity and uncertainty principle, Gaussian wave-packet, Schrodinger equation for a free particle, operator correspondence and equation for a particle subject to forces. Normalization and probability.

Interpretation of wave function, Super position principle, Expectation value, probability current and conservation of probability, Admissibility conditions on the wave function. Ehrenfest theorem, Fundamental postulates of wave mechanics, Eigen functions and eigen values. Operator formalism, Orthogonal systems, Expansion in eigen functions, Hermitian operators. Simultaneous eigen functions. Equation of motion.

Section B

Problems in one and three dimensions: Time dependent Schrodinger equation. Application to stationary states for one dimension, Potential step, Potential barrier, Rectangular potential well, Degeneracy, Orthogonality, Linear harmonic oscillator, Schrodinger equation for spherically symmetric potential, Spherical harmonics. Hydrogen atom energy levels and Eigen functions. Degeneracy, Angular momentum.

Course learning outcome: Students will have achieved the ability to:

5. The basic laws of quantum and their relations etc.
6. Interpretation of wave function and its properties
7. Solve Schrodinger equation and related problems

Text Books:

1. Concepts of Modern Physics, Arthur Beiser (McGraw Hill Pub. Co., Delhi, 9th ed.), 1995.
2. Elements of Modern Physics, S.H. Patil (McGraw Hill), 1998.

Reference Books:

7. Concepts of Modern Physics, Arthur Beiser, 2009, McGraw-Hill
8. Modern Physics, J.R. Taylor, C.D. Zafiratos, M.A. Dubson,2009, PHI Learning
9. Quantum Mechanics by V.K. Thankappan.
10. Quantum Mechanics Concepts and Applications by NourdineZettili
11. Quantum Physics, Berkeley Physics,Vol.4. E.H. Wichman, 2008, Tata McGrawHill Co.
12. Modern Physics, G. Kaur and G.R. Pickrell, 2014, McGraw Hill

BSC(PHY)-303P: PHYSICS LAB

Maximum Marks: 50 (2 Credits)	**Time Allowed: 3 Hours**
External Examination:50 (Pass Marks: 18)	**Teaching Hours: 60**

Instructions: The candidate will mark any four programs on the question paper and the examiner will allot one of these four programs to be executed. The distribution of marks is given below:

1. One full program requiring the student to write algorithm and execution.	(30)
2. Viva-Voce	(10)
3. Record (Practical File)	(10)

Experimental Skills: General Precautions for measurements and handling of equipment, Presentation of measurements, Fitting of given data to a graph, Results with proper Significant Figures and Limits of Error, Interpretation of results etc.

1. Measurement of Planck's constant.
2. To determine Stefan's Constant.
3. To study the adiabatic expansion of a gas and hence to calculate the value of ratio between two specific heats of the gas.
4. To find the ionisation potential of mercury using a gas filled diode.
5. To find the value of Plank's constant and photo electric work function of the material of the cathode using a photo electric cell.
6. To verify inverse square law of radiation using a photo-electric cell.
7. To study the characteristics of photovoltaic cell (solar cell)
8. To determine the Coefficient of Thermal Conductivity of Cu by Searle's Apparatus.
9. To study the probability distribution using dice and coins.
10. To determine the Coefficient of Thermal Conductivity of a bad conductor by Lee's disc method.
11. To determine the Temperature Coefficient of Resistance by Platinum Resistance Thermometer (PRT).
12. To study the variation of Thermo-Emf of a Thermocouple with Difference of Temperature of its Two Junctions.
13. To determine the heating efficiency of electric kettle.
14. Fitting straight line or a simple curve from a given set of data.

Reference Books

1. Advanced Practical Physics for students, B. L. Flint and H.T. Worsnop, 1971, Asia Publishing House
2. A Text Book of Practical Physics, I. Prakash& Ramakrishna, 11th Ed., 2011, KitabMahal
3. Advanced level Physics Practicals, Michael Nelson and Jon M. Ogborn, 4th Edition, reprinted 1985, Heinemann Educational Publishers
4. A Laboratory Manual of Physics for undergraduate classes, D.P.Khandelwal,1985, Vani Pub.

BSC(PHY)-403A: THERMODYNAMICS

Maximum Marks: 50 (2 Credits) **Time Allowed: 3 Hours**
External Examination: 35 (Pass Marks: 18) **Pass Percentage: 35%**
Internal Assessment: 15 (Pass Marks: 05) **Teaching Hours: 30**

15 marks internal assessment will be based on two mid-semester tests, class tests, written assignments, project work etc. and lecture attendance.

Instruction for the Paper Setter: The question paper will consist of three sections A, B and C. Sections A and B will have four questions from respective sections of the syllabus and Section C will have 11 short answer type questions, which will be set from the entire syllabus uniformly. Each question of sections A and B will carry 6 marks and section C carries 11 marks.
Instruction for the candidates: The candidates are required to attempt any two questions out of four from each section A and B and the entire section C of the question paper. Each question of sections A and B carries 6 marks and section C carries 11 marks. **Use of scientific calculator is allowed.**

Course Objective: To give basic knowledge about the laws and potentials of thermodynamics and its applications in different physical conditions.

Section A

Statistical Basis of Entropy: Statistical definition of entropy, Change of Entropy of a system, Increase of entropy in natural processes, Reversible and irreversible processes, Entropy and disorder, **Entropy and Carnot's Cycle:** Thermodynamics, Work and Heat, Thermodynamic variables and processes, Laws of thermodynamics, Specific heats of gas, Relation between two specific heats of a gas, Work done in an isothermal process, Equation of an adiabatic process, Work done in an adiabatic process, Carnot's reversible heat engine, Efficiency of any reversible heat engine (Carnot's theorem), Entropy changes in a Carnot's cycle, Temperature-Entropy diagram, Thermodynamic temperature scale, Ideal refrigerator and heat pump, Thermoelectric effect, Application of thermodynamics to the thermoelectric effect, Entropy of a perfect gas, Equation of state of an ideal gas from simple statistical considerations, Heat death of universe.

Section B

Maxwell's Thermodynamic Relationships and Applications: Thermodynamic functions, Maxwell's four thermodynamic relations, Deduction of Clapeyron's latent heat equation and Clausius-Clapeyron equation, Cooling produced by adiabatic expansion of any substance, Adiabatic compression of a substance, Adiabatic stretching of a wire, Stretching of thin films, change in internal energy with volume, Expression for Cp-Cv, Variation of Cv with volume, Variation of Cp with pressure.

Joule-Thomson Experiment: Joule Thomson effect and its basic cause, Mathematical theory of Joule-Thomson effect, Use of Joule-Thomson effect for liquefaction of helium, Production of very low temperature by adiabatic demagnetisation.

Course Learning Outcomes: After completion of the course, student will be able to understand:

1. The Laws of thermodynamics, entropy, and Maxwell's thermodynamic relations etc.
2. The basic of statistical mechanics, concept of microstate, macrostate and three kinds of statistics.
3. The Transport Phenomena, law of equipartition of energy and its applications.

Text Books:

1. A Text Book of Statistical Physics and Thermodynamics, V.K. Sharma, Dr. Renu Bedi, Sangeeta Sharma, PV Books, Jalandhar)

Reference Books:

1. Statistical Physics and Themodynamics -V.S. Bhatia, Punjab University, Chandigarh, 1977.
2. Thermal Physics, A. Kumar and S.P. Taneja, 2014, R. Chand Publications.
3. Thermodynamics and Statistical Physics - Khandelwal and Loknathan, Shivlal Agnawala, Agna, 1979.

BSC(PHY)-403B: OPTICS AND LASERS

Maximum Marks: 50 (2 Credits)	**Time Allowed: 3 Hours**
External Examination: 35 (Pass Marks: 18)	**Pass Percentage: 35%**
Internal Assessment: 15 (Pass Marks: 05)	**Teaching Hours: 30**

15 marks internal assessment will be based on two mid-semester tests, class tests, written assignments, project work etc. and lecture attendance.

Instruction for the Paper Setter: The question paper will consist of three sections A, B and C. Sections A and B will have four questions from respective sections of the syllabus and Section C will have 11 short answer type questions, which will be set from the entire syllabus uniformly. Each question of sections A and B will carry 6 marks and section C carries 11 marks.

Instruction for the candidates: The candidates are required to attempt any two questions out of four from each section A and B and the entire section C of the question paper. Each question of sections A and B carries 6 marks and section C carries 11 marks. **Use of scientific calculator is allowed.**

Course Objective: The course will provide the knowledge about the different phenomenon of visible light which includes the idea of interference, diffraction, polarization and some fundamentals concepts of Laser and their usefulness and applications.

Section A

Interference: Concept of coherence, Spatial and temporal coherence. Coherence time, Conditions for observing interference fringes, Interference by wave front division and amplitude division, Interference in thin films, Multiple beam interference, Newton Rings.

Diffraction: Huygens-Fresnel theory, half-period zones, Zone plates, Distinction between Fresnel and Fraunhofer diffraction, Fraunhofer diffraction at rectangular and circular apertures, Effects of diffraction in optical imaging, resolving power of telescope. The diffraction grating, its use as a spectroscopic element and its resolving power.

Section B

Polarization: Concept and analytical treatment of un-polarized, plane polarized and elliptically polarized light. Double refraction, Nicol prism, Sheet polarizer, Polaroid and its applications.

Laser Fundamentals: Derivation of Einstein's relations. Concept of stimulated emission and population inversion. Threshold condition, Introduction of three level and four level laser schemes, elementary theory of optical cavity, Longitudinal and transverse modes. Ruby, Nd: YAG lasers, He-Ne and CO_2 lasers, Basics of holography.

Course Learning Outcomes: Upon completion of this course, the students will be able to:

1. Discuss the important areas of interference & diffraction with experiments associated with it.
2. Differentiate between Fraunhofer and Fresnel diffraction.
3. Apply skill to find the wavelength of spectral lines using Plane diffraction grating

4. Distinguish the methods of polarisation by reflection, refraction and scattering
5. Explain the Brewsters law and Malus law
6. Describe the different types of lasers, its principle, properties of laser beam

Text Books:

1. Fundamentals of Optics, F.A. Jenkins and Harvery E. White (McGraw Hill) 4th edition, 2001.
2. Optics, Ajoy Ghatak (McMillan India) 2nd edition, 7th reprint 1997.
3. Introduction to Atomic Spectra, H.E. White (McGraw Hill Book Co.)

Reference Book:

1. Optics, Born and Wolf (Pergamom Press), 3rd edition, 1965.

BSC(PHY)-403P: PHYSICS LAB

Maximum Marks: 50 (2 Credits)	**Time Allowed: 3 Hours**
External Examination:50 (Pass Marks:18)	**Teaching Hours: 60**

Instructions: The candidate will mark any four programs on the question paper and the examiner will allot one of these four programs to be executed. The distribution of marks is given below:

1. One full program requiring the student to write algorithm and execution.	(30)
2. Viva-Voce	(10)
3. Record (Practical File)	(10)

Experimental Skills: General Precautions for measurements and handling of equipment, Presentation

BHC103: BASIC PHYSICS-I

Maximum Marks: 100 (4 Credits) **Time Allowed: 3 Hours**
External Examination: 70 (Pass Marks: 28) **Pass Percentage: 40 %**
Internal Assessment: 30 (Pass Marks: 12) **Teaching Hours: 60**

30 marks internal assessment will be based on two mid-semester tests, class tests, written assignments, project work etc. and lecture attendance.

Instruction for the Paper Setter: The question paper will consist of three sections A, B and C. Sections A and B will have four questions from respective sections of the syllabus and Section C will have 11 short answer type questions, which will be set from the entire syllabus uniformly. Each question of Sections A and B will carry 12 marks and each question of section C carries 2 marks.

Instruction for the candidates: The candidates are required to attempt any two questions out of four from each Section A and B and the entire Section C of the question paper. Each question of sections A and B carries 12 marks and Section C carries 22 marks. **Use of scientific calculator is allowed.**

Section A

Co-ordinates: Cartesian and spherical polar co-ordinates system, area, volume, displacement, velocity, and acceleration in these systems, Solid angle.

Central Forces: Various forces in Nature (brief introduction), Centre of mass, Equivalent one body problem, Central forces, Equation of motion under central force, Kepler's laws and their derivation. Satellite in circular orbit and applications. Geosynchronous orbits.

Inertial and Non Inertial Frames: Frames of reference. Galilean transformation and Invariance, concept of stationary universal frame of reference and ether. Non-Inertial frames. Coriolis force and its applications (Qualitative)

Special Theory of Relativity: Postulates of special theory of relativity, Michelson Morley Experiment, Lorentz transformations, Observer and viewer in relativity, Relativity of simultaneity, Length, Time, Velocities, Relativistic Doppler effect, Variation of Mass with Velocity, Mass-Energy Equivalence.

Section B

Basics of Atomic and Nuclear Physics: Basic concept of atomic structure; X rays characteristics and production; concept of bremsstrahlung and auger electron, The composition of nucleus and its properties, mass number, isotopes of element, spin, binding energy, stable and unstable isotopes, law of radioactive decay, Mean-life and Half-life, basic concept of alpha, beta and gamma decay, concept of cross section and kinematics of nuclear reactions, types of nuclear reaction, fusion, fission.

Types of Radiation: Alpha, Beta and Gamma radiations.

Interaction of Photons – Photoelectric effect, Compton Scattering, Pair Production, Linear and Mass Attenuation Coefficients, Half Value Thickness (HVT) and tenth value Thickness (TVT)**.**

Text Books

4. Mechanics : H.S.Hans and S.P.Puri, Tata McGraw Hill, New Delhi
5. An Introduction to Nuclear Physics by M.R. Bhiday and V.A. Joshi (Orient Longman)
6. Introductory Nuclear Physics by D.C.Tayal (Himalaya Pub.)

Reference Books:

5. Mechanics Berkeley Physics, v.1: Charles Kittel, et. al. 2007, Tata McGraw-Hill. Physics – Resnick, Halliday & Walker 9/e, 2010, Wiley
6. Engineering Mechanics, Basudeb Bhattacharya, 2nd edn., 2015, Oxford University Press
7. W.E. Burcham and M. Jobes – Nuclear and Particle Physics – Longman (1995)

BHC103(P): BASIC PHYSICS-I LAB

Maximum Marks: 50 (2 Credits)	**Time Allowed: 3 Hours**
Pass Marks: 40 %(20 Marks)	**Teaching Hours: 60**

Instructions: The candidate will mark any four experiments on the question paper and the examiner will allot one of these four experiments to be performed. The distribution of marks is given below:

1. One full experiment requiring the student to take some data, analyze it and draw conclusions on the basis of Experimental Skills. (25)
2. Brief theory (05)
3. Viva-Voce (10)
4. Record (Practical File) (10)

Experimental Skills: General precautions for measurements and handling of equipment, Presentation of measurements, Fitting of given data to a graph, Results with proper Significant Figures and Limits of Error, Interpretation of results etc.

List of Experiments:

1. To measure the volume of a given cylinder using vernier caliper.
2. To measure the diameter of a wire by using a screw gauge.
3. To measure the distance between two edges of a slit by using a travelling microscope.
4. To determine the value of ‘g’ by using simple pendulum.
5. To determine the value of ‘g’ by using Kater’s Pendulum.
6. To determine the spring constant using a helical spring.
7. To establish relationship between torque and angular acceleration using fly wheel.
8. To determine the height of a building using a Sextant.
9. Determination of Poisson's ratio for rubber.
10. Study the dependence of moment of inertia on distribution of mass using objects of different geometrical shapes but of same mass. (by noting time periods of oscillations)
11. To determine the Young's modulus by bending of beam using traveling microscope.
12. To study one dimensional collision using two hanging spheres of different materials.
13. Study of characteristics of GM tube and determination of operating voltage and plateau length using background radiation as source (without commercial source).
14. Study of counting statistics using background radiation using GM counter.

Reference Books:

1. B.Sc. Practical Physics, By C.L. Arora, S. Chand& Co.
2. A Laboratory Manual of Physics for undergraduate classes by D.P. Khandelwal
3. Advanced Practical Physics for students, B.L. Flint and H.T. Worsnop, 1971, Asia Publishing House.
4. A Text Book of Practical Physics, Indu Prakash and Ramakrishna, 11th Edition, 2011, Kitab Mahal, New Delhi.

BHC203: BASIC PHYSICS-II

Maximum Marks: 100 (4 Credits) **Time Allowed: 3 Hours**
External Examination: 70 (Pass Marks: 28) **Pass Percentage: 40 %**
Internal Assessment: 30 (Pass Marks: 12) **Teaching Hours: 60**

30 marks internal assessment will be based on two mid-semester tests, class tests, written assignments, project work etc. and lecture attendance.

Instruction for the Paper Setter: The question paper will consist of three sections A, B and C. Sections A and B will have four questions from respective sections of the syllabus and Section C will have 11 short answer type questions, which will be set from the entire syllabus uniformly. Each question of sections A and B will carry 12 marks and section C carries 22 marks.
Instruction for the candidates: The candidates are required to attempt any two questions out of four from each section A and B and the entire section C of the question paper. Each question of sections A and B carries 12 marks and section C carries 22 marks. **Use of scientific calculator is allowed.**

Section A

Interference: Concept of coherence, Spatial and temporal coherence. Coherence time, Conditions for observing interference fringes, Interference by wave front division and amplitude division, Interference in thin films, Newton Rings.

Diffraction: Huygens-Fresnel theory, half-period zones, Zone plates, Distinction between Fresnel and Fraunhofer diffraction, Effects of diffraction in optical imaging, resolving power of telescope.

Polarization: Concept and analytical treatment of un-polarized, plane polarized and elliptically polarized light. Double refraction, Nicol prism, Polaroid and its applications.

Laser Fundamentals: Concept of stimulated emission and population inversion. Threshold condition, Introduction of three level and four level laser schemes, elementary theory of optical cavity and resonator, Ruby, Nd: YAG lasers, He-Ne and CO_2 lasers.

Section B

Statistical Mechanics: Scope of statistical Physics, basic ideas about probability, Macrostate and Microstate, Phase space, concept of thermodynamical probability, Distribution of n particles in two compartments, sterling formula, deviation from the state of maximum probability, equilibrium state of a dynamic system, Three kind of statistics (MB, BE and FD) and their comparison (qualitative Idea Only)

Crystal Structure: Symmetry operations for a two dimensional crystal. Two dimensional Bravais lattices, three dimensional Bravais lattices" Basic primitive cells. Crystal planes and Miller indices. Diamond and NaCI structure. Packing fraction for Cubic and hexagonal closed packed structure.

Text Books

1. Optics, Ajoy Ghatak, 2008, Tata McGraw Hill

2. Thermal Physics, A. Kumar and S.P. Taneja, 2014, R. chand Publications.
3. Solid State Physics by Puri and Babbar.

Reference Books:

4. Fundamentals of Optics, F.A. Jenkins and H.E. White, 1981, McGraw-Hill
5. Principles of Optics, Max Born and Emil Wolf, 7th Edn., 1999, Pergamon Press.
6. Thermodynamics, Kinetic theory & Statistical thermodynamics, F.W.Sears & G.L.Salinger. 1988, Narosa
7. University Physics, Ronald Lane Reese, 2003, Thomson Brooks/Cole.
8. Elements of Modern Physics by S. H. Patil (TMGH, 1985)

BHC203(P): BASIC PHYSICS-II LAB

Maximum Marks: 50 (2 Credits) **Time Allowed: 3 Hours**
Pass Marks: 40 %(20 Marks) **Teaching Hours: 60**

Instructions: The candidate will mark any four experiments on the question paper and the examiner will allot one of these four experiments to be performed. The distribution of marks is given below:

1. One full experiment requiring the student to take some data, analyze it and draw conclusions and on the basis of Experimental Skills. (25)
2. Brief theory (05)
3. Viva-Voce (10)
4. Record (Practical File) (10)

Experimental Skills: General Precautions for measurements and handling of equipment, Presentation of measurements, Fitting of given data to a graph, Results with proper Significant Figures and Limits of Error, Interpretation of results etc.

List of Experiments:

1. To determine the angle of prism using spectrometer.
2. To determine refractive index of the Material of a prism using sodium source.
3. To determine wavelength of sodium light using Newton’s Rings
4. To determine resolving power of a telescope.
5. Study of rotation of plane of polarization with a polarimeter.
6. Study of variation of light intensity using photovoltaic cell/inverse square law.
7. To determine the Plank’s constant using photovoltaic cell.
8. To determine the divergence and wave length of a given Laser source using double slit.
9. To study the diffraction pattern of He-Ne Laser by using single slit and determine the wavelength.
10. To study the Probability distribution using coloured dice and coins.

Reference Books:

1. B.Sc. Practical Physics, By C.L. Arora, S. Chand & Co.
2. A Laboratory Manual of Physics for undergraduate classes by D.P. Khandelwal
3. Advanced Practical Physics for students, B.L. Flint and H.T. Worsnop, 1971, Asia Publishing House.

List of Experiments:

1. To determine the refractive index of liquid using spectrometer
2. To determine the Cauchy’s constants
3. To study the refractive index of doubly refracting prism
4. To determine the wave length of a given light using bi-prism
5. To determine the resolving power of a telescope
6. To determine the principal points of a lens system
7. Study of rotation of plane of polarization with a polarimeter.
8. Set up Newton’s rings to determine wave length of sodium light
9. To determine the wave length and dispersive power using plane diffraction grating (Use Hg source)
10. To determine the divergence and wave length of a given laser source.

Text and Reference Books:

1. A Laboratory Manual of Physics for Undergraduate Classes, D.P. Khandelwal.
2. B.Sc. Practical Physics, C.L. Arora.

SYLLABUS
FOR
COURSE: B.Sc. (Medical/Non-Medical) CHEMISTRY

PART-I
(SEMESTER: I &II)
SESSION: 2020–2021

FACULTY OF SCIENCES
P. G. DEPARTMENT OF CHEMISTRY

SRI GURU TEG BAHADUR KHALSA COLLEGE
Sri Anandpur Sahib
An Autonomous College
Affiliated to Punjabi University, Patiala

Semester-I

BSC 104A: INORGANIC CHEMISTRY – I

Maximum Marks: 50	**Number of Lectures: 30**
External Examination: 35	**Time Allowed: 3 Hours**
Internal Assessment: 15	**Pass Marks: 35%**
Credit: 02 (Theory)	

OBJECTIVE

To teach the fundamental concepts of Inorganic Chemistry. The syllabus contents are duly arranged section wise and contents are included in such a manner so that due importance is given to the requisite intellectual understanding of atomic structure, periodic properties, bonding and general inorganic chemistry.

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will consist of three sections: A, B and C. Sections A and B will have four questions each from the respective section of the syllabus and will carry 6 marks each. Section C will consist of 11 short answer questions that will cover the entire syllabus and will be of 1 mark each. Use of scientific non-programmable calculator is allowed.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all by selecting two questions each from sections A & B and Section C (9th question) is compulsory.

SECTION A (15 Hrs)

Atomic Structure

Review of: Bohr's theory and its limitations, dual behaviour of matter and radiation, de Broglie's relation, Heisenberg Uncertainty principle. Hydrogen atom spectra. Need of a new approach to Atomic structure. What is Quantum mechanics? Time independent Schrodinger equation and meaning of various terms in it. Significance of ψ and ψ^2, Schrödinger equation for hydrogen atom. Radial and angular parts of the hydogenic wavefunctions (atomic orbitals) and their variations for 1s, 2s, 2p, 3s, 3p and 3d orbitals (Only graphical representation). Radial and angular nodes and their significance. Radial distribution functions and the concept of the most probable distance with special reference to 1s and 2s atomic orbitals. Significance of quantum numbers, orbital angular momentum and quantum numbers m_l and m_s. Shapes of s, p and d atomic orbitals, nodal planes. Discovery of spin, spin quantum number (s) and magnetic spin quantum number (m_s). Rules for filling electrons in various orbitals, Electronic configurations of the atoms. Stability of half-filled and completely filled orbitals, concept of exchange energy. Relative energies of atomic orbitals, Anomalous electronic configurations.

Periodic Properties

Position of element in the periodic table effective nuclear charge and its calculations. Atomic and ionic radii, ionization energy, electronic affinity and electronegativity-definition, methods of determination or evaluation, trends in periodic table and applications in predicting and explaining the chemical behavious.

SECTION B (15 Hrs)

Chemical Bonding

Ionic Bonding: General characteristics of ionic bonding. Energy considerations in ionic bonding, lattice energy and solvation energy and their importance in the context of stability and solubility of ionic compounds. Statement of Born-Landé equation for calculation of lattice energy, Born-Haber cycle and its applications, polarizing power and polarizability. Fajan’s rules, ionic character in covalent compounds, bond moment, dipole moment and percentage ionic character.

Covalent bonding: VB Approach: Shapes of some inorganic molecules and ions on the basis of VSEPR and hybridization with suitable examples of linear, trigonal planar, square planar, tetrahedral, trigonal bipyramidal and octahedral arrangements. (BeF_2, BF_3, H_2O, NH_3, PCl_5, SF_6, IF_7, $SnCl_2$, XeF_2, CO_3^{2-}, NO^-, SO_4^{2-}, ClO_4^-). Concept of resonance and resonating structures in various inorganic and organic compounds.

MO Approach: Rules for the LCAO method, bonding and antibonding MOs and their characteristics for s-s, s-p and p-p combinations of atomic orbitals, nonbonding combination of orbitals, MO treatment of homonuclear diatomic molecules of 1st and 2nd periods (including idea of s-p mixing) and heteronuclear diatomic molecules such as CO, NO and NO^+. Comparison of VB and MO approaches.

COURSE OUTCOME

The students will acquire knowledge of

1. Atomic structure and Quantum mechanics
2. Periodic Properties
3. Chemical Bonding: Ionic and Covalent Bonding

Reference Books:

1. Lee, J.D. Concise Inorganic Chemistry ELBS, 1991.
2. Cotton, F.A., Wilkinson, G. & Gaus, P.L. Basic Inorganic Chemistry, 3rd ed., Wiley.
3. Douglas, B.E., McDaniel, D.H. & Alexander, J.J. Concepts and Models in Inorganic Chemistry, John Wiley & Sons.
4. Huheey, J.E., Keiter, E.A., Keiter, R.L. & Medhi, O.K. Inorganic Chemistry: Principles of Structure and Reactivity, Pearson Education India, 2006.

BSC 104B: ORGANIC CHEMISTRY – I

Maximum Marks: 50 **Number of Lectures: 30**
External Examination: 35 **Time Allowed: 3 Hours**
Internal Assessment: 15 **Pass Marks: 35%**
Credit: 02 (Theory)

OBJECTIVE

The objective of the Organic Chemistry is to acquaint the student with the basic phenomenon/concepts of stereochemistry of organic compounds and mechanistic aspects of organic reactions. The course is adequated with basic knowledge of hydrocarbons i.e. alkanes, alkenes, alkynes chemistry so they will understand the method of formations and reactions of compounds.

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will consist of three sections: A, B and C. Sections A and B will have four questions each from the respective section of the syllabus and will carry 6 marks each. Section C will consist of 11 short answer questions that will cover the entire syllabus and will be of 1 mark each.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all by selecting two questions each from sections A & B and Section C (9^{th} question) is compulsory.

SECTION A (15 hrs)

Fundamentals of Organic Chemistry

Physical Effects, Electronic Displacements: Inductive Effect, Electromeric Effect, Resonance and Hyperconjugation. Cleavage of Bonds: Homolysis and Heterolysis. Structure, shape and reactivity of organic molecules: Nucleophiles and electrophiles. Reactive Intermediates: Carbocations, Carbanions, free radicals, arynes and nitrenes (with examples). Assigning formal charges on intermediates and other ionic species. Strength of organic acids and bases: Comparative study with emphasis on factors affecting pK values. Aromaticity: Benzenoids and Hückel’s rule.

Stereochemistry

Conformations with respect to ethane, butane and cyclohexane. Interconversion of Wedge Formula, Newmann, Sawhorse and Fischer representations. Concept of chirality (upto two carbon atoms). Configuration: Geometrical and Optical isomerism; Enantiomerism, Diastereomerism and Meso compounds). Threo and erythro; D and L; cis - trans nomenclature; CIP Rules: R/ S (for upto 2 chiral carbon atoms) and E / Z Nomenclature (for upto two C=C systems).

SECTION B (15 hrs)

Aliphatic Hydrocarbons

Functional group approach for the following reactions (preparations & reactions) to be studied in context to their structure.

Alkanes: (Upto 5 Carbons) Isomerism in alkanes, Preparation: Catalytic hydrogenation, Wurtz reaction, Kolbe’s synthesis, Corey-House reaction, decarboxylation of carboxylic acids from Grignard reagent. Reactions: Mechanism of free radical halogenation of alkanes: orientation, reactivity and selectivity.

Cyclo alkanes

Cycloalkanes--nomenclature, chemical reactions, Baeyer's strain theory and its limitations. Ring strain in small rings (cyclopropane and cyclobutane), theory of strain less rings. The case of cyclopropane ring: banana bonds.

Alkenes: (Upto 5 Carbons) Preparation: Elimination reactions: Dehydration of alkenes and dehydrohalogenation of alkyl halides (Saytzeff's rule); cis alkenes (Partial catalytic hydrogenation) and trans alkenes (Birch reduction). Reactions: cis- addition (alk. KMnO4) and trans-addition (bromine), Addition of HX (Markownikoff's and anti-Markownikoff's addition), Hydration, Ozonolysis, oxymecuration-demercuration, Hydroboration-oxidation.

Dienes

Nomenclature and classification of dienes: isolated, conjugated and cumulated dienes. Structure of allenes and butadiene, methods of formation, polymerization. Chemical reactions-I,2 and l,4 additions, Diels-Alder reaction.

Alkynes: (Upto 5 Carbons) Structure and bonding in alkynes, Acidity of alkynes, Preparation: Acetylene from CaC_2 and conversion into higher alkynes; by dehalogenation of tetra halides and dehydrohalogenation of vicinal-dihalides. Reactions: formation of metal acetylides, addition of bromine and alkaline $KMnO_4$, ozonolysis and oxidation with hot alk. $KMnO_4$, hydroboration-oxidation, metal-ammonia reductions, oxidation and polymerization.

COURSE OUTCOME

The students will acquire knowledge of

1. Basic of Organic Chemistry
2. Stereochemistry
3. Preparations and reactions of Alkanes, Cyclo alkanes, Alkenes, Dienes and Alkynes

Reference Books:

1. Graham Solomon, T.W., Fryhle, C.B. & Dnyder, S.A. Organic Chemistry, John Wiley & Sons (2014).
2. McMurry, J.E. Fundamentals of Organic Chemistry, 7th Ed. Cengage Learning India Edition, 2013.
3. Sykes, P. A Guidebook to Mechanism in Organic Chemistry, Orient Longman, New Delhi (1988).
4. Eliel, E.L. Stereochemistry of Carbon Compounds, Tata McGraw Hill education, 2000.
5. Finar, I.L. Organic Chemistry (Vol. I & II), E.L.B.S.
6. Morrison, R.T. & Boyd, R.N. Organic Chemistry, Pearson, 2010.
7. Bahl, A. & Bahl, B.S. Advanced Organic Chemistry, S. Chand, 2010.

BSC 104P: CHEMISTRY-I PRACTICAL

Maximum Marks: 50 **Time: 3Hrs.**
Pass Marks: 35% **Number of Lectures: 60**
Credit: 02

INSTRUCTIONS FOR EXAMINERS AND CANDIDATES

The practical examination will be held in single session (morning/evening). Candidates are required to perform practical from volumetric Analysis, element detection in organic compounds and TLC. Distribution of marks will be as under (Books may be consulted):

1. Volumetric analysis = 15 marks
   Initial write up: 5 marks; Equation:1, Indicator:1, End point:1 and General calculations:2
   Performance and results: 10 marks; Initial burette reading: 1, Final reading: 1, End point:1 Calculations and result:7
2. TLC = 10 marks (Performance and result)
3. Detection of extra elements = 10 marks (Performance and result)
4. Viva-Voce = 10 marks
5. Note Books = 5 marks

Total = 50 marks

SECTION A: Inorganic Chemistry

1. Semi-micro qualitative analysis (using H_2S or other methods) of mixtures - not more than four ionic species (two anions and two cations, excluding insoluble salts) out of the following:
   Cations : NH_4^+, Pb^{2+}, Bi^{3+}, Cu^{2+}, Cd^{2+}, Fe^{3+}, Al^{3+}, Co^{2+}, Ni^{2+}, Mn^{2+}, Zn^{2+}, Ba^{2+}, Sr^{2+}, Ca^{2+}, K^+
   Anions : CO_3^{2-} , S^{2-}, SO^{2-}, $S_2O_3^{2-}$, NO_3^-, CH_3COO^-, Cl^-, Br^-, I^-, NO_3^-, SO_4^{2-}, PO_4^{3-}, BO_3^{3-}, F^-, $C_2O_4^{2-}$

SECTION B: Organic Chemistry

1. Detection of extra elements (N, S, Cl, Br, I) in organic compounds (containing upto two extra elements)
2. Chromatography:
   a) Separation of mixture of two compounds by Chromatography: Measure the Rf value in each case
   b) Identify and separate the components of a given mixture of two amino acids (glycine, aspartic acid, glutamic acid, tyrosine or any other amino acid) by paper chromatography
   c) Identify and separate the sugars present in the given mixture by paper chromatography.
   d) Identify and separate the components of a given mixture of two dyes (red and blue ink, florescent and methylene blue) by paper chromatography

Reference Books:

1. Svehla, G. Vogel's Qualitative Inorganic Analysis, Pearson Education, 2012.
2. Mendham, J. Vogel's Quantitative Chemical Analysis, Pearson, 2009.
3. Vogel, A.I., Tatchell, A.R., Furnis, B.S., Hannaford, A.J. & Smith, P.W.G.,
4. Textbook of Practical Organic Chemistry, Prentice-Hall, 5th edition, 1996.
5. Mann, F.G. & Saunders, B.C. Practical Organic Chemistry Orient-Longman, 1960.

Semester-II

BSC 204A: PHYSICAL CHEMISTRY- I

Maximum Marks: 50	**Number of Lectures: 30**
External Examination: 35	**Time Allowed: 3 Hours**
Internal Assessment: 15	**Pass Marks: 35%**
Credit: 02 (Theory)	

OBJECTIVE

To develop and systematically upgrade their knowledge of concepts of thermodynamics and to be able to identify and describe energy exchange processes. The student with the knowledge of the thermodynamics, chemical and ionic equilibrium will understand and explain scientifically the application of the subject to a wide variety of topics in science and engineering, especially physical chemistry, chemical engineering and mechanical engineering.

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will consist of three sections: A, B and C. Sections A and B will have four questions each from the respective section of the syllabus and will carry 6 marks each. Section C will consist of 11 short answer questions that will cover the entire syllabus and will be of 1 mark each. Use of scientific non-programmable calculator is allowed.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all by selecting two questions each from sections A & B and Section C (9th question) is compulsory.

SECTION A (15 Hrs)

Thermodynamics-I

Definition of thermodynamics terms: system, surroundings. Types of systems, intensive and extensive properties. State and path functions and their differentials, Thermodynamic processes, Concept of heat and work, elementary idea of thermochemistry. First Law of Thermodynamics : statement, definition of internal energy and enthalpy. Heat capacity, heat capacities at constant volume and pressure and their relationship. Joule's law. Joule Thomson coefficient and inversion temperature, Calculation of w, q, dU & dH for the expansion of ideal gases under isothermal and adiabatic conditions for reversible process.

Thermodynamics-II

Second law of thermodynamics: need for the law, different statements of the law. Carnot cycle and its efficiency, Carnot theorem. Thermodynamic scale of temperature. Concept of entropy as a state function, entropy as a function of V & T, entropy as a function of P & T, entropy change in physical change, Clausius inequality, entropy as a criterion of spontaneity and equilibrium. Entropy change in ideal gases mixing of gases.

SECTION B (15 Hrs)

Thermodynamics-III

Third law of thermodynamics, Nernst heat theorem, statement and concept of residual entropy, evaluation of absolute entropy from heat capacity data, Gibbs and Helmholtz functions; Gibbs function (G) and Helmhotz function (A) as thermodynamic quantities. A & G as criteria for thermodynamic equilibrium and spontaneity, their advantage over entropy change. Variation of G and A with P, V and T.

Chemical equilibrium

Free energy change in a chemical reaction. Thermodynamic derivation of the law of chemical equilibrium. Le Chatelier's principle. Relationships between Kp, Kc and Kx for reactions involving ideal gases. Reaction isotherm and Van't Hoff equation and Clausius-Claperyron equation

Ionic equilibrium

Strong, moderate and weak electrolytes, degree of ionization, factors affecting degree of ionization, ionization constant and ionic product of water. Ionization of weak acids and bases, pH scale, common ion effect. Salt hydrolysis-calculation of hydrolysis constant, degree of hydrolysis and pH for different salts. Buffer solutions. Solubility and solubility product of sparingly soluble salts – applications of solubility product principle.

COURSE OUTCOME

The students will acquire knowledge of

1. Thermodynamics laws and energy exchange process
2. Principles related to chemical equilibrium
3. Ionic equilibrium

Reference Books:

1. Barrow, G.M. Physical Chemistry Tata McGraw-Hill (2007).
2. Castellan, G.W. Physical Chemistry 4th Ed. Narosa (2004).
3. Kotz, J.C., Treichel, P.M. & Townsend, J.R. General Chemistry Cengage 4. Learning India Pvt. Ltd., New Delhi (2009).
4. Mahan, B.H. University Chemistry 3rd Ed. Narosa (1998).
5. Petrucci, R.H. General Chemistry 5th Ed. Macmillan Publishing Co.: New York (1985).

BSC 204B: ORGANIC CHEMISTRY- II

Maximum Marks: 50 **Number of Lectures: 30**
External Examination: 35 **Time Allowed: 3 Hours**
Internal Assessment: 15 **Pass Marks: 35%**
Credit: 02 (Theory)

OBJECTIVE

The objective of the Organic Chemistry is to acquaint the student with aromatic and halogenated hydrocarbons and their comparative studies. The course is adequated with basic knowledge of alcohols, phenols, ethers, carbonyl compounds so they will understand the method of formations and reactions of compounds.

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will consist of three sections: A, B and C. Sections A and B will have four questions each from the respective section of the syllabus and will carry 6 marks each. Section C will consist of 11 short answer questions that will cover the entire syllabus and will be of 1 mark each. Use of scientific non-programmable calculator is allowed.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all by selecting two questions each from sections A & B and Section C (9th question) is compulsory.

SECTION A (15 Hrs)

Functional group approach for the following reactions (preparations & reactions) to be studied in context to their structure.

Aromatic hydrocarbons

Nomenclature of benzene derivatives, Structure of benzene: Stability and carbon-carbon bond lengths of benzene, resonance structure, MO picture.

Preparation (Case benzene): from phenol, by decarboxylation, from acetylene, from benzene sulphonic acid.

Reactions: (Case benzene): Electrophilic substitution: nitration, halogenation and sulphonation. Activating and deactivating substituents, orientation and ortho/para ratio, Friedel-Craft's reaction (alkylation and acylation) (upto 4 carbons on benzene). Side chain oxidation of alkyl benzenes (upto 4 carbons on benzene).

Alkyl and aryl halides

Alkyl Halides (Upto 5 Carbons) Types of Nucleophilic Substitution (S_N1, S_N2 and S_Ni) reactions.

Preparation: from alkenes and alcohols.

Reactions: hydrolysis, nitrite & nitro formation, nitrile & isonitrile formation. Williamson's ether synthesis: Elimination vs substitution.

Aryl Halides Preparation: (Chloro, bromo and iodo-benzene case): from phenol, Sandmeyer & Gattermann reactions.

Reactions (Chlorobenzene): Aromatic nucleophilic substitution (replacement by –OH group) and effect of nitro substituent. Benzyne Mechanism: KNH_2/NH_3 (or $NaNH_2/NH_3$).

Reactivity and Relative strength of C-Halogen bond in alkyl, allyl, benzyl, vinyl and aryl halides.

SECTION B (15 Hrs)

Alcohols, Phenols and Ethers (Upto 5 Carbons)

Alcohols: Classification and nomenclature, Hydrogen bonding, Acidic nature,

Preparation: Preparation of 1°, 2° and 3° alcohols: using Grignard reagent, Ester hydrolysis, Reduction of aldehydes, ketones, carboxylic acid and esters.

Reactions: With sodium, HX (Lucas test), esterification, oxidation (with PCC, alk. $KMnO_4$, acidic dichromate, conc. HNO_3). Oppeneauer oxidation

Dihydric alcohols: (Upto 6 Carbons), methods of formation, oxidation of diols. Pinacol-Pinacolone rearrangement.

Trihydric alcohol: Methods of formation and chemical reactions of glycerol.

Phenols: (Phenol case) Preparation: Cumene hydroperoxide method, from diazonium salts. Reactions: Electrophilic substitution: Nitration, halogenation and sulphonation. Fries Rearrangement, Reimer-Tiemann Reaction, Lederer-Mianasse reaction, Gattermann-Koch Reaction, Houben– Hoesch Condensation, Schotten – Baumann Reaction.

Ethers (aliphatic and aromatic): Cleavage of ethers with HI.

Aldehydes and ketones (aliphatic and aromatic): (Formaldehye, acetaldehyde, acetone and benzaldehyde)

Preparation: from acid chlorides, from carboxylic acids and from nitriles.

Reactions – Reaction with HCN, ROH, $NaHSO_3$, NH_2-G derivatives. Iodoform test. Aldol Condensation, Cannizzaro's reaction, Wittig reaction, Mannich reaction Benzoin condensation, Perkin and Knoevenagel condensations. Clemensen reduction and Wolff Kishner reduction. Meerwein-Pondorff Verley reduction. Use of acetals as protecting group. Oxidation of aldehydes, Baeyer-Villiger oxidation of ketones, $LiAIH_4$ and $NaBH_4$ reductions. Halogenation of enolizable ketones. An Introduction to α, β unsaturated aldehydes and ketones, Michael addition.

COURSE OUTCOME

The students will acquire knowledge of

1. Preparation and reactions of halogenated hydrocarbons and their comparative studies
2. Understanding of chemistry about the preparation methods and reactions of alcohols, phenols, ethers, carbonyl compounds and their derivatives chemistry

Reference Books:

1. Graham Solomon, T.W., Fryhle, C.B. & Dnyder, S.A. Organic Chemistry, John Wiley & Sons (2014).
2. McMurry, J.E. Fundamentals of Organic Chemistry, 7th Ed. Cengage Learning India Edition, 2013.
3. Sykes, P. A Guidebook to Mechanism in Organic Chemistry, Orient Longman, New Delhi (1988).
4. Finar, I.L. Organic Chemistry (Vol. I & II), E.L.B.S.
5. Morrison, R.T. & Boyd, R.N. Organic Chemistry, Pearson, 2010.
6. Bahl, A. & Bahl, B.S. Advanced Organic Chemistry, S. Chand, 2010.

BSC 204P: CHEMISTRY-II PRACTICAL

Maximum Marks: 50 **Time: 3Hrs.**

Pass Marks: 35% **Number of Lectures: 60**

Credit: 02

INSTRUCTIONS FOR EXAMINERS AND CANDIDATES

The practical examination will be held in single session (morning/evening). Distribution of marks will be as under (Books may be consulted):

1. Organic Chemistry Experiment
   Preparation = 15 marks (Preparation: 8, Recrystallisation: 5, Determination of melting point: 2)
2. Physical Chemistry Experiment = 20 marks
   Initial Write up = 7 marks (Theory/principle: 2, Procedure: 2, General Calculations: 3)
   Performance and result: 13 marks (Full credit up to 10% error)}
3. Viva-Voce = 10 marks
4. Note Books = 5 marks

Total = 50 marks

Section A: Physical Chemistry

Thermochemistry

1. Determination of heat capacity of calorimeter for different volumes.
2. Determination of enthalpy of neutralization of hydrochloric acid with sodium hydroxide.
3. Determination of enthalpy of ionization of acetic acid.
4. Determination of integral enthalpy of solution of salts (KNO_3, NH_4Cl).
5. Determination of enthalpy of hydration of copper sulphate.
6. Study of the solubility of benzoic acid in water and determination of enthalpy.

Ionic equilibria

pH measurements

1. Determination of the strength of the given acid solution pH- metrically by using standard alkali solution.
2. Measurement of pH of different solutions like aerated drinks, fruit juices, shampoos and soaps (use dilute solutions of soaps and shampoos to prevent damage to the glass electrode) using pH-meter.
3. Preparation of buffer solutions:
   i) Sodium acetate-acetic acid
   ii) Ammonium chloride-ammonium hydroxide
   Measurement of the pH of buffer solutions and comparison of the values with theoretical values.

Section B: Organic Chemistry

1. Purification of organic compounds by crystallization (from water and alcohol).
2. Criteria of Purity: Determination of melting and boiling points.
3. Preparations: Mechanism of various reactions involved to be discussed. Recrystallisation, determination of melting point and calculation of quantitative to be done.
   i) Benzoylation of amines/phenol
   ii) Oxime and 2,4-dinitrophenylhydrazone of aldehyde/ketone

iii) Nitration

Reference Books

1. Vogel, A.I., Tatchell, A.R., Furnis, B.S., Hannaford, A.J. & Smith, P.W.G.,
2. Textbook of Practical Organic Chemistry, Prentice-Hall, 5th edition, 1996.
3. Mann, F.G. & Saunders, B.C. Practical Organic Chemistry Orient-Longman, 1960.
4. Khosla, B. D.; Garg, V. C. & Gulati, A. Senior Practical Physical Chemistry, R. Chand & Co.: New Delhi (2011)

SYLLABUS
FOR
COURSE: B.Sc. (Medical/Non-Medical) CHEMISTRY

PART-II
(SEMESTER: III &IV)
SESSION: 2020–2021

FACULTY OF SCIENCES
P. G. DEPARTMENT OF CHEMISTRY

SRI GURU TEG BAHADUR KHALSA COLLEGE
Sri Anandpur Sahib
An Autonomous College
Affiliated to Punjabi University, Patiala

Semester-III

BSC 304A: PHYSICAL CHEMISTRY –I

Maximum Marks: 50 **Number of Lectures: 30**
External Examination: 35 **Time Allowed: 3 Hours**
Internal Assessment: 15 **Pass Marks: 35%**
Credit: 02 (Theory)

OBJECTIVE

To develop and systematically upgrade their knowledge of concepts of thermodynamics and to be able to identify and describe energy exchange processes. The course covers basic ideas of electrostatics, dipole moments, and concepts of conductivity and electrochemistry. The student with the knowledge of the thermodynamics, conductance and electrochemistry will understand and explain scientifically the application of the subject to a wide variety of topics in science and engineering, especially physical chemistry, chemical engineering and mechanical engineering.

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will consist of three sections: A, B and C. Sections A and B will have four questions each from the respective section of the syllabus and will carry 6 marks each. Section C will consist of 11 short answer questions that will cover the entire syllabus and will be of 1 mark each. Use of scientific non-programmable calculator is allowed.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all by selecting two questions each from sections A & B and Section C (9th question) is compulsory.

Section A (15 Hrs)

Thermodynamics-I

Definition of thermodynamics terms: system, surroundings. Types of systems, intensive and extensive properties. State and path functions and their differentials, Thermodynamic processes, Concept of heat and work, elementary idea of thermochemistry. First Law of Thermodynamics : statement, definition of internal energy and enthalpy. Heat capacity, heat capacities at constant volume and pressure and their relationship. Joule's law. Joule Thomson coefficient and inversion temperature, Calculation of w, q, dU & dH for the expansion of ideal gases under isothermal and adiabatic conditions for reversible process.

Thermodynamics-II

Second law of thermodynamics: need for the law, different statements of the law. Carnot cycle and its efficiency, Carnot theorem. Thermodynamic scale of temperature.

Thermodynamics-III

Concept of entropy as a state function, entropy as a function of V & T, entropy as a function of P & T, entropy change in physical change, Clausius inequality, entropy as a criterion of spontaneity and equilibrium. Entropy change in ideal gases mixing of gases.

Section B (15 Hrs)

Electrochemistry-I

Conductivity, equivalent and molar conductivity and their variation with dilution for weak and strong electrolytes. Kohlrausch law of independent migration of ions. Transference number and its experimental determination using Hittorf and Moving boundary methods. Ionic mobility. Applications of conductance measurements: determination of degree of ionization of weak electrolyte, solubility and solubility products of sparingly soluble salts, ionic product of water, hydrolysis constant of a salt. Conductometric titrations (only acid-base).

Electrochemistry-II

Reversible and irreversible cells. Concept of EMF of a cell. Measurement of EMF of a cell. Nernst equation and its importance. Types of electrodes. Standard electrode potential. Electrochemical series. Thermodynamics of a reversible cell, calculation of thermodynamic properties: ΔG, ΔH and ΔS from EMF data. Calculation of equilibrium constant from EMF data. Concentration cells with transference and without transference. Liquid junction potential and salt bridge. pH determination using hydrogen electrode, and quinhydrone electrode. Potentiometric titrations -qualitative treatment (acid-base and oxidation-reduction only).

COURSE OUTCOME

The students will acquire knowledge of

1. Concepts of thermodynamics and to be able to identify and describe energy exchange processes.
2. Concepts of conductivity
3. Faraday's laws of electrolysis, Chemical cells, EMF of cell and its measurement, Application of EMF measurements in determining (i) free energy, enthalpy, and entropy of a cell reaction (ii) equilibrium constants and (iii) pH values using different electrodes.

Reference Books:

1. Barrow, G.M. *Physical Chemistry* Tata McGraw Hill (2007).
2. Castellan, G.W. *Physical Chemistry* 4th Ed. Narosa (2004).
3. Kotz, J.C., Treichel, P.M. & Townsend, J.R. *General Chemistry*, Cengage Learning India Pvt. Ltd.: New Delhi (2009).
4. Mahan, B.H. *University Chemistry*, 3rd Ed. Narosa (1998).
5. Petrucci, R.H. *General Chemistry*, 5th Ed., Macmillan Publishing Co.: NewYork (1985).
6. Samuel Glasstone An Introduction to Electrochemistry, An East-West Ed. (1971).

BSC 304B: ORGANIC CHEMISTRY –II

Maximum Marks: 50 **Number of Lectures: 30**
External Examination: 35 **Time Allowed: 3 Hours**
Internal Assessment: 15 **Pass Marks: 35%**
Credit: 02 (Theory)

OBJECTIVE

The course is adequated with basic knowledge of alochols, phenols, ethers, carbonyl compounds, carboxylic acids, amines, diazonium salts & their derivatives chemistry so they will understand the method of formations and reactions of respective compounds.

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will consist of three sections: A, B and C. Sections A and B will have four questions each from the respective section of the syllabus and will carry 6 marks each. Section C will consist of 11 short answer questions that will cover the entire syllabus and will be of 1 mark each.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all by selecting two questions each from sections A & B and Section C (9th question) is compulsory.

SECTION A (15 Hrs)

Alcohols, Phenols and Ethers (Upto 5 Carbons)

Alcohols: Preparation: Preparation of 1°, 2° and 3° alcohols: using Grignard reagent, Ester hydrolysis, Reduction of aldehydes, ketones, carboxylic acid and esters.

Reactions: With sodium, HX (Lucas test), esterification, oxidation (with PCC, alk. $KMnO_4$, acidic dichromate, conc. HNO_3). Oppeneauer oxidation

Phenols: (Phenol case) Preparation: Cumene hydroperoxide method, from diazonium salts. Reactions: Electrophilic substitution: Nitration, halogenation and sulphonation. Fries Rearrangement, Reimer-Tiemann Reaction, Lederer-Mianasse reaction, Gattermann-Koch Reaction, Houben– Hoesch Condensation, Schotten – Baumann Reaction.

Ethers (aliphatic and aromatic): Cleavage of ethers with HI.

Aldehydes and ketones (aliphatic and aromatic): (Formaldehye, acetaldehyde, acetone and benzaldehyde)

Preparation: from acid chlorides, from carboxylic acids and from nitriles.

Reactions – Reaction with HCN, ROH, $NaHSO_3$, NH_2-G derivatives. Iodoform test. Aldol Condensation, Cannizzaro's reaction, Wittig reaction, Benzoin condensation, Clemensen reduction and Wolff Kishner reduction. Meerwein-Pondorff Verley reduction.

SECTION B (15 Hrs)

Carboxylic acids and their derivatives

Carboxylic acids (aliphatic and aromatic) *Preparation:* Acidic and Alkaline hydrolysis of esters. *Reactions:* Hell – Vohlard - Zelinsky Reaction

Carboxylic acid derivatives (aliphatic): (Upto 5 carbons)

Preparation: Acid chlorides, Anhydrides, Esters and Amides from acids and their interconversion.

Reactions: Comparative study of nucleophilicity of acyl derivatives. Reformatsky Reaction, Perkin condensation.

Amines and Diazonium Salts

Amines (Aliphatic and Aromatic): (Upto 5 carbons)

Preparation: from alkyl halides, Gabriel's Phthalimide synthesis, Hofmann Bromamide reaction.

Reactions: Hofmann vs. Saytzeff elimination, Carbylamine test, Hinsberg test, with HNO_2, Schotten – Baumann Reaction. Electrophilic substitution (case aniline): nitration, bromination, sulphonation.

Diazonium salts: *Preparation:* from aromatic amines. *Reactions:* conversion to benzene, phenol, dyes.

COURSE OUTCOME

The students will acquire knowledge of preparation and reactions of alcohols, phenols, ethers, carbonyl compounds, carboxylic acids, amines and diazonium salt & their derivatives.

Reference Books:

1. Morrison, R. T. & Boyd, R. N. *Organic Chemistry*, Dorling Kindersley (India) Pvt. Ltd. (Pearson Education).
2. Finar, I. L. *Organic Chemistry* (*Volume 1*), Dorling Kindersley (India) Pvt. Ltd. (Pearson Education).
3. Finar, I. L. *Organic Chemistry* (*Volume 2)*, Dorling Kindersley (India) Pvt. Ltd. (Pearson Education).
4. Nelson, D. L. & Cox, M. M. *Lehninger's Principles of Bioch*emistry *7th Ed.*, W. H. Freeman.
5. Berg, J.M., Tymoczko, J.L. & Stryer, L. *Biochemistry*, W.H. Freeman, 2002.

BSC 304P: CHEMISTRY-III PRACTICAL

Maximum Marks: 50 **Time: 3Hrs.**
Pass Marks: 35% **Number of Lectures: 60**
Credit: 02

INSTRUCTIONS FOR EXAMINERS AND CANDIDATES

The practical examination will be held in single session (morning/evening). Candidates are required to perform practicals from physical chemistry and organic chemistry. Distribution of marks will be as under (Books may be consulted):

1. Physical Chemistry Experiment = 15 marks
   Initial Write up = 7 marks (Theory/principle: 2, Procedure: 2, General Calculations: 3)
   Performance and result: 8 marks (Full credit up to 10% error)}
2. Organic Qualitative Analysis = 20 marks
   (Detection of elements identification and confirmation of functional group by 2 confirmatory tests.)
3. Viva-Voce = 10 marks
4. Note Books = 5 marks

Total = 50 marks

Section A: Physical Chemistry

1. Thermochemistry

- a) Determination of heat capacity of calorimeter for different volumes.
- b) Determination of enthalpy of neutralization of hydrochloric acid with sodium hydroxide.
- c) Determination of enthalpy of ionization of acetic acid.
- d) Determination of integral enthalpy of solution of salts (KNO_3, NH_4Cl).
- e) Determination of enthalpy of hydration of copper sulphate.
- f) Study of the solubility of benzoic acid in water and determination of enthalpy.

2. Conductance

- a) Determination of cell constant
- b) Determination of equivalent conductance, degree of dissociation and dissociation constant of a weak acid.
- c) Perform the following conductometric titrations:
  - i) Strong acid vs. strong base
  - ii) Weak acid vs. strong base

3. Potentiometry

Perform the following potentiometric titrations:

- i. Strong acid vs. strong base
- ii. Weak acid vs. strong base
- iii. Potassium dichromate vs. Mohr's salt

Section B: Organic Chemistry

1. Systematic Qualitative Organic Analysis of Organic Compounds possessing monofunctional groups (-COOH, phenolic, aldehydic, ketonic, amide, nitro, amines) and preparation of one derivative.

2. a) Separation of amino acids by paper chromatography
b) Determination of the concentration of glycine solution by formylation method.

c) Titration curve of glycine
d) Action of salivary amylase on starch
e) Effect of temperature on the action of salivary amylase on starch.
f) Differentiation between a reducing and a nonreducing sugar.

References:

1. Vogel, A.I., Tatchell, A.R., Furnis, B.S., Hannaford, A.J. & Smith, P.W.G., *Text book of Practical Organic Chemistry*, Prentice-Hall, 5th edition, 1996.
2. Mann, F.G. & Saunders, B.C. *Practical Organic Chemistry* Orient-Longman, 1960.
3. Khosla, B. D.; Garg, V. C. & Gulati, A. *Senior Practical Physical Chemistry,* R. Chand & Co.: New Delhi (2011).
4. Ahluwalia, V.K. & Aggarwal, R. *Comprehensive Practical Organic Chemistry*, Universities Press.

Semester-IV

BSC 404A: INORGANIC CHEMISTRY –II

Maximum Marks: 50	**Number of Lectures: 30**
External Examination: 35	**Time Allowed: 3 Hours**
Internal Assessment: 15	**Pass Marks: 35%**
Credit: 02 (Theory)	

OBJECTIVE

To teach the fundamental concepts of Inorganic Chemistry and their applications. The syllabus contents are duly arranged section wise and contents are included in such a manner so that due importance is given to the requisite intellectual understanding of coordination chemistry, transition metal.

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will consist of three sections: A, B and C. Sections A and B will have four questions each from the respective section of the syllabus and will carry 6 marks each. Section C will consist of 11 short answer questions that will cover the entire syllabus and will be of 1 mark each.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all by selecting two questions each from sections A & B and Section C (9th question) is compulsory.

SECTION A 15Hrs

Chemistry of Transition Elements

General group trends with special reference to electronic configuration, variable valency, colour, magnetic and catalytic properties, ability to form complexes and stability of various oxidation states (Latimer diagrams) for Mn^{n+}, Fe^{n+} and Cu^{n+}.

Inner Transition Elements f-Block Lanthanoids and actinoids: Electronic configurations, oxidation states, colour, magnetic properties, lanthanoids contraction, separation of Lanthanoids (ion exchange method only).

SECTION B 15Hrs

Coordination Chemistry

Valence Bond Theory (VBT): Inner and outer orbital complexes of Cr, Fe, Co, Ni and Cu (coordination numbers 4 and 6). Structural and stereoisomerism in complexes with coordination numbers 4 and 6. Drawbacks of VBT. IUPAC system of nomenclature.

Crystal Field Theory

Crystal field effect, octahedral symmetry. Crystal field stabilization energy (CFSE), Crystal field effects for weak and strong fields. Tetrahedral symmetry. Factors affecting the magnitude of the crystal-field parameters. Spectrochemical series. Comparison of CFSE for O_h and T_d complexes, Tetragonal distortion of octahedral geometry. Jahn-Teller distortion, Square planar coordination.

Thermodynamic and Kinetic Aspects of Metal Complexes

A brief outline of thermodynamic stability of metal complexes and factors affecting the stability, substitution reactions of square planar complexes.

COURSE OUTCOME

The students will acquire knowledge of

1. Comparative properties of Transition Elements
2. Coordination Chemistry and theories

Reference Books:

1. Petrucci, R.H. *General Chemistry* 5th Ed. Macmillan Publishing Co.: NewYork (1985).
2. Cotton, F.A. & Wilkinson, G. *Basic Inorganic Chemistry*, Wiley.
3. Shriver, D.F. & Atkins, P.W. *Inorganic Chemistry*, Oxford University Press.
4. Wulfsberg, G. *Inorganic Chemistry*, Viva Books Pvt. Ltd.
5. Rodgers, G.E. *Inorganic & Solid State Chemistry*, Cengage Learning India Ltd., 2008.
6. Lee, J.D. Concise Inorganic Chemistry ELBS, 1991.

BSC 404B: PHYSICAL CHEMISTRY –II

Maximum Marks: 50 **Number of Lectures: 30**
External Examination: 35 **Time Allowed: 3 Hours**
Internal Assessment: 15 **Pass Marks: 35%**
Credit: 02 (Theory)

OBJECTIVE

To teach the fundamental concepts of Physical Chemistry. The syllabus contents are duly arranged section wise and contents are included in such a manner so that due importance is given to the requisite intellectual understanding of kinetic theories, equilibria and general physical chemistry.

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will consist of three sections: A, B and C. Sections A and B will have four questions each from the respective section of the syllabus and will carry 6 marks each. Section C will consist of 11 short answer questions that will cover the entire syllabus and will be of 1 mark each. Use of scientific non-programmable calculator is allowed.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all by selecting two questions each from sections A & B and Section C (9th question) is compulsory.

SECTION A 15Hrs

Kinetic Theory of Gases and Liquids

Postulates of Kinetic Theory of Gases and derivation of the kinetic gas equation. Deviation of real gases from ideal behaviour, compressibility factor, causes of deviation. Van der Waals equation of state for real gases. Boyle temperature (derivation not required). Critical phenomena, critical constants and their calculation from van der Waals equation. Andrews isotherms of CO_2. Maxwell Boltzmann distribution laws of molecular velocities and molecular energies (graphic representation – derivation not required) and their importance. Temperature dependence of these distributions. Most probable, average and root mean square velocities (no derivation). Collision cross section, collision number, collision frequency, collision diameter and mean free path of molecules. Viscosity of gases and effect of temperature and pressure on coefficient of viscosity (qualitative treatment only).

Liquids: Surface tension and its determination using stalagmometer. Viscosity of a liquid and determination of coefficient of viscosity using Ostwald viscometer. Effect of temperature on surface tension and coefficient of viscosity of a liquid (qualitative treatment only).

Solids

Symmetry elements, unit cells, crystal systems, Bravais lattice types and identification of lattice planes. Laws of Crystallography - Law of constancy of interfacial angles, Law of rational indices. Miller indices. X–Ray diffraction by crystals, Bragg’s law. Structures of NaCl, KCl and CsCl (qualitative treatment only). Defects in crystals.

Solutions

Thermodynamics of ideal solutions: Ideal solutions and Raoult’s law, deviations from Raoult’s law – non-ideal solutions. Distillation of solutions. Lever rule. Azeotropes. Partial miscibility of liquids: Critical solution temperature; effect of impurity on partial miscibility of liquids. Nernst distribution law, thermodynamic derivation and its applications.

SECTION B 15Hrs

Chemical equilibrium and Ionic equilibrium

Free energy change in a chemical reaction. Thermodynamic derivation of the law of chemical equilibrium. Le Chatelier's principle. Relationships between Kp, Kc and Kx for reactions involving ideal gases. Reaction isotherm and Van't Hoff equation and Clausius-Claperyron equation

Factors affecting degree of ionization, ionization constant and ionic product of water. Ionization of weak acids and bases, pH scale, common ion effect. Salt hydrolysis-calculation of hydrolysis constant, degree of hydrolysis and pH for different salts. Buffer solutions. Solubility and solubility product of sparingly soluble salts

Phase Equilibrium

Phases, components and degrees of freedom of a system, criteria of phase equilibrium. Gibbs Phase Rule and its thermodynamic derivation. Derivation of Clausius – Clapeyron equation and its importance in phase equilibria. Phase diagrams of one-component systems (water and sulphur) and two component systems

Chemical Kinetics

Effect of temperature, pressure, catalyst and other factors on reaction rates. Order and molecularity of a reaction. Derivation of integrated rate equations for zero, first and second order reactions. Half–life of a reaction. General methods for determination of order of a reaction. Concept of activation energy and its calculation from Arrhenius equation.

COURSE OUTCOME

The students will acquire knowledge of

1. Kinetic theory of gases and liquids
2. Ideal and Non-ideal Solutions
3. Chemical Equilibrium and Ionic Equilibrium and Phase Equilibrium
4. Chemical Kinetics

Reference Books:

1. Barrow, G.M. *Physical Chemistry* Tata McGraw Hill (2007).
2. Castellan, G.W. *Physical Chemistry* 4th Ed. Narosa (2004).
3. Kotz, J.C., Treichel, P.M. & Townsend, J.R. *General Chemistry* Cengage Learning India Pvt. Ltd., New Delhi (2009).
4. Mahan, B.H. *University Chemistry* 3rd Ed. Narosa (1998)

BSC 304P: CHEMISTRY-IV PRACTICAL

Maximum Marks: 50 **Time: 3Hrs.**
Pass Marks: 35% **Number of Lectures: 60**
Credit: 02

INSTRUCTIONS FOR EXAMINERS AND CANDIDATES

The practical examination will be held in single session (morning/evening). Distribution of marks will be as under (Books may be consulted):

1. Inorganic Chemistry Experiment = 20 marks
2. Physical Chemistry Experiment = 15 marks
   Initial Write up 7 marks (Theory/principle: 2, Procedure: 2, General Calculations: 3
   Performance and result: 8 marks (Full credit up to 10% error)}
3. Viva-Voce = 10 marks
4. Note Books = 5 marks

Total = 50 marks

Section A: Inorganic Chemistry

1. Semi-micro qualitative analysis (using H_2S or other methods) of mixtures - not more than four ionic species (two anions and two cations, excluding insoluble salts) out of the following:
   Cations : NH_4^+, Pb^{2+}, Bi^{3+}, Cu^{2+}, Cd^{2+}, Fe^{3+}, Al^{3+}, Co^{2+}, Ni^{2+}, Mn^{2+}, Zn^{2+}, Ba^{2+}, Sr^{2+}, Ca^{2+}, K^+
   Anions : CO_3^{2-} , S^{2-}, SO^{2-}, $S_2O_3^{2-}$, NO_3^-, CH_3COO^-, Cl^-, Br^-, I^-, NO_3^-, SO_4^{2-}, PO_4^{3-}, BO_3^{3-}, F^-, $C_2O_4^{2-}$
2. Estimate the amount of nickel present in a given solution as bis(dimethylglyoximato) nickel(II) or aluminium as oximate in a given solution gravimetrically.
3. Estimation of (i) Mg^{2+} or (ii) Zn^{2+} by complexometric titrations using EDTA.
4. Estimation of total hardness of a given sample of water by complexometric titration.

Section B: Physical Chemistry

1. Surface tension measurement (use of organic solvents excluded).
   a) Determination of the surface tension of a liquid or a dilute solution using a stalagmometer.
   b) Study of the variation of surface tension of a detergent solution with concentration.
2. Viscosity measurement (use of organic solvents excluded).
   a) Determination of the relative and absolute viscosity of a liquid or dilute solution using an Ostwald's viscometer.
   b) Study of the variation of viscosity of an aqueous solution with concentration of solute.
3. Phase equilibria
   a) To determine the distribution coefficient of Iodine between carbon tetrachloride and water.
   b) To determine the distribution coefficient of Benzoic acid between Benzene and water.
4. Chemical Kinetics
   Study the kinetics of the following reactions.
   a) Initial rate method: Iodide-persulphate reaction

b) Integrated rate method:
   i) Acid hydrolysis of methyl acetate with hydrochloric acid.
   ii) Saponification of ethyl acetate.
   iii) Compare the strengths of HCl and H_2SO_4 by studying kinetics of hydrolysis of methyl acetate

Reference Books:

1. Svehla, G. *Vogel's Qualitative Inorganic Analysis*, Pearson Education, 2012.
2. Mendham, J. *Vogel's Quantitative Chemical Analysis*, Pearson, 2009.
3. Khosla, B. D.; Garg, V. C. & Gulati, A. *Senior Practical Physical Chemistry*, R. Chand & Co.: New Delhi (2011).

SKILL ENHANCEMENT COURSE
BSC(SEC) – CHEMISTRY OF COSMETICS & PERFUMES

Maximum Marks: 50 **Time: 3Hrs.**
Pass Marks: 35% **Number of Lectures: 30**
Credit: 02

OBJECTIVE

Cosmetic and perfume science is a fast moving area. This course introduces the preparation of cosmetics and gives a broad overview of cosmetic ingredients, vehicles and finished products, and the main methodologies used for microbiology, safety and efficacy testing.

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will be set by appointed external examiner (Subject Expert) on the day of exam and the distribution of marks will be as under:

1. Theory exam from Section-A - 25 Marks (5x5)
2. Viva-voce - 5 Marks
3. Note-book - 5 Marks
4. Experiments to be performed from Section-B - 15 Marks

Total marks - 50 Marks

SECTION- A
Theory 15 hrs

1. Cosmetics through the Ages, Formulations of Cosmetics for Everyday Use, A general study including preparation and uses of hair care products: Hair dye, hair spray, shampoo Skin Preparations: creams (cold, vanishing and shaving creams).
2. Colouring Materials Used in Decorative Cosmetics and Colour Matching, preparation and uses of decorative products: face powder, lipsticks, talcum powder, nail enamel. Sun Damage and Sunscreen Preparations
3. Quality, Stability and Safety Assurance of cosmetics: Analytical Methods, Efficacy Testing of Cosmetics, Emulsion Theory, Microbiological Control of Cosmetics, Hazard Determination of Ingredients, Stability Testing
4. Perfumes**:** Essential oils and their importance in cosmetic industries with reference to Eugenol, Geraniol, sandalwood oil, eucalyptus, rose oil, 2-phenyl ethyl alcohol, Jasmone, Civetone, Muscone.

SECTION-B
Practical 15 hrs

1. Preparation of talcum powder.
2. Preparation of shampoo.
3. Preparation of enamels.
4. Preparation of hair remover.
5. Preparation of face cream.
6. Preparation of nail polish and nail polish remover.

Reference Books:

1) E. Stocchi: Industrial Chemistry, Vol -I, Ellis Horwood Ltd. UK.
2) P.C. Jain, M. Jain: Engineering Chemistry, Dhanpat Rai & Sons, Delhi.
3) B.K. Sharma: Industrial Chemistry, Goel Publishing House, Meerut.
4) Edited by André O. Barel, Marc Paye, Howard I. Maibach, Handbook of Cosmetic Science and Technology Edited by:, 3rd edition

SYLLABUS
COURSE: M.Sc. II CHEMISTRY
FACULTY OF SCIENCES
P. G. DEPARTMENT OF CHEMISTRY
2020-21 Session

SRI GURU TEG BAHADUR KHALSA COLLEGE
Sri Anandpur Sahib
An Autonomous College
NAAC Accredited 'A' Grade
College with Potential for Excellence Status by UGC
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SCHEME OF COURSE
M.Sc. CHEMISTRY
SEMESTER III

Paper Code	**Course Name**	**Credits**	**Number of Lectures**	**Max. Marks Pass Percentage 35%**			**Examination Time**
				External	**Internal**	**Total**	
MC301	Analytical Chemistry	5	75	70	30	100	3Hrs
Elective Subject: Inorganic Specialization							
MC311	Ligand field Theory	5	75	70	30	100	3Hrs
MC312	Reaction Mechanism of Transition Metal Complexes	5	75	70	30	100	3Hrs
MC313	Inorganic Spectroscopy-I	5	75	70	30	100	6 Hrs
MC314	Inorganic Chemistry Practicals –I	3	90	70	30	100	6 Hrs
MC315	Inorganic Chemistry Practicals –II	3	90	70	30	100	6 Hrs
Elective Subject: Organic Specialization							
MC321	Applications of Organic Molecular Spectroscopy	5	75	70	30	100	3Hrs
MC322	Chemistry of Natural Products	5	75	70	30	100	3Hrs
MC323	Organic Synthesis	5	75	70	30	100	6 Hrs
MC324	Organic Chemistry Practicals –I	3	90	70	30	100	6 Hrs
MC325	Organic Chemistry Practicals –II	3	90	70	30	100	6 Hrs
Elective Subject: Physical Specialization							
MC331	Fundamentals of Spectroscopy	5	75	70	30	100	3Hrs

MC332	Statistical Thermodynamics	5	75	70	30	100	3Hrs
MC333	Fundamental and Atmospheric Photochemistry	5	75	70	30	100	6 Hrs
MC334	Instrumental Physical Chemistry Practicals –I	3	90	70	30	100	6 Hrs
MC335	Physical Chemistry Practicals –I	3	90	70	30	100	6 Hrs

CODE OF THE PAPERS

The paper code is of Three digits, e.g., X Y Z.

The first digit of the code, X, indicates the semester in which the paper is offered.

Second digit of the code, Y, indicates the specialization of the paper : Zero stands for Analytical Chemistry, one for Inorganic, two for Organic and three for Physical Chemistry.

Third digit of the code, Z, is the individual number of the paper.

SCHEME OF COURSE
M.Sc. CHEMISTRY
SEMESTER IV

Paper Code	**Course Name**	**Credits**	**No of Lectures**	**Max. Marks Pass Percentage 35%**			**Examination Time**
				External	**Internal**	**Total**	
MC401	Environmental Chemistry	5	75	70	30	100	3Hrs
Elective Subject: Inorganic Specialization							
MC411	Chemistry of Organometallic Compounds	5	75	70	30	100	3Hrs
MC412	Advanced Topics in Inorganic Chemistry	5	75	70	30	100	3Hrs
MC413	Inorganic Spectroscopy-II	5	75	70	30	100	6 Hrs
MC414	Inorganic Chemistry Practicals -I	3	90	70	30	100	6 Hrs
MC415	Inorganic Chemistry Practicals –II	3	90	70	30	100	6 Hrs
Elective Subject: Organic Specialization							
MC421	Photochemistry and Pericyclic Reactions	5	75	70	30	100	3Hrs
MC422	Modern Synthetic Reactions and Rearrangements	5	75	70	30	100	3Hrs
MC423	Heterocyclic Chemistry	5	75	70	30	100	6 Hrs
MC424	Organic Chemistry Practicals -I	3	90	70	30	100	6 Hrs
MC425	Organic Chemistry Practicals -II	3	90	70	30	100	6 Hrs
Elective Subject: Physical Specialization							
MC431	X-Ray Diffraction and Other Techniques	5	75	70	30	100	3Hrs
MC432	Bio-Physical Chemistry and Advanced Spectroscopy	5	75	70	30	100	3Hrs

MC433	Polymers and Surface Chemistry	5	75	70	30	100	6 Hrs
MC434	Instrumental Physical Chemistry Practicals -II	3	90	70	30	100	6 Hrs
MC435	Physical Chemistry Practicals -II	3	90	70	30	100	6 Hrs

PAPER–MC301: ANALYTICAL CHEMISTRY

Maximum Marks: 100	**Time: 3 hrs**
External Examination: 70	**Pass Marks: 35 %**
Internal Assessment: 30	**Number of Lectures: 75**
Credit: 05	**6 Lectures/Week**

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will be comprised of three Sections: A, B and C. Both section A and B will have four questions each (from the respective section of syllabus), all carrying 12 marks. Section C will consist of 11 short answer type questions that will cover the entire syllabus and will be of two marks each.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions selecting two questions from each of Section A & B and entire Section C is compulsory.

Section - A 38 Hrs.

1. **Introduction to Analytical Chemistry**: Methods of quantitative analysis, chemical analysis with its scale of operation, various steps in quantitative analysis.
2. **Sampling in Analysis**: Introduction, importance of selecting a representative sample, criterion of a good sampling plan, Stratified sampling Vs. random sampling.
3. **Reliability of Analytical Data**: Errors in chemical analysis, classification of errors, Minimization of errors, accuracy and precision. Improving accuracy of analysis, correlation and Regression, linear regression. Analysis of variance.
4. **Polarography**: Principle, residual, Migration, diffusion currents and other types of current, polarographic maxima, advantages and disadvantages of D.M.E. Reversible & irreversible processes, fundamental equation of polar graphic wave, Derivation of Ilkovic equation & deviations, Quantitative technique & evaluation of quantitative results, Amperometric titrations & Biamperometric titrations.
5. **Basic Principles of related technique of Polarography**: Alternating current, Square Wave, Pulse (normal and Differential), Tensametry.
6. **Chronopotentiometry:** Theory, circuit and applications & comparison with polarography.

Section - B 37 Hrs.

1. **Thermo Analytical Methods:** Thermogravimetric analysis, Differential Thermal analysis, Differential scanning calorimetry: Introduction, Instrumentation, Factors affecting thermogravimetric results, applications of thermogravimetry.

2. **Thermometric titrations**: Introduction, instrumentation and applications.

3. **Absorption Spectrophotometry:** Beer's law, Deviation from Beer's law, instrumentation of spectrophotometer, absorptivity, Spectrophotometric titrations, titration curves, advantages and applications.
4. **Solvent Extraction**: Distribution law and their importance in solvent extraction, synergistic extraction, extraction by solvation, Ion pair formation, Methods of extraction (batch, continuous and counter current) and applications of extraction in analytical chemistry.
5. **Ion Exchange Chromatography**: Introduction, Principle, Different types of Ion exchangers and their synthesis, Ion exchange column used in chromatographic separations, Selections of suitable systems, Ion exchange capacity, Ion exchange techniques: Batch method, Ion exchange chromatography, Applications of Ion exchangers in analytical chemistry.

RECOMMENDED BOOKS

1. Lattinen Harris, *Chemical analysis* (7th Ed.), W.H. Freeman.
2. A. M. Bend, *Modern Polarographic methods in Analytical Chemistry*, CRC Press, 1980.
3. Willard, Merrit and Dean, *Instrumental methods of analysis* (7th Ed.), CBS Publishers.
4. D. A. Skoog, *Fundamentals of analytical chemistry* (9th Ed.), Brooks/Cole.
5. Vogel's *Quantitative Chemical analysis* (6th Ed.), Pearson.
6. Vogel's *Quantitative Chemical analysis* (5th Ed.), Longman Scientific and Technical.
7. S. M. Khopkar, *Basic concepts of analytical Chemistry* (3th Ed.), New Age International Pvt. Ltd.
8. Gurdeep R. Chatwal, *Instrumental methods of chemical analysis*, Himalaya Publishing House.

PAPER–MC311: LIGAND FIELD THEORY

Maximum Marks: 100	**Time: 3 hrs**
External Examination: 70	**Pass Marks: 35 %**
Internal Assessment: 30	**Number of Lectures: 75**
Credit: 05	**6 Lectures/Week**

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will be comprised of three Sections: A, B and C. Both section A and B will have four questions each (from the respective section of syllabus), all carrying 12 marks. Section C will consist of 11 short answer type questions that will cover the entire syllabus and will be of two marks each.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions selecting two questions from each of Section A & B and entire Section C is compulsory.

Section - A 37 Hrs.

1. Introduction
    - (a) Concept of Ligand Field
    - (b) Scope of Ligand Field
    - (c) The Physical Properties Affected by Ligand Field.
    - (d) Ionic Model of Coordination Compounds.
    - (e) Crystal Fields and Ligand Fields.
2. Quantitative Basis of the Crystal Fields.
    - (a) Crystal Field Theory.
    - (b) The Octahedral Crystal Field Potential, V_{oct}.
    - (c) The Effect of V_{oct} on d Wave Functions.
    - (d) Evaluation of 10 Dq.
    - (e) The Tetrahedral Potential.
3. Atomic Spectroscopy
    - (a) The Free Ion
    - (b) Free Ion Terms
    - (c) Term Wave Functions
    - (d) Spin-Orbit Coupling

4. Free Ions in Weak Crystal Fields
    - (a) The Effect of a Cubic Crystal Field on S and P terms.
    - (b) The effect of a Cubic Crystal Field on D terms.
    - (c) The effect of a Cubic Crystal Field on F terms.
    - (d) The effect of a Cubic Crystal Field on G, H and I terms.

5. Thermodynamic Aspects of Crystal Fields
    - (a) Crystal Field Stabilization Energy.
    - (b) Lattice energy and C.F.S.E.

Section - B 38 Hrs.

1. Free ions in medium and strong Crystal fields

    (a) Strong field configuration.
    (b) Transition from weak to strong crystal fields.
    (c) Term energy level diagrams.
    (d) Tanabe-Sugano diagrams.

2. Molecular orbital theory for complex ions.
    (a) Elementary Molecular Orbital Theory.
    (b) Bonding in octahedral complexes.
    (c) Bonding in tetrahedral complexes.
3. Electronic Spectra of complex ions.
    (a) Selection rules and band widths.
    (b) Spectra of aqueous solutions of $[M (H_2O)_6]^{n+}$.
    (c) Spectra of spin free ML_6^{n+}.
    (d) Spectra of spin paired ML_6^{n+}.
    (e) Spectra of distorted octahedral complexes.
    (f) Spectra of tetrahedral complexes
    (g) The spectrochemical and nephelauxetic series.
    (h) Charge transfer spectra
4. Spectral and Magnetic properties of Complexes of Non-Cubic Stereochemistry
    (a) General
    (b) Square Planar Complexes.
    (c) Square Pyramidal Complexes.
    (d) Dodecahedral Complexes

RECOMMENDED BOOKS

1. I. Kumar, *Organometallic compounds*, Pragati Prakashan Meerut.

2. B. N.Figis, *Ligand Field Theory and Its Applications*,WILEY-VCH.

3. B. D Gupta, *Basic Organometallic Chemistry*, Universities Press, 2011.

4. F. A. Cotton, *Chemical Applications of Group Theory*, Wiley Interscience, New York

PAPER-MC312: REACTION MECHANISM OF TRANSITION METAL COMPLEXES

Maximum Marks: 100	**Time: 3 hrs**
External Examination: 70	**Pass Marks: 35 %**
Internal Assessment: 30	**Number of Lectures: 75**
Credit: 05	**6 Lectures/Week**

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will be comprised of three Sections: A, B and C. Both section A and B will have four questions each (from the respective section of syllabus), all carrying 12 marks. Section C will consist of 11 short answer type questions that will cover the entire syllabus and will be of two marks each.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions selecting two questions from each of Section A & B and entire Section C is compulsory.

Section - A 37 HRS.

1. **Ligand replacement reaction**: Labile and inert complexes, crystal field stabilization, general aspects, dissociation or displacement, classification of mechanism, water exchange rates, formation of complexes from aqueous ions, equation and base hydrolysis, attack on ligands.
2. **Reaction of Square complexes**: mechanism of ligand displacement reactions, the trans effect , application of trans effect.
3. **Metal Carbonyl reactions**: Reactions of octahedral, reactions of binuclear carbonyl, associative reactions, species with 17 and 18 electrons,
4. **Electron transfer processes**: Electron transfer theory outer sphere reactions, ligand-bridged reactions, iron-(II) iron-(III) exchange, two electron transfer, non-complementary reactions, replacement through redox mechanism.
5. **Stereochemical nonrigidity**: Metal carbonyl bonding (Synergistic Bonding), Fluxionality in organometallic compounds.

Section - B 38 HRS.

1. **Oxidative addition and migration (insertion) Reactions**: General comments, the acid base behaviour of metal atom in complexes, Lewis acidity of complexes, oxidative addition: addition of specific molecules (hydrogen addition, HX additions, Organic halides, additions of some other molecules), reductive elimination, insertion reactions, insertion of carbon monoxide, insertions of alkenes and C-C unsaturated compounds, cleavage of C-H bonds, cyclometallation reactions.
2. **Stability Constants of Metal complexes**

(I) (a) (i) Slope ratio method (ii) Job’s method of continuous variation (iii) Solubility method (vi) Mole- Ratio method.

- (b) General methods: (a) Bjerrum’s potentiometric method (b) Leden’s method (c) Ion Exchange method.

(II) Factors affecting the stability of a complexes

- (i) Nature of the central metal ion
- (ii) Electrostatic effect
- (iii) Chelate effect
- (iv) Steric effect

RECOMMENDED BOOKS

1. Cotton and Wilkinson, *Advanced Inorganic Chemistry* (5th Ed.) John Wiley.
2. Edwards, *Inorganic Reactions Mechanism, An Introduction*, W. A. Benzamin, Inc. 1965.
3. Shriver, Atkins and Longford, *Inorganic Chemistry*, Oxford University Press, 1990.
4. Jones and Jones, *Elementary Coordination Chemistry*.
5. D.R. Crow, *Polarography of Metal Complexes*.

PAPER–MC313: INORGANIC SPECTROSCOPY-I

Maximum Marks: 100	**Time: 3 hrs**
External Examination: 70	**Pass Marks: 35 %**
Internal Assessment: 30	**Number of Lectures: 75**
Credit: 05	**6 Lectures/Week**

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will be comprised of three Sections: A, B and C. Both section A and B will have four questions each (from the respective section of syllabus), all carrying 12 marks. Section C will consist of 11 short answer type questions that will cover the entire syllabus and will be of two marks each.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions selecting two questions from each of Section A & B and entire Section C is compulsory.

Section - A 37 Hrs.

1. General Introduction to Spectroscopy

Nature of radiation energies corresponding to various kinds of radiations, atomic and molecular transitions, selection rules & chemical processes effecting the natural line width of a spectral line, general applications; determinations of concentration, isobestic points, finger printing, Johb's method of Isomolar solutions.

2. Mossbauer Spectroscopy

Introduction, Interpretation of Isomer Shift, Quadrupole Interactions, Magnetic interactions, applications.

3. Nuclear Quadrupole Resonance Spectroscopy

Introduction, energies of quardrupole transitions, effect of magnetic field on the spectra, relationship between electric field gradient and molecular structure, applications, interpretation.

4. Electronic Absorption Spectroscopy

Vibrational and electronic energy levels in a diatomic molecule, relationship of Potential energy curves to electronic spectra. Nomenclature, Assignment of transitions, Spin-orbit couplet criteria to aid in Bond assignment, Intensity of Electronic Transition i) Oscillator Strengths, Transition moment Integrate Derivation of some selection rules, spectrum of formaldehyde, Spin-Orbit & vibronic coupling contribution to Intensity mixing of d & p orbital's in certain summitries, higher state mixing, Oscillator strengths, Intensity of electronic transitions, charge transfer transitions, polarised absorption spectra. Applications of finger printing, molecular addition compounds in Iodine, effect of solvent polarity on charge transfer.

Section - B 38 Hrs.

1. Spectra of Transition Metal Complexes

Spectra of transition metal complexes: Selection rules and intensities of transition, nature of electronic transitions in complexes, use of Orgel diagrams.

2. Vibration & Rotation Spectroscopy

Introduction, Harmonic and anharmonic vibrations, absorption of radiation by molecular vibrations, selection rules, force constant, P, Q and R branches, vibration in polyatomic molecules, effects giving rise to absorption bands, Group vibrations.

Raman Spectroscopy : Introduction, selection rules, polarised and depolarised Raman lines, significance of nomenclature used to describe number of IR active and Raman active line, mutual exclusion principle, combination bands and Fermi Resonance.

Microwave Spectroscopy: Introduction, measurement of bond angles and bond distance.

3. Application of Electronic Absorption and IR Spectroscopy

Calculations of Dq and β for octahedral (oh) Ni (II) complexes, structural evidence from electronic spectra.

Applications of Infrared and Raman Spectroscopy: applications of Raman and Infrared selection rules to the determination of Inorganic structures, hydrogen bonding systems, change in spectra of donor molecules upon coordination, Change in the spectra accompanying change in symmetry upon coordination.

RECOMMENDED BOOKS

1. R. S. Drago, *Physical Methods for Chemists* (2nd Ed.), Surfside Scientific Publishers, 1977.
2. R. Chang, *Basic Principles of Spectroscopy*, M.c Graw-Hill Education, 1971.
3. A. Kumar, *Coordination Chemistry*, (4th Ed.) Aaryush Education, 2006.
4. C. N. Banwell, *Molecular Spectroscopy*, Mc Graw –Hill Education, 2001.

PAPER-MC321: APPLICATIONS OF ORGANIC MOLECULAR SPECTROSCOPY

Maximum Marks: 100	**Time: 3 hrs**
External Examination: 70	**Pass Marks: 35 %**
Internal Assessment: 30	**Number of Lectures: 75**
Credit: 05	**6 Lectures/Week**

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will be comprised of three Sections: A, B and C. Both section A and B will have four questions each (from the respective section of syllabus), all carrying 12 marks. Section C will consist of 11 short answer type questions that will cover the entire syllabus and will be of two marks each.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions selecting two questions from each of Section A & B and entire Section C is compulsory.

Section - A 38 Hrs.

1. Ultraviolet and Visible Spectroscopy

1.1 Colour and light absorption, the chromophore concept. Theory of electronic spectroscopy, orbital’s involved and electronic transitions.

1.2 Effect of solvent and conjugation on λ_{max}. Woodward Fieser, Fieser-Kuhn and Nelson's rules.

  1.2.1 Spectral correlation with structure: conjugated dienes and polyenes: α, β – unsaturated carbonyl compounds; benzene, substituted benzenes and polynuclear aromatic hydrocarbons.

  1.2.2 Stereochemical factors in electronic spectroscopy: biphenyls and binaphthyls, cis and trans isomers, cross conjugation.

2. Infrared Spectroscopy

2.1 Molecular vibrations and modes of vibrations.

2.2 Factors influencing vibrational frequencies: vibrational coupling, hydrogen bonding, conjugation, inductive, mesomeric (resonance), field effects and bond angles.

2.3 Application to identify functional groups: aliphatic, aromatic and aralkyl hydrocarbons, alcohols, phenols and ethers; aldehydes, ketones, carboxylic acids and esters; amines and amides; alkyl halides, aryl halides and aralkyl halides. Heteroaromatic compounds (pyrrole furan and thiophene) and amino acids.

3. Mass spectrometry

3.1 Introduction

3.2 Mass spectrum and Metastable ion peak.

3.3 Determination of molecular formula and recognition of molecular ion peak and the Nitrogen rule.

3.4 Molecular formula and index of Hydrogen deficiency.

3.5 General rules of fragmentation and the McLafferty rearrangement

3.6 Fragmentations associated with functional groups: aliphatic, aromatic and aralkyl hydrocarbons, alcohols, phenols and ethers; aldehydes, ketones, carboxylic acids and esters; amines and amides; alkyl halides, aryl halides and aralkyl halides. Heteroaromatic compounds (pyrrole furan and thiophene).

Section – B **37 Hrs.**

4. Nuclear magnetic resonance spectroscopy

4.1 Proton magnetic resonance spectroscopy

- 4.1.1 Introduction, Nuclear spin resonance, Chemical shift and its measurement. Relaxation processes.
- 4.1.2 Factors influencing; chemical shift: Shielding, deshielding and anisotropic effects; effect of restricted rotation, concentration temperature and hydrogen bonding.
- 4.1.3 Spin coupling (simple and complex), mechanism of coupling. Coupling constants, geminal coupling, vicinal coupling, virtual and long range coupling. Factors influencing geminal and vicinal coupling.
- 4.1.4 Chemical shift equivalence and magnetic equivalence.
- 4.1.5 Non first order spectra, simplification of complex pmr spectra: increased strength, spin decoupling or double resonance and the use of chemical shift reagents.

5. ^{13}C-NMR spectroscopy

5.1 Natural abundance of ^{13}C, resolution and multiplicity.

5.2 Use of proton coupled, proton decoupled and off- resonance decoupling techniques; deuterium substitution and chemical shift equivalence in peak assignments.

5.3 ^{13}C Chemical shift: effect of substituent's on chemical shift position of alkanes, alkenes, alkynes and benzene. Spin coupling and ^{13}C - ^{1}H coupling constants

6. New dimensions in NMR spectroscopy 8 Hrs

6.1 Nuclear overhauser effect and NOE difference spectra

6.2 Introduction to correlated spectroscopy (COSY). Homcor (^{1}H–^{1}H) and HETCOR (^{1}H–^{13}C)

6.3 DEPT technique

6.4 A brief introduction to Nuclear Overhauser Effect Spectroscopy (NOESY)

RECOMMENDED BOOKS

1. W. Kemp, *Organic Spectroscopy* (3th Ed.) Palgrave Macmillian, 1991.
2. D. H. William and I. Fleming, *Spectroscopic Methods in Organic Chemistry*, Tata McGraw-Hill Publishing Company Ltd., New Delhi, India, 1993.
3. R. M. Silverstein, G. C. Bassler and F. C. Morrill, *Spectrometric Identification of Organic Compounds* (5th Ed.), John Wiley and Sons Inc., New York, USA, 1991.
4. D. L. Pavia, *Introduction to spectroscopy* (5th Ed.), Cengage Learning India Private Limited.

PAPER–MC322: CHEMISTRY OF NATURAL PRODUCTS

Maximum Marks: 100	**Time: 3 hrs**
External Examination: 70	**Pass Marks: 35 %**
Internal Assessment: 30	**Number of Lectures: 75**
Credit: 05	**6 Lectures/Week**

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will be comprised of three Sections: A, B and C. Both section A and B will have four questions each (from the respective section of syllabus), all carrying 12 marks. Section C will consist of 11 short answer type questions that will cover the entire syllabus and will be of two marks each.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions selecting two questions from each of Section A & B and entire Section C is compulsory.

Section - A 37 Hrs.

I. **General methods and basic techniques used in structure determination**

Dehydrogenation: Dehydrogenation with high potential quinones, D.D.Q., mercuric acetate, selenium dioxide and zinc distillation with suitable examples and mechanism.

Catalytic and Chemical Dehydrogenation: Dehydrogenation with, S, Se, Morphine to Apomorphine

II. **Degradation of Carbon Skeleton:** Hoffmann degradation, mechanism, direction of elimination as involved in morphine group alkaloids. Emde degradation and Von Braun reaction.

Alkali fusion: Alkalifusion of carboxylic function, alcohols carbonyl functions, as illustrated in geraniol, estrone, querectine, terramycin

III. **Oxidation Method:**

(i) Oxidation by $KMnO_4$, Chromic acid, α-ionone, camphene

(ii) Ozonolysis: Mechanism, α, β - unsaturated carbonyl compounds, aromatic compounds

(iii) Indirect Oxidation: (a) Hydroxylation with peracids. O_SO_4, silver acetate and Iodine, oxidation with HIO_4LTA, sodium bismuthate. (b) Haloform reaction: Methyl ketone, alpha- ionone (c) HNO_3 oxidation: Degradation of strychnine and determination of ring size A, B, C in steroids. (d) Nitrous acid oxidation: Mechanism, cyclic ketone

IV. Structure and synthesis of some natural products based on chemical and spectroscopic methods:

Ascorbic Acid, α-pinene, camphor

Section - B **33HRS.**

I. **Terpenes and Carotenoids:** Isoprene Rule MVA. conversion to borneol, thujene and allied derivatives. Formation of F.P.P., G.G.P.P. conversion to codinine, abietic acid, cambrene Farnesal, lanosterol cholesterol.

Biogenetic Approach: Acetate pathways bio-genesis of erythromycin, shikmic acid pathways biogenesis of coumarine, flavonoid isoflavones.

II. Structure elucidation of following by chemical means and spectral studies, confirmation of structure by synthesis. Santonin, abietic acid, α–Terpene, menthol, β–carotene vitamin–A.

Structure elucidation with synthesis of the followings:

I. **Alkaloids:** Quinine, Morphine.

II. **Steroid:** Bile acids, cholesterol Andosterone Testosterone, Progestrone.

III. **Antibiotic:** Penicillin, Cephalosporin (Structure Only).

RECOMMENDED BOOKS

1. I. L. Finar, *Organic Chemistry*, Vol.2 (5th Ed.), Pearson Edu. Ltd., 1975.
2. R. O. C. Norman and J. M. Coxon, *Principles of Organic Synthesis* (3rd Edt), Chapman & Hill, 1993
3. K. W. Bentley, *Elucidation of Organic Structure by Physical Methods*, Vol. I and II. Interscience, 1963.
4. P. S. Kalsi, *Pharmaceutical, Medicinal & Natural Product Chemistry*, Alpha Science, 2013
5. Manske, *The Alkaloids : Chemistry and Physiology*, Vol.7 & 11, Academic Press , 1968.

PAPER-MC323: ORGANIC SYNTHESIS

Maximum Marks: 100 **Time: 3 hrs**
External Examination: 70 **Pass Marks: 35 %**
Internal Assessment: 30 **Number of Lectures: 75**
Credit: 05 **6 Lectures/Week**

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will be comprised of three Sections: A, B and C. Both section A and B will have four questions each (from the respective section of syllabus), all carrying 12 marks. Section C will consist of 11 short answer type questions that will cover the entire syllabus and will be of two marks each.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions selecting two questions from each of Section A & B and entire Section C is compulsory.

Section - A 38 Hrs.

1. **An introduction** of synthesis, synthons and synthetic equivalents. General principle of disconnection approach; Importance of order of event in organic synthesis. Introductory meaning of one C-X and two C-X groups disconnection. Reversal of polarity (umpolung). Use of nitro compounds in organic synthesis.
2. O**ne group C-C - Disconnection:** Disconnection of simple alcohols, of simple olefins, carbonyl compounds control in synthesis, friedel craft's type examples.
3. **Two Group Disconnections:** 1,3-Difunctionalized compound α-hydroxy carbonyl compounds. $\alpha_1\beta$-unsaturated carbonyl compounds, 1,3-di carbonyl compounds, $\alpha_1\beta$-unsaturated lactones, 1,5-dicarbonyl compounds michael disconnection, use of Mannich Reaction in disconnection, Robinson's annulation.
4. **Diels Alder Reaction:** General feature dienophile diene, intramolecular Diels Alder reaction, stereochemistry and mechanisms, Retro-Diels Alder's Reaction.

Section - B 37 Hrs.

1. **Use of the following reagents in organic synthesis:** Organomagnesium halides, Organolithium reagents, organoaluminium Compounds, Organocopper reagents, Organozinc compounds, Organocadmium compounds, Sodium Borohydride, Lithium Aluminium Hydride, Diisobutylaluminium hydride (DIBAL), Reduction with dissolving Metals, DDQ, Selenium dioxide, DCC, LDA, Prevost reagent, Woodward Reagent, Dithianes, Alkylboranes, Osmium tetroxide, Aluminium isopropoxide.

2. **Reaction of carbon nucleophiles with carbonyl group:** Aldol reaction under acidic and basic conditions, Amine catalysed condensation, Mannich Reaction, Darzen, Perkin,

Stobbe reaction. Sulphur ylides and phosphorous ylides, Michael reaction, Claisen condensation, Robinson's annulation.

3. **Protective Groups:** Principle of protection of alcoholic, amino, carbonyl and carboxylic groups with suitable examples from synthetic point of view.
4. **Synthesis of the following natural product using disconnection approach:** Caryophyllene, Pencilline, 11-Oxoprogestrone, 11-Hydroxy progesterone, Aphidicaline and Juvabione.

RECOMMENDED BOOKS

1. S. Warren and P. Wyatt, *Organic Synthesis: The Disconnection Approach* (2nd Ed.), Wiley Publishing, 2008.
2. H. O. House, *Modern Synthetic Reactions*, W. A. Benjamin, 1972.
3. R. O. C. Norman and J.M. Coxon, *Principles of Organic Synthesis* (3rd Ed.), Taylor & Francis Ltd.
5. P. S. Kalsi, *Organic Synthesis: The Disconnection Approach* (3rd Ed.), Medtech Publisher, 2016.
6. J. Clayden, N. Greeves, and S. Warren, *Organic Chemistry* (2nd Ed.), Oxford University Press, 2012.

PAPER-MC331: FUNDAMENTALS OF SPECTROSCOPY

Maximum Marks: 100	**Time: 3 hrs**
External Examination: 70	**Pass Marks: 35 %**
Internal Assessment: 30	**Number of Lectures: 75**
Credit: 05	**6 Lectures/Week**

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will be comprised of three Sections: A, B and C. Both section A and B will have four questions each (from the respective section of syllabus), all carrying 12 marks. Section C will consist of 11 short answer type questions that will cover the entire syllabus and will be of two marks each.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions selecting two questions from each of Section A & B and entire Section C is compulsory.

Section - A 37 Hrs.

Molecular Spectra

Electromagnetic radiation, interaction of electromagnetic radiations with molecules and quantization of different forms of energies in molecules. Regions of the electromagnetic spectrum. Units of energy. Representations of spectra. Time dependent Schrodinger equation. Induced quantum transition, derivation of an equation giving the rate of transition. Basis of selection rules.

Rotational Spectra

Symmetry of molecules and angular momenta in three coordinates. Rigid rotor model, Intensities of spectral lines, Effect of isotopic substitution. Determinations of moments of inertia and bond length. Non-rigid rotor.

Vibrational Spectra

Classical equation of vibration (Hook's law) of linear molecules, simple harmonic oscillator, vibrational energies of diatomic molecules, zero-point energy. Anharmonic oscillator. Vibrations of polyatomic molecules (H_2O and CO_2) Fundamental frequencies, overtones, combination bands and hot bands of polyatomic molecules.

Effect of Various Parameters on the Vibrational Frequency. Application of vibration spectra in elucidation of molecular structure from Vibration Frequency.

Vibrational-Rotation Spectra

Selection rules and transitions for the rigid rotor - Harmonic oscillator model, relative intensities, coupling of rotation and vibrations.

Raman Spectra

Classical and quantum theory of Raman effect. Pure rotational spectra of linear molecules. O, Q and S branches of Vibrational Raman spectra. Rotational fine structure in the Vibrational Raman spectra.

Electronic Spectra

Franck-Condon Principle, spectra of diatomic molecules, vibrational and rotational structure of electronic bands. P, Q and R branches of spectra, Fortrat parabola. Electronic orbitals in diatomic molecules, electronic states and term symbols for the ground state, Chemical Analysis by electronic spectroscopy.

Section - B 38 Hrs.

Nuclear Magnetic Resonance

Historical introduction to nuclear magnetic resonance, instrumentation, nuclear precession, chemical shift and factors influencing chemical shift, Equivalence and non-equivalence of protons (chemically and magnetically), Spin-Spin splitting and coupling constant, systems containing two interacting nuclei (A_2, AX & AB systems), systems containing three interacting nuclei (A_3, ABX, ABC), Karplus equation, interpretation of PMR spectra of some representative compounds like hydrocarbons, halogen compounds, hydroxy compounds, ethers, aldehydes, ketones, carboxylic acids, esters, amides and amines.

Electron spin resonance spectroscopy

Basis for resonance, experimental techniques, A block diagram of a typical ESR spectrometer, ESR of simple systems and of radical anion of aromatic hydrocarbons, mechanism of hyperfine interaction, Mc Connell's relation of electron delocalisation, zero field splitting and Kramer's degeneracy, Predicting the number of lines in E.S.R. spectra of radicals, factors affecting the Magnitude of the g value, some applications including biological structure determination, double resonance technique in ESR.

RECOMMENDED BOOKS

1. C.N. Banwell and E. M. McCash, *Fundamentals of molecular spectroscopy*, Vol. 851, New York: McGraw-Hill, 1994.
2. G.M. Barrow, *The structure of molecules: an introduction to molecular spectroscopy*, WA Benjamin, 1964.
3. H.S. Randhawa and S.K. Dogra, *Atomic and Molecular Spectroscopy*, Pearson Education, 2014.
4. M. Chander, *Atomic Structure, Chemical bonding including Molecular Spectroscopy*, Tata McGraw-Hill, 1979.
5. Jagmohan, *Organic spectroscopy: Principle and Applications*, Narosa Publishing House, 2018.
6. D. H. Williams and I. Fleming, *Spectroscopic methods in organic chemistry*, Tata McGraw Hill, 2011.
7. W. Kemp, *Organic Spectroscopy*, MacMillan.
8. R. Chang, *Basic Principles of Spectroscopy* International Higher Education, 2017.

PAPER-MC332: STATISTICAL THERMODYNAMICS

Maximum Marks: 100	**Time: 3 hrs**
External Examination: 70	**Pass Marks: 35 %**
Internal Assessment: 30	**Number of Lectures: 75**
Credit: 05	**6 Lectures/Week**

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will be comprised of three Sections: A, B and C. Both section A and B will have four questions each (from the respective section of syllabus), all carrying 12 marks. Section C will consist of 11 short answer type questions that will cover the entire syllabus and will be of two marks each.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions selecting two questions from each of Section A & B and entire Section C is compulsory.

Section – A 37 Hrs.

Quantum Statistics

Recapitulation of classical statistics and partition function, comparison between Maxwell-Boltzmann, Bose-Einstein and Fermi-Dirac statistics, thermodynamic probability, statistics of monatomic ideal gas, principle of equipartition of energy, barometric equation, theory of paramagnetism, statistics of photon and electron gases, velocity, speed and energy distribution functions, thermionic emission.

Gaseous State

Classical and quantum mechanical treatments of specific heats of ideal diatomic gases, vibrational, rotational and electronic contributions to the specific heats of diatomic gases, fine correction due to rotation-vibration coupling for diatomic gases, ortho and para hydrogens, polyatomic gases, gas mixture and entropy of mixing, non-ideal gases, equation of state of non-ideal gases, Lennard-Jones potential energy equation compressed gases.

Section - B 38 Hrs.

Solid State

Classical treatment of specific heat of solids, Einstein and Debye theories of specific heats, Debye's T^3 law, entropy of solids, equation of state of solids, order and disorder and the melting point.

Chemical Systems

Law of mass action, chemical equilibrium, dissociation, equilibrium constants and their computation.

Fluctuations

Means distribution, mean square deviation, fluctuations in energy in a canonical ensemble, density fluctuation in a gas.. Theory of Brownian motion and Brownian motion of galvanometer.

Irreversible Processes

Introduction, entropy production, coupled phenomena, transport parameters, thermoelectric phenomena, The Seebeck effect, Peltier effect and Thomson effect.

RECOMMENDED BOOKS

1. J. F. Lee, F. W. Sears and D.L. Turcotte, *Statistical Thermodynamics* Addison-Wesley, 1963.
2. F. L. Hill, *Introduction to Statistical Thermodynamics,* Courier Corporation, 1986.
3. M. C. Gupta, *Statistical Thermodynamics*, New Age International, 2007.

PAPER-MC333: FUNDAMENTAL & ATMOSPHERIC PHOTOCHEMISTRY

Maximum Marks: 100	**Time: 3 hrs**
External Examination: 70	**Pass Marks: 35 %**
Internal Assessment: 30	**Number of Lectures: 75**
Credit: 05	**6 Lectures/Week**

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will be comprised of three Sections: A, B and C. Both section A and B will have four questions each (from the respective section of syllabus), all carrying 12 marks. Section C will consist of 11 short answer type questions that will cover the entire syllabus and will be of two marks each.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions selecting two questions from each of Section A & B and entire Section C is compulsory.

Section - A 37 Hrs.

1. Photochemical Reactions: Interaction of electromagnetic radiations with matter, types of excitations, Distinction of photoreactions from thermally initiated reactions and from high energy radiation reactions, Basic laws of photochemistry; Grothus & Draper law, law of photo chemical equivalence and law of absorption (Lambert Beer's law) and its limitations, Quantum yield and its determination by ferrioxalate actinometer.
2. Photochemistry of Atoms: Term symbols, Russel Saunder's coupling, selection rules, Excited states of Hg atoms ($^1P_1$, $^3P_1$ and metastable state, $^3p_0$) Photosensitized reactions. Sensitized fluorescence, spin conservation rule and its application for energy transfer, Photo physical processes (fluorescence, phosphorescence etc.), and photochemical degradation of excited states of Hg atoms, Hg sensitized photoreactions of simple alkanes and alkenes.
3. Photochemistry of Simple Molecules: Different kinds of spectra; banded, continuous and diffuse spectra, Pre-dissociation, Photophysical processes of simple molecules like sulphur, halogens and oxygen.
4. Photochemistry of Polyatomic Molecules: Different types of molecular orbitals and electronic states, Jablonski diagram showing various photophysical processes like fluorescence, phosphorescence, ISC, IC etc. Intensities and selection rules for spectral transitions, types of electronic transitions in organic molecules, Charge transfer transitions.
5. Electronically Excited Singlet and Triplet States: Fluorescence and its measurement, excimer and exciplex formation, non-radiative intermolecular and

intramolecular energy transfers, Kinetic analysis and quantum yield of triplet state, Triplet singlet energy transfer, Difference in the behaviour of 'n' and p states.

6. Photochemical Oxidation and Reductions: Mechanistic features of photoreduction of benzophenone by alcohols, Photosensitized incorporations of molecular oxygen into organic compounds, Type I and II photoxygenation reactions.
7. Industrial Applications of Photochemistry: Technical applications, application of luminescence phenomena to optical bleaching of textiles and papers. Rapid radiationless transition to ground state. Applications of electron and energy transfer processes, Photofragmentations used in photochemical synthesis of detergent and insecticides.

Section - B 38 Hrs.

1. Structure of the atmosphere, structure in terms of temperature, diffusion and ionization, characteristics and chemical composition.
2. Solar radiation, solar spectral distribution outside the earth's atmosphere, absorption by N_2, O_2, O_3 and distribution of solar energy on earth.
3. Chemistry of the upper atmosphere, features of odd oxygen and singlet oxygen, NO_2 and HO_2 species and other species like N_2O, NH_3, HNO_3 etc., in the atmosphere.
4. Meaning of Pollutant, different ways to express concentration of Pollutants (mass concentration, volume concentration, mass volume concentration & ppm) various pollutants like CO and CO_2, hydrocarbons, oxides of nitrogen, oxidants, halogenated, compounds, sulphur containing compounds and particulate matter monitoring and control of these pollutants.
5. Photochemical smog, Production of smog, hydrocarbon reactivities, conversion of NO to NO_2 oxidant dosage, reactions of O_3 and singlet O_2.
6. SO_2 Chemistry, Photolysis of SO_2, Photo-oxidation, free radical reactions.

RECOMMENDED BOOKS

1. A. Gilbert and J. E. Baggott, *Essentials of Molecular Photochemistry*, Oxford: Blackwell Scientific Publications, 1991.
2. J. A. Calvert & Pits, *Photochemistry*, John Wiley, 1973.
3. V. J. Heicklen, *Atmoshperic Chemistry*, Academic Press, New York, 1976.
4. C.S. Rao, *Environmental Pollution Control Engineering*, New Age International (P) Limited Delhi, 2011.
5. K. K. R. Mukherjee, *Photochemistry*, John. Wiley and Sons, 1978.

PAPER-MC314: INORGANIC PRACTICALS-I

Maximum Marks: 100
University Examination : 70
Internal Assessment : 30
Time: 6 Hrs./week

Preparation and Estimation

1. Preparation of $[Co(NH_3)_6]Cl_3$
2. Estimation of cobalt and chloride.
3. Preparation of $[Co(NH_3)_5 NO_2]Cl_2$ and $[Co(NH_3)_5 (ONO)]Cl_2$
4. Preparation of Dipyridiniumhexachloroplumbate.
5. Estimation of Pb.
6. Preparation of $[I(py)_2NO_3]$
7. Estimation of Iodine.
8. Preparation of diaquotetraacetatocopper(II).
9. Estimation of copper.
10. Preparation of Vanadyl acetylacetonate.
11. Preparation of $[Ni(NH_3)_6]Cl_2$
12. Estimation of Ni.

NOTE: *Subject to the availability of Instrument/chemicals, the experiments can be substituted by alternate experiments.*

PAPER-MC315 : INORGANIC PRACTICALS-II

Maximum Marks: 100
University Examination : 70
Internal Assessment : 30
Time: 6 Hrs./week

Chromatographic Separations

1. To Separate Hg (II), Pb (II), Cu (II) & Cd (II) ions by paper chromatography and to determine their R_f values.
2. To separate out Ni (II), Cu (II), & Zn (II) ions by paper chromatography and determination of their Rf values.
3. To separate out F, CI, Br & I by paper Chromatography and determination of their R_f values.
4. To separate out Na (I) & K (I) by paper chromatography and determination of their R_f values.

Spectrophotometric Determinations

- (i) Fe (II) with 1, 10-Phenonthroline
- (ii) Fe (III) with Pot. thiocyanate
- (iii) Ni with dimethylglyoxime
- (v) Cu (II) with Sodium diethyl dithiocarbamate
- (vi) Cr (VI) with 1,5-Diphenyl carbazide

Conductometry

- (a) Titrations of mixture of acids.
- (b) Precipitation titrations.

NOTE: *Subject to the availability of Instrument/chemicals, the experiments can be substituted by alternate experiments.*

PAPER-MC324 : ORGANIC CHEMISTRY PRACTICALS - I

Maximum Marks: 100
University Examination: 70
Internal Assessment: 30
Time: 6 Hrs./week

(Multistep Synthesis)

1. **Beckman Rearrangement**
   - I. Benzophenone-Benzophenone Oxime-Benzanilide
   - II. Acetophenone-Acetophenone Oxime-Acetanilide.
   - III. Cyclohexanone-Cyclohexanone Oxime-Caprolactam.
2. **Benzillic acid Rearrangement**
   - I. Benzoin-Benzil-Benzillic-acid
   - II. Benzoin-Benzil-Benzil monohydrazone
3. **Fischer Indole Synthesis**
   - I. N-aryl-Maleinilic acid-N-aryl-maleimide
   - II. 1, 2, 3, 4-tetrahydrocarbazole
   - III. 2-Phenyl-Indole from Phenyl-hydrazone

NOTE: *Subject to the availability of Instrument/chemicals, the experiments can be substituted by alternate experiments.*

PAPER-MC325 : ORGANIC CHEMISTRY PRACTICALS-II

Maximum Marks: 100
University Examination: 70
Internal Assessment: 30
Time: 6 Hrs./week

Quantitative Estimations

1. Hydroxyl group - (Phenolic)

Expt. l : Determine percentage purity of given phenols by brominating reagent.

2. Amine group

Expt. 2 : Determine the amount of aniline per litre by substitution method.
Expt. 3 : Determine the percentage purity of amine by diazotisation method.
Expt. 4 : Find percentage purity of sulphadimi dine by diazotisation method.

3. Carbonyl group

Expt. 5 : To standardise the given glucose solution by Fehling's method.
Expt. 6 : Determine percentage purity of given sample of glucose.
Expt. 7 : Determine the percentage purity of sugar by Fehling's method.
Expt. 8 : To determine the amount of glucose in given sample by Benedict's Solution.
Expt. 9 : To determine the percentage purity of sucrose by Benedict's method.

4 Acetous Perchloric Acid

Expt. 10 : To standardise acetous perchloric acid using primary standard potassium hydrogen phthalate.
Expt. 11 : To determine percentage purity of sodium benzoate.
Expt. 12 : To determine percentage purity of sodium salicylate.

NOTE: *Subject to the availability of Instrument/chemicals, the experiments can be substituted by alternate experiments.*

PAPER-MC334: INSTRUMENTAL PHYSICAL CHEMISTRY-I

Maximum Marks: 100
University Examination: 70
Internal Assessment: 30
Time: 6 Hrs./week

I. Colourimetry and Spectro-photometry

1. Verification of Lambert-Beer's Law.
2. Determination of the concentration of coloured compounds.
3. Study of Cu^{2+} – EDTA Complex.
4. Determination of the pka of phenolphthalein.
5. Determination of the Composition of the mixtures.
6. Determination of the molar extinction coefficients.
7. Scanning of the complete spectra.

II. Polarimetry

1. To find the specific rotation and molar rotation of optically active substance.
2. To find the strength of the optically active substances in the given solution.
3. To find the order of the reaction and velocity constant for the inversion of cane sugar in acidic medium.
4. To compare the strength of hydrochloric acid and sulphuric acids.
5. To find the percentage of d-sugar and d-tatraric acid in the given solution polarimetrically.

III. Polarographic Measurements

1. Determination of $E_{1/2}$ of aqueous solution of Zn^{2+} and Cd^{2+}.
2. Determination of the concentration of the solution of zinc and cadmium salt.
3. Amperometric titration.

NOTE: *Subject to the availability of Instrument/chemicals, the experiments can be substituted by alternate experiments.*

PAPER-MC335 : PHYSICAL CHEMISTRY PRACTICAL

Maximum Marks: 100
University Examination: 70
Internal Assessment: 30
Time: 6 Hrs./week

1. CHEMICAL KINETICS

(I) Reaction between Potassium bromate and Potassium Iodide :
  (a) To study the kinetics of reaction between Potassium bromate and Potassium lodide catalyzed by H^+ ions at room temperature.
  (b) To study the kinetics of reaction between Potassium bromate and Potassium Iodide catalyzed by H^+ ions at least at three temperatures and hence to find out the activation energy of the reaction.

(II) To study the reaction between H_2O_2 and HI by clock method at least at three temperatures and hence to find out the activation energy of the reaction.

(III) To study the kinetics of hydrolysis of tert butyl chloride by conductance measurements.

2. PHASE RULE

Three component system.

- (a) To study the limit of homogeneity of three components (i.e., benzene, acetic acid and water) system.
- (b) To study the limit of homogeneity of three components (i.e., chloroform, acetic acid and water) system.

3. THIN LAYER CHROMATOGRAPHY

- (I) To separate and Identify the given mixtures of coloured compounds (azobenzene, hydroxyazobenzene, P-aminoazobenzene).
- (II) To separate and identify the given mixture of colourless compounds (Diphenylamine, Benzophenone, Naphthalene, and biphenyl).
- (III) To draw calibration curve for different amounts of Azobenzene after separating on TLC Plates, extracting with methanol and measuring with spectrophotometer and hence to find the amount of Azobenzene in its unknown sample.

4. Cryoscopy

1. To find the molecular weight of the given solute in water by depression in freezing point method.
2. To find the values of van't Hoff factor and degree of dissociation of weak electrolytes by cryoscopic method.
3. To determine the degree of association of benzoic and in benzene by cryoscopic method.
4. To determine the mean activity coefficients of strong electrolytes.

5. Find the oscillator strength of the main band of diphenylamine in the ultraviolet region of the spectrum.

NOTE: *Subject to the availability of Instrument/chemicals, the experiments can be substituted by alternate experiments.*

PAPER-MC401: ENVIRONMENTAL CHEMISTRY

Maximum Marks: 100	**Time: 3 hrs**
External Examination: 70	**Pass Marks: 35 %**
Internal Assessment: 30	**Number of Lectures: 75**
Credit: 05	**6 Lectures/Week**

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will be comprised of three Sections: A, B and C. Both section A and B will have four questions each (from the respective section of syllabus), all carrying 12 marks. Section C will consist of 11 short answer type questions that will cover the entire syllabus and will be of two marks each.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions selecting two questions from each of Section A & B and entire Section C is compulsory.

Section - A 37 Hrs.

1. Concept and scope of Environmental Chemistry: Environmental Pollution. Environmental Segments, Green house effect and global warming, chemical and Photochemical reactions in the atmosphere, Pollutants, contaminants, sinks and receptor.
2. Air Pollution : Air Pollutants (CO, NO_2, SO_2, HC, SPM), Classical and Photo chemical smog, Acid rain, Air Pollution accidents (TCDD (2, 3, 7, 8 tetra Chloro benzo - 10 dioxin), Bhopal, Chernobyl), Air Pollution monitoring instruments, Monitoring of SO_2, NO-NOx, CO, CO_2 HC Ozone).
3. Water Pollution : Water Pollutants, Drinking water standards, Investigation of water (Physical, Chemical and Biological) Important steps in water treatment (Coagulation, filtration) disinfection, Break point chlorination, lime soda ash process, corrosion and scale formation, fluoridation, taste and color removal, water quality monitoring instruments.
4. Soil Pollution: Pollutants in soil, Role of and Macro and Micro nutrients in soil, Acid-Base and Ion exchange reactions in soil, Pesticides (Classification & Degradation).

Section - B 38 Hrs.

1. Industrial Effluent Analysis: Introduction, Physical methods of classification, BOD, & COD of industrial effluents, industrial waste water treatment, Analysis of metal pollutants in effluents.
2. Chemical Toxicology: Toxic Pollutants in environment, Threshold limiting value, Biochemical effects of Hg, Cd, As, Pb, O_3, PAN, CN and pesticides.
3. Monitoring techniques for Pollution Analysis

   - (i) Atomic absorption spectroscopy and flame photometry: Theory, Instrumentation, Interferences and difference between AAS and FES.
   - (ii) Infrared Spectroscopy: Introduction, Instrumentation, NDIR & FTIR.
4. Turbidimetry & Nephelometry: Introduction, instrumentation and differences between turbidity and nephelometry.
5. HPLC (High performance liquid chromatography) Introduction, Instrumentation and applications.
6. Gas chromatography: Introduction, Instrumentation and applications.
7. Anodic Strapping Analysis: Principle, Apparatus and technique & advantages.
8. Ion selective electrodes: Introduction, different types of Ion selective electrodes.

RECOMMENDED BOOKS

1. A. K. De, Environmental Chemistry, 8 th Ed., New Age Publisher International Pvt Ltd.
2. S. M. Khopkar, Environmental Pollution Analysis 2th Ed., New Age Publisher International Pvt Ltd.
3. Vogel’s Quantitative Chemical analysis, 6 th Ed. Pearson.
4. Vogel’s Quantitative Chemical analysis, 5 th Ed. Longman Scientific and Technical.
5. H. Kaur, Environmental Chemistry, Pragati Prakashan.
6. Gurdeep R. Chatwal, Instrumental methods of chemical analysis, Himalaya Publishing House.

PAPER-MC411: CHEMISTRY OF ORGANOMETALLIC COMPOUNDS

Maximum Marks: 100	**Time: 3 hrs**
External Examination: 70	**Pass Marks: 35 %**
Internal Assessment: 30	**Number of Lectures: 75**
Credit: 05	**6 Lectures/Week**

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will be comprised of three Sections: A, B and C. Both section A and B will have four questions each (from the respective section of syllabus), all carrying 12 marks. Section C will consist of 11 short answer type questions that will cover the entire syllabus and will be of two marks each.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions selecting two questions from each of Section A & B and entire Section C is compulsory.

Section - A 37 Hrs.

Organometallic Compounds

A) Nomenclature of organometallic compounds, Classification of Ligands in organometallic compounds, inert gas rule. Transition Metal compounds with Bonds to hydrogen: Characterization of Hydride complexes, Mononuclear polyhydrides, homoleptic polyhydrido anions, Carbonyl hydride and Hydrido Anions, Molecular Hydrogen compounds, Metal – Hydrogen interactions with C-H groups.

B) Compounds of Transition Metal with Alkenes, Alkynes and Delocalized Hydrocarbon Systems: Alkene complexes, Types of Alkene Complexes, Synthesis & Reactions of Alkene complexes, Allyl and Related complexes : Allyls, Dienyl Compounds, Trimethylenemethane Complexes, Three-membered, Four membered, Five membered Rings; Di-$ή^5$cyclopentadienyls, Bridging cyclopentadienyls, Ionic cyclopentadienyls, Monocyclopentadienyls, Reactions of C_5H_5 Ring, Metal compounds of Heterocycles, Multidecker Sandwich Compounds.

Section - B 38 Hrs.

A) Homogeneous Catalytic Synthesis of Organic Chemicals by Transition Metal complexes: Introduction, Reactions of Carbon Monoxide and Hydrogen, Synthesis Gas and Water Gas, shift Reaction, Reduction of carbon monoxide by Hydrogen. The Fischer-Tropsch Synthesis. Hydroformylation of Unsaturated Compounds. catalytic cycle of Wilkinson’s catalyst, catalytic cycles of iridium and ruthenium based catalysts, catalytic asymmetric synthesis, Methanol Carbonylation and Olefin Oxidation: Monsanto, Cativa and Wacker Processes,; Polymerisation and oligomerisation of olefins and dienes, carboxylation of olefins, carbonylation of methanol, Phase Transfer Catalysis, Oxo process.

B) Transition Metal carbon Monoxide compounds: Preparation of Metal Carbonyls, Structures of Metal carbonyls Mononuclear, Binuclear, Trinuclear and Tetranuclear and larger Polynuclear carbonyls. Metal-Metal bond, Additional structural and Bonding features: Fluxionality, Semibridging CO groups, side on Bonding to CO, synergistic effect, Vibrational Spectra of Metal carbonyls, Detection of Bridging CO groups, Metal carbonyl, Hydrides, Reactions of Metal Carbonyls; Photochemical Reactions of Metal Carbonyls: Nucleophilic & electrophilic attacks on CO.

RECOMMENDED BOOKS

1. Cotton and Wilkinson, *Advanced Inorganic Chemistry (*5th & 6th Ed.), John Wiley, 2007.
2. Shriver, Atkins and Longford, *Inorganic Chemistry* (7th Ed.), Oxford University, Press, 1990.

PAPER-MC412: ADVANCED TOPICS IN INORGANIC CHEMISTRY

Maximum Marks: 100	**Time: 3 hrs**
External Examination: 70	**Pass Marks: 35 %**
Internal Assessment: 30	**Number of Lectures: 75**
Credit: 05	**6 Lectures/Week**

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will be comprised of three Sections: A, B and C. Both section A and B will have four questions each (from the respective section of syllabus), all carrying 12 marks. Section C will consist of 11 short answer type questions that will cover the entire syllabus and will be of two marks each.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions selecting two questions from each of Section A & B and entire Section C is compulsory.

Section - A 37 Hrs.

1. **Radiochemistry:** Discovery of radioactivity, statistical aspect of radioactivity, naturally occurring radioactive substances, nuclear structure and properties, nuclear reactions, comparison of nuclear and chemical reactions, Q value of a reaction, partial and total cross sections, Bohr theory of nuclear reactions, types of reactions, Oppenheimer Phillips process, Photonuclear reactions, nuclear fission and fusion, chain reaction at very high energies, nuclear transparency, slow neutron, reactions cross section, equations of radioactive decay and growth, applications of tracers in isotopic and exchange reactions.

2. **Nanochemistry:** Introduction to Nanochemistry, Nano and nature, nano the beginning, introduction to carbon Nanotubes; types, synthesis and purification. Brief introduction to self-assembled monolayers (SAMs), Monolayers on Gold, Preparation, Mixed monolayers, SAMs and applications; Sensors, affinity biosensors, chemical sensors, corrosion prevention, wetting control, molecular electronics Process of synthesis of Nano powders, Sol-Gel process, Electro-Deposition, sputtering of Nano crystalline powders. Application of SEM, TEM and AFM to nanotechnology.

Section - B 38 Hrs.

1. **Metal to metal bonds and metal atom clusters:** Lower halide and chalcogenide Clusters: Octahedral metal halide and chalcogenide clusters (M_6X_8 and M_6X_{12} types) chevral phases, triangular clusters and Compounds with M-M multiple bonds. Major structural types, quadruple bonds, relation of clusters to multiple bonds and one dimensional solids. Structure determination of boranes and carboranes, Classification ,structure ,Properties of naturally occurring silicate and aluminosilicate.

2. Polymers

a) Properties of Polymers

- a. Linear polymer molecule
- b. Size of linear polymer molecule
- c. Shape of linear polymer molecule
- d. Crystalline and amorphous polymers
- e. Polymer solubility
- f. Solubility parameter
- g. Glass-Transition temperature
- h. Viscoelastic behaviour

b) Sulfur polymers

Elementary sulfur: Crystalline

- i. Forms of sulfur
- ii. Molten sulfur
- iii. Sulfur vapour

c) Polymerization and oligomerization reaction

Ziegler Natta polymerization of ethylene and propylene, oligomerization and related reactions, reaction involving C-C bond cleavage, valence isomerization of strained hydrocarbons, alkene and alkyne metathesis

RECOMMENDED BOOKS

1. Fiedelander and Kennedy, *Nuclear and Radiations Chemistry*.
2. *Principles of Radio Chemistry*, Indian Association of Nuclear Chemists and Allied Scientists. Editors D.D. Sood, N. Rama moorthy, A.V.R. Reddy.
3. Cotton Wilkinson, *Advanced Inorganic*, 5th & 6th Edition John Wiley.
4. Stone and Graham, *Inorganic Polymers*.
5. T. Pradeep, *Nano: The Essentials; Understanding Nanoscience and Nanotechnology*, Tata McGraw-Hill Education Pvt. Ltd., New Delhi.
6. A.K. Bandyopadhyay, *Nano Materials, New Age International Publishers*, New Delhi.

PAPER-MC413: INORGANIC SPECTROSCOPY-II

Maximum Marks: 100
External Examination: 70
Internal Assessment: 30
Credit: 05

Time: 3 hrs
Pass Marks: 35 %
Number of Lectures: 75
6 Lectures/Week

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will be comprised of three Sections: A, B and C. Both section A and B will have four questions each (from the respective section of syllabus), all carrying 12 marks. Section C will consist of 11 short answer type questions that will cover the entire syllabus and will be of two marks each.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions selecting two questions from each of Section A & B and entire Section C is compulsory.

Section - A 37 Hrs.

1. Nuclear Magnetic Resonance Spectroscopy

Introduction : Theory of NMR, behaviour of a bar magnet in magnetic field, rotating axis system magnetizing vectors and relaxation, NMR transition, NMR experiment, Chemical shift of some systems studied by NMR, Mechanism of electron shielding, remote shielding from neighbour anisotropy, interatomic ring currents, chemical shifts where the local diamagnetic term does not predominate, spin-spin splitting, Spin-Spin coupling mechanism for transmitting Nuclear Spins.

2. Application of NMR

Applications of Spin-Spin coupling to structure determination, Application involving the magnitude of coupling constants, complex spectra obtained when J = □, Chemical exchange and other factors affecting the line width, effect of chemical exchange on spectra and the evaluation of reaction rates for fast reactions. Consequences of nucleir with quadrupol moment in NMR. Double resonance technique, exchange reactions between ligands and metal ions

Contact shift reagents, Interpretation of first order and complex PMR spectra of specific organic compounds. Distinction between geometrical isomers.

3. Nuclear Magnetic Resonance Spectra of Paramagnetic Transition Metal ion complexes.

Introduction, Relaxation Processes, Average electron spin polarisation, Scalar or isotropic contact shifts in systems with isotropic tensor, pseudo contact shift.

Section - B 33 hrs.

1. Electron Paramagnetic Resonance

Introduction, Principles, The hydrogen atom, Presentation of the spectrum, hyperfine splitting in isotropic systems involving more than one nucleus, Contributions to the hyperfine coupling constant in isotropic systems.

Anisotropic Effects : Anisotropy in the g value, epr of triplet states, nuclear quadrupole interaction, line widths, EPR applications.

2. Mass Spectrometry

Instrument operation and presentation of spectral processes that can occur when a molecule and a high energy electron combine, finger print applications. Interpretation of mass spectra, effect of isotope on appearance of mass spectrum, Molecular weight determination : field ionisation techniques, evaluation of heat of sublimation and species in the vapour over high melting solids, Appearance potential and ionisation potential. Applications of mass spectroscopy in solving structural problems.

3. ORD & CD

Theory of ORD & CD.

Measurement of optical Rotation.

Application of ORO & CD.

RECOMMENDED BOOKS

1. R. S. Drago, *Physical Methods for Chemists* (2nd Ed.),Surfside Scientific publishers, Gainesville, 1971.
2. R. Chang, *Basic Principles of Spectroscopy*, Mc Graw-Hill, 1971.
3. W. M. Dean, *Instrumental Methods of Analysis*, (5th Ed.), D. Van Nostrand Co., 1974.
4. C. M. Banwell, *Molecular Spectroscopy*, (4th Ed.) Mc Graw Hill Edn., 2001.

PAPER-MC421: PHOTOCHEMISTRY AND PERICYCLIC REACTIONS

Maximum Marks: 100	**Time: 3 hrs**
External Examination: 70	**Pass Marks: 35 %**
Internal Assessment: 30	**Number of Lectures: 75**
Credit: 05	**6 Lectures/Week**

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will be comprised of three Sections: A, B and C. Both section A and B will have four questions each (from the respective section of syllabus), all carrying 12 marks. Section C will consist of 11 short answer type questions that will cover the entire syllabus and will be of two marks each.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions selecting two questions from each of Section A & B and entire Section C is compulsory.

Section - A 37 hrs.

1. **Photochemical Excitations**

   Light absorption; Singlet and Triplet states "Forbidden" transitions; Types of excitation; Molecular orbital view of excitations.

2. **Study of Mechanism of Photochemical Reactions**

   Detection of intermediates, Low temperature photochemistry, Quantum efficiency, Sensitisation and Quenching.

3. **The Physical Fate of Excited Molecules: Photophysical Processes**

   The Jablonski diagram, Intersystem crossing, Energy transfer.

4. **The Frontier and Perturbational Molecular Orbital Approaches**

   Electrocyclic reactions, Cycloadditions, Cheletropic reactions, 1,3-Dipolar cycloadditions, Sigmatropic reactions, Peripatetic cyclopropane bridge rearrangement, Fluxional molecules-Degenerate Cope rearrangements, Group Transfer and Group Eliminations, Ene reaction.

5. **Pericyclic Reactions Involving Ionic Transition States (Through FMO & PMO Approaches)**

   Electrocyclic reactions, Cycloaddition reactions, Cheletropic reactions, 1,3-Dipolar cycloadditions, Sigmatropic reactions, Peripatetic cyclopropane bridge rearrangement.

6. **Miscellaneous photochemical Reactions**

   Photo-Fries rearrangement, Singlet- molecular oxygen reactions, The Barton reaction, The Hoffmann-Loeffler-Freytag reaction.

Section - B 38 hrs.

1. **The Chemical Fate of Excited Molecules: Photochemical Processes**

1.1 Photochemistry of Alkenes and cycloalkenes

Isomerization of alkenes, Intermolecular [2+2] cycloadditons of alkenes.

Isomerization cycloalkenes. Intermolecular [2+2] cycloadditons of cycloalkenes,

1.2 Photochemistry of conjugated and isolated dienes

Isomerization of conjugated dienes, [2+2] cycloadditons of conjugated dienes, [2+2] Cycloadditions of isolated dienes. Di-π methane rearrangement. Aza-Di-π methane rearrangement.

1.3 Photochemistry of Aromatic Compounds

Photoisomerization of benzene and substituted benzene. Photoaddition of alkenes to aromatic benzenoid compounds. Photosubstitution of aromatic compound.

1.4 Photochemistry of ketones

Norrish type-I reaction: α- Cleavage of acyclic saturated ketone and saturated cyclic ketone (cyclohexanones, cyclopentanones, cyclobutanones). Norrish type-II reaction: Intramolecular hydrogen abstraction (γ hydrogen abstraction). Photoreduction: Intermolecular hydrogen abstraction. Paterno-Buchi reactions.

1.5 Photochemistry of enones

Cyclohexenone rearrangement (Lumiketone rearrangement and Di-π methane type rearrangement). Rearrangement of dienones. Photo rearrangement of β, γ-unsaturated ketones (1,2-acyl shift and 1,3-acyl shift).

BOOKS RECOMMENDED

1. N. J. Turro, *Modern Molecular Photochemistry*, The Benjamin Cummings Co., Inc. California, USA, 1978.
2. C. H. DePuy and Orville L. Chapman, *Molecular Reactions and Photochemistry*, Prentice Hall of India Private Ltd., New Delhi, INDIA, 1972.
3. James Morrison Coxon and Brian Halton, *Organic Photochemistry*, Cambridge.
4. D. K. Mandel, *Pericyclic reactions: A Mechanistic and Problem Solving Approach*, Elsevier, 2016.

PAPER–422: MODERN SYNTHETIC REACTIONS AND REARRANGEMENTS

Maximum Marks: 100	**Time: 3 hrs**
External Examination: 70	**Pass Marks: 35 %**
Internal Assessment: 30	**Number of Lectures: 75**
Credit: 05	**6 Lectures/Week**

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will be comprised of three Sections: A, B and C. Both section A and B will have four questions each (from the respective section of syllabus), all carrying 12 marks. Section C will consist of 11 short answer type questions that will cover the entire syllabus and will be of two marks each.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions selecting two questions from each of Section A & B and entire Section C is compulsory.

Section - A 38 Hrs.

I. **Functionalisation of Non Activated Carbon**

Barton's reaction and related process mechanism, stereochemistry of transition state, photolysis of organic nitrites, N-Nitrosoamides, hypohalites. Reaction of monohydric alcohols with lead tetraacetate, olefinic alcohols from hydroperoxides, cyclobutanols from photolysis of ketones, applications to steroid nucleus.

II. (a) Hoffman Loeffler Ley Freytag Reaction using N-chloramine derivatives, mechanisitic approach and application.

(b) Newer Chemical Techniques: Brief concept of crown ethers, phase transfer reagent, application in synthesis.

(c) Use of compounds of Thallium (III), Palladium and Ruthenium oxide in organic synthesis.

III. New application of organosilicon compounds in synthesis, protection of functional group, trimethylsilylcyanide, elimination from β-hydroxy-silane, the Peterson reaction and related process; Annelation; alkenylsilanes and α, β-epoxysilanes, stabilisation of corbonium ions by β-silyl groups.

IV. Allylic alkylation of alkenes; The dihydro 1,3-oxazine synthesis of aldehyde and ketones, coupling of organonickel and organocopper complexes. Reaction of lithium organocuparates, synthetic application of carbenes and carbenoids. Some photocyclisation reactions, acyclic conjugated trienes, stilbene, Anil, alkaloids and related processes.

Section – B 37 Hrs.

Molecular Rearrangements

I. Rearrangements in Small Ring Compounds

(a) Introduction : Thermal rearrangements, Cyclopropane derivatives, Acid catalysed rearrangement involving carbonium ions, Base catalysed rearrangement, involving carbanians, Rearrangements involving free radicals and carbene intermediate.

(b) Thermal rearrangements : Cyclobutane derivatives, Acid ctatalysed rearrangement involving carbonium ion, base catalysed rearrangement involving carbanions, Rearrangements involving free radical and carbene intermediate.

II. Carbonium Ion Rearrangement in Bridged Bicyclic Systems

Wagner-Meerwein, Pinacol, Nametkin, and Demjan rearran-gement, Mechanism, Migratory aptitude, Stereochemical consequences.

III. Rearrangement in Steroids

1. (a) Angular group migration, Rearrangement in C_{13}–CH_3, C_9, C_{11}, C_{19} methyl groups. Dienone phenol rearrangement.
   (b) Anthrasteroid Rearrangement.
   (c) Retro aldol phenomenon.
2. (a) i-steroid transformation.
   (b) Ring expansion and contraction in A, B, C, D Rings.
   (c) Acyloin Rearrangement in D-homoannulation, Acyl group migration, Allylic transposition, Redistribution Reactions.

RECOMMENDED BOOKS

1. K. W. Bentley, *Elucidation of Organic Structure by Physical Method*, *Part-I, II*, Wiley Interscience, New York, 1972.
2. P. S. Kalsi, *Chemistry of Natural Products*, Kalyani Publishers, 2001.
3. P. de-Mayo, *Molecular Rearrangement*, Vol. I & II, Interscience Publishers, 1964
4. H. O. House, *Modem Synthetic Reaction*, Benjamin, New York, 1965.
5. W. Carruther, *Some Modem Methods of Organic Synthesis*, Cambridge University Press 1971.

PAPER-MC423: HETEROCYCLIC CHEMISTRY

Maximum Marks: 100	**Time: 3 hrs**
External Examination: 70	**Pass Marks: 35 %**
Internal Assessment: 30	**Number of Lectures: 75**
Credit: 05	**6 Lectures/Week**

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will be comprised of three Sections: A, B and C. Both section A and B will have four questions each (from the respective section of syllabus), all carrying 12 marks. Section C will consist of 11 short answer type questions that will cover the entire syllabus and will be of two marks each.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions selecting two questions from each of Section A & B and entire Section C is compulsory.

Section – A 37 Hrs.

I. Nomenclature of Heterocycles: Replacement and systematic nomenclature (Hantzsch-widman System) for monocyclic fused and bridged hetrocycles**.**

II. Three membered ring with one Heteroatom: Oxirane, Aziridine, Thirane: Introduction, synthetic methods, Direct insertion of heteroatom into carbon-carbon-double bond, methylene insertion reaction, cyclisation method, condensation reaction, Nucleophillic and Electrophillic ring opening. Reaction involving extrusion of the heteroatoms.

III. Four membered Heterocyclics with one Heteroatom: Oxetane, thitanes, Azitidines : Introduction, Synthetic method, Cyclisation reaction, Direct combination method, Reaction electrophillic, Nucleophillic ring opening and General chemical reactions.

IV. Five membered Heterocyclics with two Heteroatoms: Pyrazole and Imidazoles: Introduction, Physical properties, Structure, Synthetic method, Electrophillic and Nucleophillic reactions.

(a) Isoxazole and Oxazole : Physical and chemical properties, synthetic reactions.

1. Isothiazole and Thiazoles: Physical and chemical properties, synthetic reactions.

Section - B 38 Hrs.

I. **Six membered Heterocyclic with two heteroatoms**: Introduction: Pyridazine, Pyrimidine, Pryazine. Synthetic approaches. Chemical reactions; Electrophillic substitution, Nucleophillic substitution, Side chain reactivity.

II. **Molecular Rearrangement in some Heterocyclic compounds**

i. **Ring Contraction :**

   (a) Pyridine and Quinoline derivatives to pyrrole & indole.
   (b) Benzodiazepines to Quinoxalenes and Benzimidazole derivatives.
   (c) Quinoxaline to Benzimidazoles.
   (d) Dihydro flavonols to Benzyl and Benzylidene Coumaranone.
   (e) Dihydrofurans to cyclopropyl ketone.

ii. **Ring Expansion :**

   (a) Pyrrole to Pyridines.
   (b) Benzylidene Coumaranones to flavonones and flavonols.
   (c) Tetrahydro furfurylalcohol to Dihydropyran.

iii. **1, 2 Rearrangements in Heterocyclic system.**

   (a) 1,2 - Rearrangement in catechin derivatives.
   (b) 1,2 - Rearrangement of indole derivatives.
   (c) 1,2 - Rearrangement during Clemmenson's Reduction.

iv. **Aromatic Rearrangements**

   (a) Jacobsen Rearrangement
   (b) Migration of Alkyl group during Fisher's Indole Synthesis
   (c) Rearrangement of N-substituted aniline, N-oxides
   (d) Rearrangement of Benzidine.

RECOMMENDED BOOKS

1. R. M. Acheson, An Introduction to the Chemistry of Heterocyclic Compounds, 3th Ed., Wiley India Pvt Ltd.
2. A. R. Katrizky, Handbook of Heterocyclic Chemistry, 3th Ed., Elsevier.
3. R.K. Bansal, Heterocyclic Chemistry, 6 th Ed., New Age International Pvt. Ltd.
4. P-de-Mayo, Molecular Rearrangement, Vol.1, Interscience, 1963.
5. R.R. Gupta, M. Kumar, Heterocyclic Chemistry, Vol.1-3, Springer-Verlag, 1998.
6. J.A. Joule, K. Mills, G. F. Smith, Heterocyclic Chemistry, 5 th Ed., Wiley-Blackwell.

PAPER–MC431: X-RAY DIFFRACTION AND OTHER TECHNIQUES

Maximum Marks: 100	**Time: 3 hrs**
External Examination: 70	**Pass Marks: 35 %**
Internal Assessment: 30	**Number of Lectures: 75**
Credit: 05	**6 Lectures/Week**

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will be comprised of three Sections: A, B and C. Both section A and B will have four questions each (from the respective section of syllabus), all carrying 12 marks. Section C will consist of 11 short answer type questions that will cover the entire syllabus and will be of two marks each.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions selecting two questions from each of Section A & B and entire Section C is compulsory.

Section - A 38 Hrs.

1. CRYSTALLOGRAPHY AND X-RAYS

(i) Crystallography : Crystals, Crystal laitices, Unit Cel1 and Crystal systems. Bravias lattices, lattice, directions and lattice planes, Miller indices, derivation of spacing formula for cubic, tetragonal and orthorhombic crystals, stereographic projections, crystal structure of $CsC\ell$, $NaC\ell$ Diamond, ZnS, CaF_2 etc. Point defects, stoichiometric and non- stoichiometric crystal defects, thermodynamics of Schottky and Frenkel defects formation, colour centres, line defects and plane defects.

(ii) Nature of X-Rays : Introduction, the continuous spectrum, The characteristic spectra, absorption of X-Rays, filters, production and detection of X-Rays (Photographic method and counters)

2. X -RAY DIFFRACTION

X-Ray diffraction and the directions of diffracted beam, X-ray spectroscopy, methods of X-ray diffraction - Bragg's method and Laue's method, Derivation of Bragg's law and Laue's diffraction equation. Rotating crystal method, Powder method, diffraction under non-ideal conditions. The intensities of diffracted beams scattered by an electron, atom and a unit cell. The structure factor calculations. The factors influencing the intensity of diffracted lines on the powder pattern. Determination of crystal structure, indexing patterns of cubic crystals, indexing patterns of non cubic crystals. Electron diffraction scattering by gases. Wierl equation, measurement technique. Neutron diffraction : introduction, measurement technique, difference between neutron and X-ray diffraction.

Section - B 37 Hrs.

3. CIRCULAR DICHROISM AND OPTICAL ROTATORY DISPERSION

Theory of polarised light, optical activity and optically active molecules, Cotton effects, CD and ORD, Octant Rule, Experimental Techniques, Applications : quantitative analysis, determination of absolute configuration, conformational studies and equilibrium studies.

4. NUCLEAR QUADRUPOLE RESONANCE SPECTROSCOPY

Basic concepts, experimental techniques, Zeeman splitting of quadrupole spectra, quadrupole coupling in (i) atoms and (ii) molecules, Structural information obtainable from NQR spectra, nature of chemical bond and study of charge transfer compounds.

5. MOSSBAUER SPECTROSCOPY

The Mossbauer effect, the Mossbauer active nuclei. The spectral line width. The chemical isomer shift. The quadrupole splitting, magnetic hyperfine inteactions. Measurement technique, elucidation of structure of ^{57}Fe, ^{119}Sn and ^{151}Eu complexes using Mossbauer data. Dynamic effect, Second-order Doppler shift and recoilless fraction. The Goldanskii-karyagin effect. Paramagnetic relaxation. Mossbauer spectroscopy of biological systems. Mossbauer spectroscopy applied to surface study, nature of chemical bond and structural determination, analytical applications.

RECOMMENDED BOOKS

1. R. Chang, *Basic Principles of Spectroscopy*, Tata McGraw-Hill, 1971.
2. R. S. Drago, *Physical Methods in Chemistry*, Saunders College Pub, 1992
3. B. D. Cullity, *Elements of X-ray Diffraction*, Addison-Wesley Publishing, 1956.
4. T. C. GIBB, *Principles of Mossbauer Spectroscopy*, Springer, 2013.
5. Darassi, *Optical Rotatory Dispersion*, Tata McGraw-Hill, 1960

PAPER–MC432: BIOPHYSICAL CHEMISTRY AND ADVANCED SPECTROSCOPY

Maximum Marks: 100	**Time: 3 hrs**
External Examination: 70	**Pass Marks: 35 %**
Internal Assessment: 30	**Number of Lectures: 75**
Credit: 05	**6 Lectures/Week**

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will be comprised of three Sections: A, B and C. Both section A and B will have four questions each (from the respective section of syllabus), all carrying 12 marks. Section C will consist of 11 short answer type questions that will cover the entire syllabus and will be of two marks each.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions selecting two questions from each of Section A & B and entire Section C is compulsory.

Section - A 38 Hrs.

1. BIOPHYSICAL CHEMISTRY

Structure of water, Amino acids, Proteins and Polynucleic acids. The peptide bond. Isoelectric point. Conformations of polypeptide chains, primary, secondary and higher-order structures.

Factors affecting analyte structure and stability- pH Effects, Temperature Effects, Effect of solvent Polarity.

Biological relevance of chemical potential, Hydrophobic and hydrophilic interactions in biological systems.

Protein-Solvent interactions-Preferential binding, hydration and exclusion. Protein polymerization models, Protein denaturation models.

Thermodynamics of protein folding/stability by fluorescence, CD and calorimetric techniques. Binding Isotherms, Binding equilibrium, Hill equation.

Binding of small ligands by biological macromolecules: Kinetics and energetics of protein-drug, protein-surfactant and DNA-drug interaction by fluorescence, CD and calorimetric methods.

2. LASER and MASERS

Introduction, laser beam characteristics; directionality, intensity, monochromaticity and coherence, laser action; spontaneous and stimulated emission, amplification, population inversion, negative absorption. Pumping (optical, electrical etc.) Two level systems, possibility of amplification, Population inversion in three and four level systems. Masers; Two level maser system – ammonia maser (principle and working). Optical resonators. Solid laser – Ruby-laser, Gas lasers; Helium – Neon gas laser, Chemical lasers; HCI & HF lasers, Q - switching, Raman laser action, stimulated Raman scattering. Semiconductor lasers : Band model theory for metals Intrinsic and impurity semiconductors, p-n junctions, semiconductor diode laser. Applications of lasers and masers; projection of intense energy, absorption spectra, focussed beam, power transmission, communication, atmospheric optics etc.

Section - B 37 Hrs.

1. MASS SPECTROMETRY

Development with special reference to Dempster's mass spectrometer. Basic instrumentation : electron bombardment and photo ionization sources, magnetic, electrostatic and time of flight analyzers, ion detectors, (Vibrating reed electrometers and electron multipliers). Operation and representation of mass spectra, Types of ions in mass spectra. Energetics of electron impact process : appearance potential of positive and negative ions, ionization efficiency curves. The Frank-Condon principle and the ionization and dissociation of molecules by electron impact. Molecular weight determination, evaluation of bond dissociation energies, heats of formation and electron affinities by mass spectrometric methods.

2. PHOTOELECTRON SPECTROSCOPY (PES)

Basic principles of photoelectron spectroscopy; Introduction, photoelectron spectrum, block diagram of photoelectron spectrometer. Experimental techniques; light sources, spherical field analysers, deflection analysers, parallel plate mirror analyser, retarding field analyser, operational consideration; recording a spectrum, signal-to-noise ratio. Photoionization and atomization; Application of Frank - Condon principle to photoelectric spectra. Koopman's theorem.

Atomic photoelectron spectra of Ar, Kr and Xe and spin orbit coupling. Photoelectron spectra of halogen acids (HF, HCI, H Br, and HI) and spin orbit coupling.

RECOMMENDED BOOKS

1. S. S. Fang, *Physical chemistry of macromolecules: basic principles and issues*, John Wiley & Sons, 2004.
2. A. Cooper, *Biophysical Chemistry*, Royal Society of Chemistry, 2011.
3. D. Sheehan, *Physical biochemistry: principles and applications*, John Wiley & Sons, 2013.
4. C. Tanford, *Physical Chemistry of Macromolecules*, Wiley, 1961.
5. C. R. Cantor and P.R. Schimmel, *Biophysical chemistry: Part III: the behavior of biological macromolecules,* Macmillan, 1980.
6. K. E. van Holde, W. C. Johnson and P. S. Ho, *Principles of Physical Biochemistry*, Pearson/Prentice Hall, 2006.
7. R. B. Gregory, *Protein-Solvent Interactions*, CRC Press, 1995.
8. C. Branden and J. Tooze, *Introduction to Protein structure*, Garland Publishing, Inc.,

1991.

9. B. B. Laud and and J. Tooze, *Lasers and Non-Linear Optics*, Wiley, 1992.
10. B. A. Lengyel, *Introduction to Laser Physics*, Wiley, 1966.
11. K. Shimoda, *Introduction to laser physics*, Vol. 44, Springer, 2013.
12. R. Chang, *Basic Principles of Spectroscopy*, Tata McGraw-Hill, 1971
13. R. S. Drago, *Physical methods in chemistry*. Saunders College Pub., 1992.
14. C. A. McDowell, *Mass spectrometry*, Tata McGraw-Hill, 1963.
15. D. Briggs, *Handbook of X-ray and Ultraviolet Photoelectron Spectroscopy*, Heyden, 1977.
16. D. W. Turner, *Molecular photoelectron spectroscopy*, Wiley Interscience, 1970.

PAPER–MC433: POLYMERS AND SURFACE CHEMISTRY

Maximum Marks: 100	**Time: 3 hrs**
External Examination: 70	**Pass Marks: 35 %**
Internal Assessment: 30	**Number of Lectures: 75**
Credit: 05	**6 Lectures/Week**

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will be comprised of three Sections: A, B and C. Both section A and B will have four questions each (from the respective section of syllabus), all carrying 12 marks. Section C will consist of 11 short answer type questions that will cover the entire syllabus and will be of two marks each.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions selecting two questions from each of Section A & B and entire Section C is compulsory.

Section - A 38 Hrs.

1. Introduction: Classification and nomenclature of polymers, composition and polymerization mechanism.
2. Step Polymerization : Reactivity of functional groups, basis for analysis of polymerization, kinetics of step polymerization, self catalysed polymerization, external catalysis of polymerization, step polymerization other than polyesterification non-equivalence of functional groups in polyfunctional reagents.
3. Radical chain polymerization : Overall kinetics of chain polymerization, initiation, thermal decomposition of initiators, types of initiators, kinetics of initiation and polymerization, dependence of polymerization rate on monomer, photochemical initiation, initiation by ionizing radiation, pure thermal initiation, redox initiation.

4. Co-polymerization and emulsion polymerization: The composition of addition copolymers, kinetics of chain propagation in co-polymerization, qualitative and quantitative theories of emulsion. Polymerization rate, degree and number of polymer particles in emulsion polymerization.
5. Molecular weight average and viscosity average molecular weight, molecular weight determination by osmotic method, light scattering method, sedimentation method, diffusion constant, sedimentation equilibrium, viscosity method.
6. Statistics of Linear polymers Molecular weight, molecular weight distribution, polydispersity index, average and end to end distance, average radius of gyration.

Section - B 37 Hrs.

1. Adsorption: Adsorption, Adsorption of gases, influence of temperature and pressure, nature of adsorption and adsorbed gases, unimolecular layers, types of adsorption, Langmuir adsorption isotherm and BET adsorption equation and their derivation, estimation of surface area of adsorption, Gibbs adsorption equation and its verification.
2. Kinetics of heterogeneous reaction at solid surfaces: Gas reaction on solids, single reacting gas, retardation of reaction products, two reacting gases, retardation by reactants and products, adsorption and desorption as rate determining, absolute rate theory of heterogeneous reactions.
3. Catalysis: Catalysts and Criteria of catalysis and initiation of a reaction. Catalytic activity and its determination, salt effects (Primary and Secondary).
4. Spectroscopic methods like PES, AES, LEED to determine surface structure, important applications of surface chemistry, surfactant, wetting, micelles, detergency, surface tension, interfacial tension.

RECOMMENDED BOOKS

1. G. G. Odian, *Principles of Polymerization* (4th Ed.), John Wiley & Sons, 2004.
2. P. J. Flory, *Principles of Polymer Chemistry*, Cornell University Press, 1953.
3. S. G. Gregg, *The Surface Chemistry of Solids*, London: Chapman and Hall, 1961.
4. A. W. Adamson, and A.P. Gast *Physical Chemistry f Surfaces* (6th Ed.), John Wiley & Sons, Inc., 1997.
5. C. Tanford, *Physical Chemistry of Macromolecules*, Wiley, New York, 1961.
6. S. Glasstone, *Text-Book of Physical Chemistry*, London: Macmillan, 1960.
7. G. Barrow, *Physical Chemistry*, McGraw-Hill Publishing, New Delhi, 2008.

PAPER-MC414: Inorganic Chemistry Practices - I

Maximum Marks: 100
University Examination: 70
Internal Assessment: 30
Time: 6 Hrs./week

1. Preparation of $[Cr(urea)_6]Cl_3$
2. Estimation of Cr and Cl.
3. Preparation of sodium diethyldithiocarbamate.
4. Preparation of nitroso bisdiethyldithiocarbamate iron (I).
5. Estimation of Iron.
6. Preparation of cis & trans dichlorobisethylenediammine cobalt (III) chloride.
7. Preparation of bis(acetylacetonato)copper(II).
8. Estimation of copper.
9. Preparation of Pyridineperchromate.
10. Preparation of octahedral and tetrahedral complex of dichloropyridylcobalt(II)
11. Estimation of Cobalt.
12. Preparation of Sodium tetrathionate.
13. Estimation of Sodium tetrathionate using Potassium iodate.
14. Preparation of $[Ni(NH_3)_6]Cl_2$.
15. Estimation of Nickel.

14. Analysis of

- (a) Water samples (hardness).
- (b) Alloys (solder, brass, bronze, steel).

NOTE: *Subject to the availability of Instrument/chemicals, the experiments can be substituted by alternate experiments.*

PAPER-MC415 : INORGANIC PRACTICALS – II

Maximum Marks: 100
University Examination: 70
Internal Assessment: 30
Time: 6 Hrs./week

1. IR Spectroscopy

Study of the following complexes.

- (i) $[Ni(NH_3)_6]Cl_2$
- (ii) Pyridineperchromate
- (iii) $[Cr(urea)_6]Cl_2$
- (iv) Na diethyldithiocarbamate.
- (v) Nitrosylbisdiethyldithiocarbamatoiron (I).
- (vi) Sodium tetrathionate

2. Determination of stoichiometry of complex of Fe - 1,10 - Phenanthroline and Cr-1,5-Diphenyl Carbazide
   - (a) Job's method of continuous variation.
   - (b) Mole-Ratio Method.
3. To find out oscillator strength and assignments of d-d bands to transitions hexaquo ions of Cr(III), Fe(II), Ce(III), Co(II) and Ni(II).

(c) Calculation of 10 Dq and β for hexa aquo ion of Ni (II).

(d) Verification of relative positions of following ligands in the spectrochemical series : H_2O, Py, NH_3, DMSO, Acetyl acetonate, ethylenediamine, acetate and urea.

NOTE: *Subject to the availability of Instrument/chemicals, the experiments can be substituted by alternate experiments.*

PAPER-MC424 : ORGANIC CHEMISTRY PRACTICAL-I

Maximum Marks: 100
University Examination: 70
Internal Assessment: 30
Time: 6 Hrs./week

Multi-step Synthesis

I. **Phenyl isothiocynate from Aniline**
   (i) To prepare Diphenyl thiourea (Thiocarbanilide) from Aniline.
   (ii) To prepare phenyl isothiocynate from thiocarbanilide.

II. **Cyclopentanone from cyclohexanone**
   (i) To prepare adipic acid from cyclohexanone (oxidation).
   (ii) To prepare cyclopentanone from adipic acid.

III. **β-Aminobenzenesulfonamide from acetanilide**
   (i) To prepare p-acetamidobenzene sulphonyl chloride from Acetanilide.
   (ii) To prepare p-acetamidobenzene sulphonamide from p- acetamidoienzene sulphonyl chloride.

IV. **N-alkylated Acridone from N-Phenyl Anthranilic acid**
   (i) To prepare Acridone from N-Phenyl anthranilic acid (Cyclization).
   (ii) To prepare N-alkylated Acridone (Alkylation).

V. **p-Nitro aniline from acetanilide**
   (i) To prepare p-nitroacetanilide from Acetanilide (Bromination).
   (ii) To prepare p-nitroaniline from p-nitroacetanilide (Hydrolysis).

VI. α-Benzyl cyclohexanone from cyclohexanone
   (i) To prepare enamine from morpholine and cyclohexanone.
   (ii) To benzyl ate the enamine and hydrolyse it to a Benzylcyclohexanone.

VII. Photochemical Reaction
   Benzophenone to Benzpinacol

VIII. Spectroscopy
   Students are supposed to know the IR & NMR spectra of the prepared compounds.

NOTE: *Subject to the availability of Instrument/Chemicals, the experiments can be substituted by alternate experiments.*

PAPER–MC425: ORGANIC CHEMISTRY PRACTICALS-II

Maximum Marks: 100
University Examination: 70
Internal Assessment: 30
Time: 6 Hrs./week

I. **Quantitative Estimation by Extraction Method**

Expt. 1 : To determine percentage purity of sodium benzoate in the given sample by extraction method.

Expt. 2 : To find percentage purity of sodium salicylate by extraction method.

II. **Non Aqueous determination. Potassium Methoxide**

Expt. 3 : To standardize the given solution of potassium methoxide.

Expt. 4 : To determine percentage of nitro-benzoic acid.

Expt. 5 : To find the percentage of Barbitones.

Expt. 6 : To determine percentage of succinimide in given sample.

III. **Olefinic bond**

Expt. 7 : To determine percentage purity of allylacohol by addition method using brominating reagent.

Expt. 8 : To find the amount of mesityl oxide using brominating reagent.

IV. **Diols**

Expt. 9 : To determine the percentage purity of given sample of glycol using periodic acid.

Expt. 10 : To determine the amount of glycerol per litre using periodic acid.

V. Paper chromatography

Separation and identification of alkaloids by paper chromatography and determination of R_f values.

VI. **Spectrophotometeric (UV/VIS) Estimations**

1. Amino acids
2. Carbohydrate
3. Cholesterol
4. Ascorbic Acid
5. Asprin
6. Caffeine

NOTE: *Subject to the availability of Instrument/chemicals, the experiments can be substituted by alternate experiments.*

PAPER–MC434: INSTRUMENTAL PHYSICAL CHEMISTRY PRACTICALS – II

Maximum Marks: 100
University Examination: 70
Internal Assessment: 30
Time: 6 Hrs./week

I. **Conductance Measurements**

1. Acid-base Titrations

(a) Strong acid vs strong base.
(b) Weak acid vs strong base.
(c) Strong acid vs weak base.
(d) Mixture of strong acid and weak acid vs strong base.

  - (e) Mixture of strong acid, Weak acid and $CuSO_4$ vs strong base.
2. To determine the cell constant of the given conductivity cell.
3. Determination of the solubility of sparingly soluble salts.
4. Verification of Debye-Huckel-Onsagar equation.
5. Verification of Ostwald dilution law.
6. Transport number measurments by Hittorf's method.
7. Precipitation titrations.
8. Complexometric titrations.
9. Determination of the degree of hydrolysis of the salts.

II. **pH Measurements**

1. Acid-Base titrations.
   - (a) Strong acid vs strong base.
   - (b) Strong acid vs weak base.
   - (c) Weak. acid vs strong base.
   - (d) Mixture of a strong acid and weak acid vs strong base.
2. Determination of the dissociation canstants of weak acids and weak bases.
3. Determinations of the degree of hydrolysis of the salts of weak acids and strong bases and that of strong acids and weak bases.
4. To determine the buffer capacity of the given buffer solution.

III. **E.M.F. Measurements (Potentiometry)**

1. Volumetric analysis.
   - (a) Acid-base titrations.
   - (b) Precipitation titrations.
   - (c) Redox titrations.
2. Construction and determination of emf of the following cells :
   - (a) Pt,/Hg, Hg_2Cl_2, KCI (saturated) / Ag+ (0.1N)/ Ag
   - (b) Pt,/Hg Hg_2Cl_2, KCl (0.1) / Ag+ (0.1 N) / Ag
   - (c) Ag / Ag+ (O.O1N)/Ag+ (O.1N) Ag
   - (d) Ag / Ag+ (0.01N) / KC1 (0.01N) AgCl / Ag
3. Determination of the solubility of the sparingly soluble salts.
4. Determination of the mean activity coefficients.
5. To determine the various thermodynamic functions for the following reaction :
   $Zn + Cu^{+2} = Zn^{+2} + Cu$
6. To determine the equilibrium constant for the complex, $[Ag(NH_3)_4]^+$ formation.

IV. **Flame Photometry**

To detemine the concentration of the ions like Na^+, K^+, Ca^{2+} in the given solution.

NOTE: *Subject to the availability of Instrument/chemicals, the experiments can be substituted by alternate experiments.*

PAPER–MC435: PHYSICAL CHEMISTRY PRACTICALS - II

Maximum Marks: 100
University Examination: 70
Internal Assessment: 30
Time: 6 Hrs./week

1. PHOTOCHEMISTRY

(I) Intensity of the lamp/Quantum yield of the Reaction.

(a) To draw calibration curve for various concentrations of Ferrous sulphate/1,10-phenanthroline complex and hence to find the coefficient of its molar absorptivity.

(b) To find out the intensity of the lamp (visible light) by ferrioxalate actinometer.

(II) Methylene blue Sensitized photooxidation of Diphenylamine

(a) To study the rate of formation of the product in the above photochemical reaction with increasing quanta of light absorbed and to find the quantum yield of this reaction.

(b) To study the effect of following parameters on the above reaction

(1) Effect of dielectric constant of the medium.
(2) Effect of methylene blue concentration.
(3) Effect of diphenylamine concentrations.
(4) Effect of oxygen concentration.

2. TWO COMPONENT SYSTEMS

(a) To determine the critical solution temperature (CST) and critical solution concentration (CSC) for phenol/water system. .

(b) To find the Eutectic point for two component systems, i.e., Naphthalene/Benzoic acid and benzoic acid/ Cinnamic acid systems.

3. PARTIAL MOLAL VOLUMES

To find the partial molal volumes for urea, Glycine and ethanol in aqueous solutions.

4. LEAST SQUARE PLOT

To calculate the slope and intercept for a data of straight lines by least square method and to draw the line.

5. **MICELLES FORMATION**

(a) To determine the critical micelle conc. of sodium dodecyl sulphate from a study of the conductivity of aqueous solutions.

(b) To determine critical conc. for the formation of micelles from the spectral behaviour of a dye.

NOTE: *Subject to the availability of Instrument/chemicals, the experiments can be substituted by alternate experiments.*

1.1.2 (ANNEXURE 1)

Programme Code

1.1.1 Programmes for which syllabus revision was carried out during the 2020-2021 year		
Name of programme	**Programme Code**	**Dates of revision**
BSc (Hons) MathsSem 1: Calculus-I	BMH-101	30/06/2020
BSc (Hons) MathsSem 1:Algebra	BMH 102	30/06/2020
BSc (Hons) MathsSem 2: Calculus-II	BHM 201	30/06/2020
BSc (Hons) MathsSem 2:Ordinary Differential Equation	BHM 202	30/06/2020
BSc (Hons) MathsSem 3 : Analysis-1	BMH 301	30/06/2020
BSc(Hons) MathsSem 3 : Linear Alebra	BMH 302	30/06/2020
BSc(Hons)Maths Sem3 : Mathematical Methods	BMH 303	30/06/2020
BSc (Hons)Maths Sem3: Probability and Statistics	BMH 304	30/06/2020
BSc (Hons) Maths Sem4: Analysis-II	BMH 401	30/06/2020
BSc(Hons) Maths Sem4: Group Theory	BMH 402	30/06/2020
BSc(Hons) Maths Sem4: PDE and System of ODE	BMH 403	30/06/2020
BSc(Hons) Maths Sem4: Number Theory	BMH 404	30/06/2020
BSc(Hons) Maths Sem5: Ring Theory and Linear Algebra II	BMH 501	30/06/2020
BSc(Hons) Maths Sem5: Numerical Methods	BMH 502	30/06/2020
BSc(Hons) Maths Sem5: Statistics and Dynamics	BMH 503	30/06/2020
BSc(Hons) Maths Sem5: Linear Programming	BMH 504	30/06/2020
BSc(Hons) Maths Sem6: Metric Spaces and Complex Analysis	BMH 601	30/06/2020
BSc(Hons) Maths Sem6: Tensor Analysis	BMH 602	30/06/2020
BSc(Hons) Maths Sem6: Integral Equations and Integral Transforms	BMH 603	30/06/2020
BSc(Hons) Maths Sem6: Discrete Mathematics and Graph Theory	BMH 604	30/06/2020
MSc MathsSem 1 : Algebra - I	MM 401	30/06/2020
MSc MathsSem 1 : Real Analysis I	MM 402	30/06/2020
MSc MathsSem 1 : Topology I	MM 403	30/06/2020
MSc MathsSem 1 : Differential Geometry	MM 404	30/06/2020
MSc MathsSem 1 : Complex Analysis	MM 405	30/06/2020
MSc MathsSem 2 : Algebra- II	MM501	30/06/2020
MSc MathsSem 2 : Real Analysis II	MM 502	30/06/2020
MSc MathsSem 2:Differential Equations		30/06/2020
MSc MathsSem 2 : Topology-I	MM 503	30/06/2020

MSc MathsSem 2 : Number Theory	MM 504	30/06/2020
MSc MathsSem 2 : Mathematical Methods	MM 505	30/06/2020
MSc MathsSem 3 : Functional Analysis	MM 601	30/06/2020
MSc MathsSem 3 : Differentiable Manifolds	MM 602	30/06/2020
MSc MathsSem 3 : Numerical Analysis	MM 604	30/06/2020
MSc MathsSem 3 : Field Theory	MM 605	30/06/2020
MSc MathsSem 3 : Optimization Techniques-1	MM 606	30/06/2020
MSc MathsSem 4 : Geometry of Differentiable Manifolds	MM 701	30/06/2020
MSc MathsSem 4 : Theory of Linear Operators	MM 702	30/06/2020
MSc MathsSem 4 : Numerical Analysis II	MM 704	30/06/2020
MSc MathsSem 4 : Non linear Programming Problem	MM 706	30/06/2020
MSc MathsSem 4 : Optimization Techniques-II	MM 707	30/06/2020
BSc.N.M Sem I :Calculus(Differential and Integral)	BSC MAT 105 A	30/06/2020
BSc.N.M Sem I :Ordinary and Partial Differential Equations	BSC MAT 105 B	30/06/2020
BSc.N.M Sem II :Algebra and Trigonometry	BSC MAT 205 A	30/06/2020
Analytic Geometry	BSC MAT 205 B	30/06/2020
BSc.N.M Sem III :Analysis	BSC MAT 305 A	30/06/2020
BSc.N.M Sem III :Advanced Calculus	BSC MAT 305 B	30/06/2020
BSc.N.M Sem IV :Numerical Methods and Vector Calculus	BSC MAT 405 A	30/06/2020
BSc.N.M Sem IV :Statics and Dynamics	BSC MAT 405 B	30/06/2020
BSc.N.M Sem V :Algebra –I	BSC MAT 505 A	30/06/2020
BSc.N.M Sem V :Mathematical Methods	BSC MAT 505 B	30/06/2020
BSc.N.M Sem VI :Algebra-II	BSC MAT 605 A	30/06/2020
BSc.N.M Sem VI :Discrete Mathematics	BSC MAT 605 B	30/06/2020
B.ASem I :Calculus(Differential and Integral)	BA MAT 105 A	30/06/2020
B.A Sem I :Ordinary and Partial Differential Equations	BA MAT 105 B	30/06/2020
B.A. Sem II :Algebra and Trigonometry	BA MAT 205 A	30/06/2020
B.A Sem II: Analytic Geometry	BA MAT 205 B	30/06/2020
B.A Sem III :Analysis	BA MAT 305 A	30/06/2020
B.A Sem III :Advanced Calculus	BA MAT 305 B	30/06/2020
B.A Sem IV :Numerical Methods and Vector Calculus	BA MAT 405 A	30/06/2020
B.A Sem IV :Statics and Dynamics	BA MAT 405 B	30/06/2020

B.A Sem V :Algebra –I	BA MAT 505 A	30/06/2020
B.A Sem V :Mathematical Methods	BA MAT 505 B	30/06/2020
B.A Sem VI :Algebra-II	BA MAT 605 A	30/06/2020
B.A Sem VI :Discrete Mathematics	BA MAT 605 B	30/06/2020

Syllabus BSc Hons Sem (3 and 4) (ANNEXURE SEM 3 AND SEM 4)

Sri Guru Teg Bahadur Khalsa College

Sri Anandpur Sahib, Distt- Ropar (Punjab) 140118
(An Autonomous College)

CHOICE BASED CREDIT SYSTEM (CBCS)
FOR B.Sc.(Honours) MATHEMATICS
(SEMESTER III & IV)

Department of Mathematics
POST GRADUATE PROGRAMME
COURSES EFFECTIVE FROM SESSION (2020-2021)

BMH-301 Analysis-I

L	T	P		
5	1	0	University Exam :	70
			Internal Assessment:	30

Minimum passing marks: 40%
Time Allowed: 3hrs. Total: 100

INSTRUCTION FOR THE PAPER SETTER

The question paper will consist of three sections A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus and Section C will consist of one compulsory question having ten short answer type questions covering the entire syllabus uniformly. Each question in Sections A and B will be of 10 marks and Section C will be of 30 marks.

INSTRUCTION FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each section A and B and compulsory question of Section C.

Course Outcomes: 1) To acquaint students with the fundamental properties like completeness of the real line

2) To build up the concepts of size of sets and point set topology and to understand the proofs of theorems

3) To give idea of sequences, subsequences, continuity and uniform continuity

Section A

Real Number System: The real number system, the field and order axioms of the reals, least upper bound property, the completeness axiom, properties of supremum and infimum, the Archimidean property of the real number system, decimal representation of the real numbers, some useful inequalities and the extended real number system.

Countability: Equipotent sets, finite, infinite, countable and uncountable sets Countability of the rationals and the Uncountability of the real numbers system, countable collection of countable sets.

Elements of Point Set Topology: Euclidean spaces $\mathbf{R}^n$, Open sets and their structure in $\mathbf{R}^n$, Adherent Points, Accumulation points and Closed sets. The Bolzano Weierstrass Theorem, The Cantor Intersection Theorem, The Lindelof Covering Theorem, The Heine-Borel Covering Theorem, Compactness in $\mathbf{R}^n$.

Section –B

Sequences and their Conergence: Sequences and their convergence, Cauchy Sequences, monotone Sequences, Sandwitch Lemma, Sequences Diverging to $\pm\infty$, Subsequences surjections

Continuity and Differentiability: Continuous functions, $\varepsilon - \delta$ Definition of Continuity, Intermediate value theorem, Extreme value theorem, Monotone functions, Limits, Uniform Continuity, Continuous Extensions, Differentiability of functions, Mean value theorems, Higher Order Derivatives, Taylor's Theorem, Convex Functions, Cauchy's form of Remainder Theorem

(Scope as in text book 1 and text book 2)

Text Books:-

1. Tom. M. Apostol: *Mathematical Analysis*, Second Edition. Addsion-Wesley Publishing Company.
2. Ajit Kumar and S. Kumaresan, A Basic Course in Real Analysis, CRC Press

Reference Books:-

3. Kenneth A. Ross, *Elementary Analysis: The Theory of Calculus.* Undergraduate Texts in Mathematics. Springer, 1998.
4. R.G. Bartle and D. R Sherbet, *Introduction to Real Analysis,* 3rd Edition., John Wiley and Sons, 2002

BMH-302 Linear Algebra

L	T	P		
5	1	0	University Exam:	70
			Internal Assessment:	30

Minimum Passing marks: 40%

Time Allowed: 3 hrs. Total: 100

INSTRUCTION FOR THE PAPER SETTER

The question paper will consist of three sections A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus and Section C will consist of one compulsory question having ten short answer type questions covering the entire syllabus uniformly. Each question in Sections A and B will be of 10 marks and Section C will be of 30 marks.

INSTRUCTION FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each section A and B and compulsory question of Section C.

Course outcome: Students completing this course will be able

(i) To have deep knowledge of vector space and its properties.

(ii) Moreover, students will be able to find the null space of a matrix and represent it as the span of independent vectors.

(iii) To find the matrix representation of a linear transformation given bases of the relevant vector space.

Section A

Vector spaces, Subspaces, Algebra of subspaces, , Linear combination of vectors, Linear span, Linear independence, Basis and dimension, Dimension of subspaces. General theorems about finitely generated vector spaces, Quotient spaces Inner Products, length, Orthogonality, orthogonal projections, Gram Schmidt orthogonalization.

Section B

Linear Transformations and Matrices. Rank and Nullity of a linear transformation, Rank and Nullity Theorem and its consequences. Isomorphisms, Isomorphism theorems, Matrix of a linear transformation with respect to a given basis, Inverse of a Linear Transformation. Orthogonal Transformations, Invariant Subspaces, Direct Sums, Idempotent linear transformation.

(Scope as in book V. Krishnamurty, V.P. Mainra and J. L. Arora, Introduction to Linear Algebra, East-West Press Pvt. Ltd. 1976. David C. Lay: *Linear Algebra and its Applications*, Addison Wesley, 2000 and Schaum's Outlines, Linear Algebra, Tata McGraw-Hill Publishers, 3rd edition.

Text Books:-

1. V. Krishnamurty, V.P. Mainra and J. L. Arora, Introduction to Linear Algebra, East-West Press Pvt. Ltd. 1976. David C. Lay: *Linear Algebra and its Applications*, Addison Wesley, 2000.
2. Charles W. Curtis, *Linear Algebra An Introductory Approach*, Undergraduate Texts in Mathematics. Springer International Edition. \

Reference Books:-

1. Paul Halmos: *Finite Dimensional Vector Spaces.* D. Van Nostrand Company, Inc.

2. Gilbert Strang: *Linear Algebra and Its Applications*. Thomson, 2007.
3. M. Artin: Algebra, Prentice Hall of India, 1994.
4. K. Hoffman and R. Kunze: Linear Algebra, 2nd Edition, Prentice-Hall of India.

BMH-303 Mathematical Methods

L	T	P		
5	1	0	University Exam:	70

Minimum passing marks: 40% — Internal Assessment: 30

Time Allowed: 3hrs. — Total: 100

INSTRUCTION FOR THE PAPER SETTER

1. The question paper will consist of three sections A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus and Section C will consist of one compulsory question having ten short answer type questions covering the entire syllabus uniformly. Each question in Sections A and B will be of 10 marks and Section C will be of 30 marks.

INSTRUCTION FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each section A and B and compulsory question of Section C.

Course Outcome: This Course will enable the students to:

i. Explain orthogonal properties, recurrence relations of Legendre, Chebyshev and Bessel’s differential equation.
ii. Solve initial value problems using Laplace transforms.
iii. Differentiation and integration of Laplace transforms.
iv. Review of Fourier series, Fourier integrals, Fourier transforms

Section A

Legendre Polynomials – Orthogonal property of Legendre polynomials, Recurrence relations, Rodrigue’s formula, generating function, Orthogonal and Orthonormal functions, Fourier-Legendre series. Chebyshev Differential Equation, Chebyshev polynomials of first and second kind and relation between them, Generating function, orthogonal property, Recurrence formulae, Fourier Chebyshev Series. Bessel’s functions. Strum-Liouville Problem – Orthogonality of Bessel functions, Recurrence formulae, Generating function, Fourier-Bessel Series.

Section B

Laplace Transforms, Linearity, Existence theorem, Laplace transforms of derivatives and integrals, Shifting theorems, Change of scale property, Inverse Laplace transform, Solution of initial value problems using Laplace transforms, Translation theorems, Laplace transform of Dirac-Delta function, Differentiation and Integration of Laplace transform, Convolution theorems, Laplace transform of periodic functions, Laplace transform method to solve some ordinary differential equations. Fourier series, Fourier sine and cosine series, Fourier integrals, Applications of Fourier series, Fourier transforms, Fourier sine and cosine transforms

[Scope as in the book ‘Advanced Engineering Mathematics’ by R. K. Jain and S. R. K. Iyengar]

Text Book:

1. R. K. Jain and S.R.K.Iyengar : Advanced Engineering Mathematics,2nd Edition, Narosa Publishing House, 2004.

Reference Books:-

1 E. D. Rainville: Special Functions, NY Macmillan, 1960.

2. Erwin Kreyszig: Advanced Engineering Mathematics. 10th Edition. John Wiley and Sons.

BMH-304 PROBABILITY AND STATISTICS

Credits: 5 University Exam: 70

Minimum passing marks:40%

Time Allowed: 3 hours Internal Assessment: 30

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus and Section C will consist of one compulsory question having ten short answer type questions covering the entire syllabus uniformly. Each question in Sections A and B will be of 10 marks and Section C will be of 30 marks

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each sections A and B and compulsory question of section C.

Course Outcome: This Course will enable the students to:

i. Use the basic probability rules, including additive and multiplicative laws, using the terms independent and mutually exclusive events.

ii. Explain the concepts of random variable, independent and jointly distributed random variables and conditional distributions, probability distribution, distribution function, expected value, variance and higher moments.

iii. Calculate probabilities and derive the marginal and conditional distributions of bivariate random variables.

iv. Define probability density function, moment generating function and use them to evaluate moments.

v. Define basic discrete and continuous distributions and be able to apply them.

SECTION-A

Sample space, probability axioms, real random variables (discrete and continuous), cumulative distribution function, probability mass/density functions, mathematical expectation, moments, moment generating function, characteristic function, Discrete distributions: Uniform, Binomial, Poisson, Geometric, Negative binomial, Continuous distributions: Uniform, Normal, Exponential.

SECTION-B

Joint cumulative distribution function and its properties, joint probability density functions, marginal and conditional distributions, expectation of function of two random variables, conditional expectations, independent random variables, bivariate normal distribution, correlation coefficient, multiple correlation coefficient, joint moment generating function and calculation of covariance, linear regression for two variables, Chebyshev’s inequality, statement and interpretation of weak law of large numbers and strong law of large numbers, Central limit theorem for independent and identically distributed random variables with finite variance, Marchov Chains.

(Scope as in book Goon, A.M., Gupta, M.K., An Outline of Statistical Theory, Vol-I & II, World Press Publishers Pvt. Ltd., 2010 and S. C. Gupta and V. K. Kapoor: Fundamental of Mathematical Statistics, 11thEdition, S. Chand, 2009)

Text Books:

1. Goon, A.M., Gupta, M.K., An Outline of Statistical Theory, Vol-I & II, World Press Publishers Pvt. Ltd., 2010.
2. S. C. Gupta and V. K. Kapoor: Fundamental of Mathematical Statistics, 11thEdition, S. Chand, 2009.

Reference Books:-

1. P. L. Meyer: Introductory Probability and Statistical applications, 2ndEdition, Addison Wesley, 1970

2. Irwin Miller and Marylees Miller, John E. Freund: Mathematical Statistics with Applications,7th Ed., Pearson Education, Asia, 2006.

3. Alexander M. Mood, Franklin A. Graybill and Duane C. Boes: Introduction to the Theory of Statistics, 3rd Ed., Tata McGraw-Hill, Reprint 2007.

4. Sheldon Ross: Introduction to Probability Models, 9th Ed., Academic Press, Indian Reprint, 2007.

Study Scheme (Sessions 2020-21, 2021-22, 2022-23)

B.Sc.(Honours) MATHEMATICS PART-II (SEMESTER IV)						
Paper Code	Name of Paper	Paper Type	Credits/ hours	External Marks	Internal Marks	Practical
BMH 401	Analysis-II	Core Course C8	6: 5H(L)+1H(T)	70	30	-
BMH 402	Group Theory –I	Core Course C9	6: 5H(L)+1H(T)	70	30	-
BMH 403	PDE and System of ODE	Core Course C10	6: 5H(L)+1H(T)	70	30	-
BMH 404	Number Theory	Skill Enhancement Course (SEC-2)	5:5H(L)	70	30	-
BHGE-405	OOPs using C++/General Chemistry-II	Elective Generic GE-4	4: 4Credits,4H(L)	70	30	-
BHGE-406	Based on OOPs using C++ / General Chemistry-II Lab	Elective Generic GE-4 (Practical)	2: 4H(P)	-	-	50

BMH-401 Analysis II

L	T	P	
5	1	0	University Exam: 70

Minimum Passing marks:40% Internal Assessment: 30

Time Allowed: 3hrs. Total: 100

INSTRUCTION FOR THE PAPER SETTER

The question paper will consist of three sections A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus and Section C will consist of one compulsory question having ten short answer type questions covering the entire syllabus uniformly. Each question in Sections A and B will be of 10 marks and Section C will be of 30 marks.

INSTRUCTION FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each section A and B and compulsory question of Section C.

Course Outcomes: 1) To make the student proficient in the theory of functions of bounded variations and Rectifiable Curves

2) To give insight of Reimann Steiltjes Integration and Convergence of both numerical Sequences and Sequences and Series of Functions.

Section A

Functions of bounded Variation and Rectifiable Curves: Properties of Monotonic Functions, Functions of Bounded Varaiation, Total variation, Additive property of total variation, Total Variation on [a, x] as a function of x, functions of bounded variation expressed as the difference of increasing functions, continuous functions of bounded variation, rectifiable curves and arc length. Additive and Continuity Property of Arc Length, Equivalence of Paths and Change of Parameter.

The Riemann-Stieltjes Integral: definition, elementary properties, integration by parts, change of variable, reduction to Riemann Integral, step functions as integrators, Reduction of the Riemann- Stieltjes Integral to a finite sum, Eulers Summation formula, Monotonically incresing integrators, additive and linearity properties of upper and lower integrals, Riemanns Condition, Comparison Theorems, Integrators of bounded variation, Mean value theorems for Riemann-Stieltjes integrals, Fundamental theorem of integral calculus, Mean value theorems for Riemann Integrals.

Section B

Infinite Series: Limit Superior and Limit Inferior of a real valued sequence, infinite series, inserting and removing parenthesis, alternating series, absolute and conditional convergence, Test for convergence of a series with positive terms, the geometric series, the integral test, the big oh and the little oh notation, the ratio and the root test, Dirichlet's test and Abel's test, Partial sums of the geometric series $\sum z^n$ on the unit circle $|z| = 1$. Rearrangement of Series, Cauchy product of two infinite series

Uniform Convergence; Pointwise convergence of sequence of functions, Uniform Convergence on an interval, Cauchy,s Criterion for uniform convergence, Tests for Uniform convergence of sequences and series, Properties of Uniformly convergent sequences and series, uniform convergence and continuity, uniform convergence and integration, uniform convergence and differentiation, The Weierstrass Approximation Theorem.

(Scope as in text book 1 and text book 2)

Text Books:-

1. Tom.M. Apostol: *Mathematical Analysis*, Second Edition. Addsion-Wesley Publishing Company.

2. Ajit Kumar and S. Kumaresan, A Basic Course in Real Analysis, CRC Press

Reference Books:-

3. Kenneth A. Ross, *Elementary Analysis: The Theory of Calculus.*Undergraduate Texts in Mathematics. Springer, 1998.

4. R.G. Bartle and D. R Sherbet, *Introduction to Real Analysis,* 3rd Edition., John Wiley and Sons, 2002

BMH-402 Group Theory- I

L	T	P		
5	1	0	University Exam:	70
			Internal Assessment:	30

Minimum passing marks:40%
Time Allowed: 3 hrs. Total: 100

INSTRUCTION FOR THE PAPER SETTER

The question paper will consist of three sections A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus and Section C will consist of one compulsory question having ten short answer type questions covering the entire syllabus uniformly. Each question in Sections A and B will be of 10 marks and Section C will be of 30 marks.

INSTRUCTION FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each section A and B and compulsory question of Section C.

Course outcome: Upon successful completion of course students will

(i) Have knowledge and skills to explain fundamental concepts of algebra such as groups, their properties and their role in modern mathematics.

(ii) decide whether a given group is cyclic, and given a finite cyclic group, find a generator for a subgroup of a given order

(iii) express a given finite cyclic group as the direct product of cyclic groups of prime power order and, given two direct products of cyclic groups, determine whether or not they are isomorphic

Section-A

Symmetries of a square, Dihedral groups, binary operations, semigroups, groups, groups of integers modulo n, matrix groups, groups of quaternions, symmetric groups, cycle notation for permutations, even and odd permutations, property of permutations. Elementary properties of groups, Subgroups, examples of subgroups, order of group elements, centralizer, normalizer, center of a group, product of two subgroups, cyclic groups, classification of subgroups of cyclic groups, subgroups generated by a subset, generators and relations, generators of S_n and A_n, Derived subgroups.

Section-B

Cosets, Lagrange's theorem and consequences including Fermat's Little theorem. Conjugacy, Class Equation and its applications, Normal subgroups, Quotient groups, Homomorphisms, Isomorphism Theorems, Cayley's Theorem. External and internal direct products and their properties, the group of units modulo n as an external direct product. Cauchy's theorem for finite abelian groups.

Scope as in Chapters 1-11 and 25 of [1]

Text book:

1. Joseph A. Gallian, Contemporary Abstract Algebra, 4th Ed., Narosa Publishing House, New Delhi, 1999.

Reference Books:-

1. John B. Fraleigh, A First Course in Abstract Algebra, 7th Ed., Pearson, 2002.

2 .M. Artin, Abstract Algebra, 2nd Ed., Pearson, 2011.

3. Joseph J. Rotman, An Introduction to the Theory of Groups, 4th Ed., Springer Verlag, 1995.

4. I. S Luthar and I.B.S. Passi : Algebra Volume 1: Groups, Narosa Publisshing House, 1999. 6. I.N. Herstein, Topics in Algebra, Wiley Eastern Limited, India, 1976.

5. Surjeet Singh and Qazi Zameeruddin, Modern Algebra, 7th Ed., Vikas Publishing House, New Delhi, 1993.

BMH-403 PDE and System of ODE

L	T	P		
5	1	0	University Exam:	70
			Internal Assessment:	30

Minimum passing marks: 40%

Time Allowed: 3hrs. Total: 100

INSTRUCTION FOR THE PAPER SETTER

The question paper will consist of three sections A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus and Section C will consist of one compulsory question having ten short answer type questions covering the entire syllabus uniformly. Each question in Sections A and B will be of 10 marks and Section C will be of 30 marks.

INSTRUCTION FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each section A and B and compulsory question of Section C.

Course Outcome: This Course will enable the students to:

i. Familiarize the various techniques of finding solution of ordinary differential equations in more than two variables.
ii. Acquire the idea of Lagrange’s method for solving the first order PDE.
iii. Describe the origin of PDE and distinguish the integrals of first order linear PDE into complete, general and singular integrals.
iv. Recognize the major classification of PDE and the qualitative difference between the classes of equations.
v. Be competent in solving PDE using classical solution methods.
vi. Solving homogeneous heat, wave and laplace equation.

Section A

Ordinary differential equations in more than two variables-Surfaces and curves in three dimensions, Simultaneous differential equations of first order and the first degree in three variables, Methods of solutions of $\frac{dx}{P}=\frac{dy}{Q}=\frac{dz}{R}$. Orthogonal trajectories of a system of curves on a surface, Pfaffian differential forms and equations, Solution of Pfaffian differential equations in three variables. (I N Sneddon, Chapter 1, section 1.1-1.6)

Partial differential equations of the first order- Introduction and origin of partial differential equations, classification and derivation of first order partial differential equation, Cauchy’s problem for first order equations, linear equation of first order, Integral surface passing through a given curve, Surfaces orthogonal to a given system of surfaces. (I N Sneddon, Chapter 2)

Section B

Non-linear partial differential equation of the first order, Cauchy method of characteristics, Compatible system of first order equations, Charpit's method, Special types of first order equations, Solutions satisfying given conditions, Jacobi's method, Applications of first order equations, Cauchy's method of characteristics.

PDEs of second order-The origin of second order equations, classification into hyperbolic, elliptic and parabolic types, canonical forms, Homogeneous and Non-homogeneous Linear PDEs with constant coefficients, Dirichlet and Neumann boundary conditions, Laplace, Diffusion and Wave equation and their solution in Cartesian, polar and cylindrical coordinates with separation of variables . (I N Sneddon, Chapter 3).

Text Books:-

1. R.K. Jain and S.R.K. Iyengar: Advanced Engineering Mathematics, 2nd Edition, Narosa Publication House, 2003.
2. I N Sneddon, Elements of Partial differential equations, Dover Publications, Inc. Newyork, 2006.

Reference Books:-

1.Tyn Myint-U and Lokenath Debnath, Linear Partial Differential Equations for Scientists and Engineers, 4th edition, Springer, Indian reprint, 2006.

2. S.L. Ross, Differential equations, 3rd Ed., John Wiley and Sons, India, 2004.

3. W E Boyce and R C Diprima, Elementary Differential Equations and boundary value problems, John Wiley and Sons Inc., New York.

BMH-404 Number Theory

Credits: 5 | University Exam: 70
Time Allowed: 3hrs. | Internal Assessment: 30
Minimum passing marks:40%

INSTRUCTION FOR THE PAPER SETTER

The question paper will consist of three sections A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus and Section C will consist of one compulsory question having ten short answer type questions covering the entire syllabus uniformly. Each question in Sections A and B will be of 10 marks and Section C will be of 30 marks.

INSTRUCTION FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each section A and B and compulsory question of Section C.

Course Outcome: This Course will enable the students to:

i. Learn about some important results in the theory of numbers including divisibility, Fundamental theorem of arithmetic, Congurences.
ii. Familiarize with prime number theorem, Chinese remainder theorem, Wilson's theorem.
iii. Learn about arithmetic functions, Mobius inversion formula, Greatest integer function.
iv. Know about Primitive roots and indices, residues, Diophantine equations.
v. Solve related problems.

Section A

Divisibility, Greatest common divisor, Euclidean algorithm, The Fundamental theorem of arithmetic, Congruences, Residue classes and reduced residue classes, Chinese remainder theorem, Fermat's little theorem. Wilson's theorem, Euler's theorem and its application to a cryptography, Arithmetic functions $\phi(n)$, d(n), $\sigma(n)$, $\mu(n)$, Mobius inversion formula, Greatest integer function

Section B

Primitive roots and indices. Quadratic residues, Legendre symbol, Euler's criterion, Gauss's lemma, Quadratic reciprocity law, Jacobi symbol. Representation of an integer as a sum of two and four squares. Diophantine equations $ax + by = c$, $x^2 + y^2 = z^2$, $x^4 + y^4 = z^2$. Prime number theorem, Binary quadratic forms and equivalence of quadratic Forms. Perfect numbers, Mersenne primes and Fermat numbers, Farey fractions.

Text Books:-

1. G. H. Hardy and E. M. Wright – An Introduction to Theory of Numbers, *Oxford* University Press, 6th Ed , 2008.

2. I. Niven, H. S. Zuckerman and H. L. Montgomery – An Introduction to the Theory of Numbers, John Wiley and Sons , (Asia) 5th Ed., 2004.

Reference Books:-

1. H. Davenport - The Higher Arithmetic, Camb. Univ. Press, 7th edition, (1999)
2. David M. Burton – Elementary Number Theory, Tata McGraw Hill, 6th Edition, 2007.

Sri Guru Teg Bahadur Khalsa College

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(An Autonomous College)

CHOICE BASED CREDIT SYSTEM (CBCS)
FOR BSc

(SEMESTER III & IV)

Department of Mathematics

UNDER GRADUATE PROGRAMME
COURSES EFFECTIVE FROM SESSION (2020-2021)

Study Scheme for BSC (Non Medical)
Subject :- Mathematics
For the students of Batch 2019-2020, 2020-21, 2021-22

Paper Code	**Paper Name**	**Credits**			**Maximum Marks**	**Internal Marks**	**External Marks**
		L	**T**	**P**			
BSC MAT 105	Advanced Calculus and Geometry	5	1	0	150	50	100
BSC MAT 205	Analysis	5	1	0	150	50	100
BSC MAT 305	Calculus-II	3	1	0	75	25	50
BSC MAT 306	Ordinary and Partial Differential equations	3	1	0	75	25	50
BSC MAT 405	Algebra and Numerical Methods	3	1	0	75	25	50
BSC MAT 406	Statics and Dynamics	3	1	0	75	25	50
BSC MAT 505	Algebra-I	3	1	0	75	25	50
BSC MAT 506	Mathematical Methods	3	1	0	75	25	50
BSC MAT 605	Algebra –II	3	1	0	75	25	50
BSC MAT 606	Discrete Mathematics	3	1	0	75	25	50
SEC 1	Number Theory-I	2	0	0	50	15	35
SEC 2	Number Theory II	2	0	0	50	15	35
SEC 3	Probability and Statistics	2	0	0	50	15	35
SEC 4	Transportation and Game Theory	2	0	0	50	15	35

BSC MAT 305 Calculus –II (Paper A)

L	T	P	
3	1	0	

L T P — External Assessment: 50
3 1 0 — Internal Assessment: 25
Time Allowed: 3 hours — Minimum Pass Percentage:35%

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus and Section C will consist of one compulsory question having nine short answer type questions covering the entire syllabus uniformly. Each question in Sections A and B will be of 8 marks and Section C will be of 18 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each of the Section A and B and compulsory question of Section C. Use of Calculators is allowed.

Course Outcomes: -The course will augment the earlier knowledge of calculus. The students will learn new concepts of differential calculus and integral calculus.

SECTION-A

Limits and Continuity using definition, Uniform Continuity , Successive differentiation , Asymptotes, Multiple points, Concavity and Convexity, Points of inflexion, Tracing of curves in Cartesian, Parametric and Polar forms. Curvature, Radius of curvature, Center of curvature , Envelopes and Evolutes.

SECTION-B

Integration of hyperbolic and inverse hyperbolic functions, Reduction Formulae, Application of definite integral to find Quadrature (Cartesian, Parametric, Polar curves) , Rectification , Improper integrals (Convergence, Comparison tests, Absolute and conditional convergence, Abel’s and Dirichlet’s tests) Frullani integral, Beta – Gamma Functions and their convergence **.**

Text Books:-

1 Mathematical Analysis, Malik and Arora. New Age Publishers

Reference Books:-

1 Calculus and Analytic Geometry, Thomas and Finney, Ninth Edition.

BSC MAT -306 Ordinary and Partial Differential Equations

(PaperB)

L T P External Assessment: 50
3 1 0 Internal Assessments: 25
Time Allowed: 3 hours Minimum Pass Percentage:35%

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus and Section C will consist of one compulsory question having nine short answer type questions covering the entire syllabus uniformly. Each question in Sections A and B will be of 8 marks and Section C will be of 18 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each of the Section A and B and compulsory question of Section C.

Course Outcomes: -The course will introduce the concept of ordinary and Partial Differential Equations to the students. The students will be able to learn applications of Differential equations to solve various practical problems.

SECTION-A

First order differential equations:

Exact differential equations. Linear differential equations and equations reducible to linear differential equations.Solution of Linear homogeneous and non-homogeneous differential equations of higher order with constant coefficients and with variable coefficients. Method of Variation of Parameters. Differential operator method. Linear non-homogeneous differential equations with variable coefficients, Euler's Cauchy method.

SECTION-B

Partial differential equations:

Partial differential equation of first order, Lagrange’s solution,, Integral surfaces passing through a given curve, surfaces orthogonal to a given system of surfaces, Partial differential equation of first order but of any degree , Charpit’s general method of solution.

Partial differential equations of second and higher order :

Partial differential equations of the second order and their classification into hyperbolic, elliptic and parabolic types, Homogeneous and non-homogeneous partial differential equations with constant coefficients. One dimension Wave and Heat Equation. Two dimensional Laplace equation by separation of variable method and Alembert’s solution of wave equation.

Text Books:-

1 MD Rai Singhania : Ordinary and Partial Differential Equations” , S.Chand &Company,New Delhi

Reference Books:

1 R. K. Jain and S.R.K. Iyengar:Advanced Engineering Mathematics, Narosa Publishing House.
2 Zafar Ahsan: Differential Equations and Their Applications, Prentice-Hall of India Pvt. Ltd. New Delhi-Second edition

BSC MAT-405 Algebra and Numerical methods

(Paper A)

L	T	P	
3	1	0	

External Assessment: 50
Internal Assessment: 25
Time Allowed: 3 hours
Minimum pass percentage: 35%

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus and Section C will consist of one compulsory question having nine short answer type questions covering the entire syllabus uniformly. Each question in Sections A and B will be of 8 marks and Section C will be of 18 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each of the Section A and B and compulsory question of Section C. Use of Calculators is allowed.

Course Outcomes: -The course will augment the earlier knowledge of Algebra. The students will learn new methods of solving algebraic equations and will learn about new properties of Matrices.

Section - A

Rank, Characteristic equation of a matrix,Eigen Values , Eigen Vectors, Diagonalization, Cayley-Hamilton theorem. Consistency of a system of linear equations. Relations between roots and coefficients of a general polynomial, Tranformation of equation. Solution of cubic equations, Biquadratic equations . De Moivre's theorem and its application, Direct and inverse circular functions, hyperbolic and logarithmic functions. Summation of series.

Section-B

Bisection Method, Regula-falsi method, Secant method, Newton-Raphson method (without Convergence) Pivoting strategies, Gauss-Elimination, Gauss Jordan and Triangularisation method, Jacobi Method, Gauss Seidel Method. Finite differences, Divided differences, Gauss Forward and Backward Interpolation formula, Lagrange’s formula, Newton’s formulae, Central Differences, Stirling, Bessel’s and Everett’s formulae.

Text Books:-

1 Text Book of Algebra by Chandrika Prasad.
2 Algebra-I by Sharma and Shah Pearson Ed.

Reference Books:

1. Linear Algebra by Scham outline Series.
2. Trigonometry by S.L. Loney. Macmilan and Company London.

BSC MAT-406 Statics and Dynamics

(Paper B)

L	T	P	External Assessment: 50
3	1	0	Internal Assessment: 25
Time Allowed: 3 hours			Minimum pass percentage: 35%

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus and Section C will consist of one compulsory question having nine short answer type questions covering the entire syllabus uniformly. Each question in Sections A and B will be of 8 marks and Section C will be of 18 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each of the Section A and B and compulsory question of Section C. Use of Calculators is allowed.

Course Outcomes :-The course will introduce the concept of statics and dynamics to the students. The students will learn the methods to solve various problems in mechanics and will learn the concept of motion.

SECTION-A

Basic notation, Newton Laws of motion, system of two forces, parallelogram law of forces, resultant of two collinear forces, resolution of forces, moment of a force, couple, theorem on moments of a couple, coplanar forces, resultant of three coplanar concurrent forces, theorem of resolved parts, resultant of two forces acting on a rigid body, Varignon’s theorem, generalized theorem of moments. , Lami’s theorem. λ - μ theorem, theorems of moments, resultant of a force and a couple.

SECTION-B

Motion of a particle with constant acceleration, acceleration of falling bodies, motion under gravity, motion of a body projected vertically upward, motion of a two particles connected by a string, motion along a smooth inclined plane, constrained motion along a smooth inclined plane. Variable Acceleration, Simple harmonic motion

Text Books:-

1 John L. Synge and Byron A. Griffith :*Principles of Mechanics* 3rd Edition McGraw-Hill international student editions .

Reference Books:

1 S.L. Loney: The elements of statics and dynamics, 5th edition, Cambridge University Press, 1947.

SEC -1 Number Theory - I

Maximum Marks: 50 **EXT:- 35/ INT:15**

Time allowed: 3 Hrs. **Minimum Pass percentage: 35%**

Credits: 2

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus and Section C will consist of one compulsory question having nine short answer type questions covering the entire syllabus uniformly. Each question in Sections A and B will be of 6.5 marks and Section C will be of 9 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt one long question and three short questions from each of the Section A and B and compulsory question of Section C.

SECTION-A

Divisibility, Greatest common divisor, Fundamental Theorem of arithmetic, congruences, residue classes and reduced residue classes, Euler-Fermat theorem, Wilsons's theorem, Linear congruences, Chinese Remainder theorem.

SECTION-B

An Application to cryptography, primitive roots, indices, quadratic residues, Legendre Symbol, Euler's criterion, Gauss Lemma, Arithmetic functions $\mu(n)$, $d(n)$, $\varphi(n)$, $\sigma_\alpha(n)$, Mobius inversion Formula.

TEXT BOOKS:-

1. David M.Burton, *Elementary Number Theory*, 3rd Edition WmC, Brown Publishers (scope as in Chapters I-II).
2. Niven&Zuckeman, *Introduction to Number Theory*, Wiley Eastern (Scope as in Chapters 1-7).

Reference Books:-

1. T.N. Apostal, *Introduction to Analytic Number Theory*, Springer Verlag. (Scope as in Chapters 1-7).
2. Hardy & Wright, *Number Theory*, Oxford Univ. Press (Scope as in Chapter 19).
3. H. Davertport, *Higher Arithmetic*,Camb. Uni. Press.
4. E. Landau, *Elementary Number Theory*, Chelsea, Part-III

SEC -2 Number Theory - II

Maximum Marks: 50 **EXT:- 35/ INT:15**

Time allowed: 3 Hrs. **Minimum Pass percentage: 35%**

Credits: 2

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus and Section C will consist of one compulsory question having nine short answer type questions covering the entire syllabus uniformly. Each question in Sections A and B will be of 6.5 marks and Section C will be of 9 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt one long question and three short questions from each of the Section A and B and compulsory question of Section C.

SECTION-A

The Diophantine equations .Farey sequences, continued Fractions, Approximation of reals by rationals, Pell's equations. The Partitions. Minkowski's theorem in Geometry of Numbers

SECTION-B

Binary quadratic forms, Hermite's theorem on minima of positive definite quadratic forms and its applications to representation of a number as a sum of two, three and four squares. Order of magnitude and average order of arithmetical functions, Euler summation formula, Abel's Identity.

TEXT BOOKS:-

1. David M.Burton, *Elementary Number Theory*, 3rd Edition WmC, Brown Publishers (scope as in Chapters I-II).
2. Niven&Zuckeman, *Introduction to Number Theory*, Wiley Eastern (Scope as in Chapters 1-7).

Reference Books:-

1. T.N. Apostal, *Introduction to Analytic Number Theory*, Springer Verlag. (Scope as in Chapters 1-7).
2. Hardy & Wright, *Number Theory*, Oxford Univ. Press (Scope as in Chapter 19).
3. H. Davertport, *Higher Arithmetic*,Camb. Uni. Press.
4. E. Landau, *Elementary Number Theory*, Chelsea, Part-III.

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(An Autonomous College)

CHOICE BASED CREDIT SYSTEM (CBCS)
FOR BSc

(SEMESTER I & II)

Department of Mathematics

UNDER GRADUATE PROGRAMME

COURSES EFFECTIVE FROM SESSION (2020-2021)

Study Scheme for BSC (Non Medical)
Subject :- Mathematics
Session: 2020-21, 2021-22, 2022-23

Paper Code	**Paper Name**	**Credits**			**Maximum Marks**	**Internal Marks**	**External Marks**
		L	**T**	**P**			
BSC MAT 105	Calculus (Differential and Integral)	3	1	0	75	25	50
BSC MAT 106	Ordinary and Partial Differential Equations	3	1	0	75	25	50
BSC MAT 205	Algebra and Trigonometry	3	1	0	75	25	50
BSC MAT 206	Analytic Geometry	3	1	0	75	25	50
BSC MAT 305	Analysis-I	3	1	0	75	25	50
BSC MAT 306	Advance Calculus	3	1	0	75	25	50
BSC MAT 405	Numerical Methods	3	1	0	75	25	50
BSC MAT 406	Statics & Dynamics	3	1	0	75	25	50
BSC MAT 505	Algebra-I	3	1	0	75	25	50
BSC MAT 506	Mathematical Methods	3	1	0	75	25	50
BSC MAT 605	Algebra-II	3	1	0	75	25	50
BSC MAT 606	Discrete Mathematics	3	1	0	75	25	50
SEC 1	Number Theory-I	2	0	0	50	15	35
SEC 2	Number Theory II	2	0	0	50	15	35
SEC 3	Probability and Statistics	2	0	0	50	15	35
SEC 4	Transportation and Game Theory	2	0	0	50	15	35

Semester-I

BSC MAT 105 Calculus (Differential and Integral)

L	T	P	
3	1	0	

L T P — External Assessment: 50

Time Allowed: 3 hours

Internal Assessment: 25

Minimum Pass Percentage:35%

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus and Section C will consist of one compulsory question having nine short answer type questions covering the entire syllabus uniformly. Each question in Sections A and B will be of 8 marks and Section C will be of 18 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each of the Section A and B and compulsory question of Section C. Use of Calculators is allowed.

Course Outcomes: -The course will augment the earlier knowledge of calculus. The students will learn new concepts of differential calculus and integral calculus.

SECTION-A

Limits and Continuity using definition, Uniform Continuity , Successive differentiation , Asymptotes, Multiple points, Concavity and Convexity, Points of inflexion, Tracing of curves in Cartesian, Parametric and Polar forms. Curvature, Radius of curvature, Center of curvature .

SECTION-B

Integration of hyperbolic and inverse hyperbolic functions, Reduction Formulae, Application of definite integral to find Quadrature (Cartesian, Parametric, Polar curves) , Rectification , Improper integrals (Convergence, Comparison tests, Absolute and conditional convergence, Abel's and Dirichlet's tests) Frullani integral, Beta – Gamma Functions and their convergence **.**

Text Book

1 Mathematical Analysis, Malik and Arora. New Age Publishers.

Reference Books:-

1 Calculus and Analytic Geometry, Thomas and Finney, Ninth Edition.

BSC MAT 106 Ordinary and Partial Differential Equations
(Paper B)

L T P External Assessment:
50
3 1 0 Internal Assessment: 25
Time Allowed: 3 hours Minimum Pass Percentage:35%

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus and Section C will consist of one compulsory question having nine short answer type questions covering the entire syllabus uniformly. Each question in Sections A and B will be of 8 marks and Section C will be of 18 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each of the Section A and B and compulsory question of Section C. Use of Calculators is allowed.

Course Outcomes: -The course will introduce the concept of ordinary and Partial Differential Equations to the students. The students will be able to learn applications of Differential equations to solve various practical problems.

SECTION-A

First order differential equations:

Exact differential equations. Linear differential equations and equations reducible to linear differential equations. Solution of Linear homogeneous and non-homogeneous differential equations of higher order with constant coefficients and with variable coefficients. Method of Variation of Parameters. Differential operator method. Linear non-homogeneous differential equations with variable coefficients, Euler's Cauchy method.

SECTION-B

Partial differential equations:

Partial differential equation of first order, Lagrange’s solution,, Integral surfaces passing through a given curve, surfaces orthogonal to a given system of surfaces, Partial differential equation of first order but of any degree , Charpit’s general method of solution.

Partial differential equations of second and higher order:

Partial differential equations of the second order and their classification into hyperbolic,elliptic and parabolic types, Homogeneous and non-homogeneous partial differential equations with constant coefficients. One dimention Wave and Heat Equation. Two dimensional Laplace equation by separation of variable method and Alembert’s solution of wave equation.

Text Books

1 Rai Singhania:Ordinary and Partial Differential Equations” , S.Chand&Company, New Delhi

Reference Books:

2 R. K. Jain and S.R.K. Iyengar:Advanced Engineering Mathematics,Narosa Publishing House.

2 Zafar Ahsan: Differential Equations and Their Applications, Prentice-Hall of India Pvt. Ltd. New Delhi-Second edition

Semester II

BSC MAT 205 Algebra and Trigonometry

(Paper A)

L	T	P	
3	1	0	

External Assessment: 50
Internal Assessment: 25
Time Allowed: 3 hours
Minimum Pass Percentage:35%

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus and Section C will consist of one compulsory question having nine short answer type questions covering the entire syllabus uniformly. Each question in Sections A and B will be of 8 marks and Section C will be of 18 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each of the Section A and B and compulsory question of Section C. Use of Calculators is allowed.

Course Outcomes: -The course will augment the earlier knowledge of Algebra. The students will learn new methods of solving algebraic equations and will learn about new properties of Matrices.

Section - A

Hermitian, Skew-Hermitian, Orthogonal and Unitary matrices, .Elementary operation on matrices. Inverse of a matrix using Gauss Jordan Method. Linear independence of row and column vectors, Row rank, Column rank and their equivalence. Eigen values, Eigen vectors and the characteristic equation of a matrix, Properties of eigen values for special type of matrices, Diagonalization, Cayley-Hamilton theorem. Consistency of a system of linear equations.

Section-B

Relations between roots and coefficients of a general polynomial, Tranformation of equation.Descartes' rule of signs, Solution of cubic equations(Cardan's Method), Biquadratic equations and their solution(Descarete's Method .Ferrari's Method) De Moivre's theorem and its application, Direct and inverse circular functions, hyperbolic and logarithmic functions. Summation of series.

Text Books:-

1 Text Book of Algebra by Chandrika Prasad.
Algebra-I by Sharma and Shah Pearson Ed

Reference Books:

3. Linear Algebra by Scham outline Series.
4. Trigonometry by S.L. Loney. Macmilan and Company London.

BSC MAT 206 Analytic Geometry (Paper B)

L T P External Assessment: 50
3 1 0 Internal Assessment: 25
Time Allowed: 3 hours Minimum Pass Percentage:35%

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus and Section C will consist of one compulsory question having nine short answer type questions covering the entire syllabus uniformly. Each question in Sections A and B will be of 8 marks and Section C will be of 18 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each of the Section A and B and compulsory question of Section C. Use of Calculators is allowed.

Course Outcomes: -The course will introduce the concept of Analytic Geometry to the students. The students will be able to learn the properties of various geometric curves in two dimensional and three dimensional.

SECTION-A

Parabola: Pole and polar, pair of tangents from a point, chord of contact, equation of chord in terms of midpoints and diameter of conic, Subtangent and Subnormal and its geometrical properties.
Ellipse: Properties of ellipse, parametric representation of ellipse, tangents, normals, equation of chord joining two points on ellipse. Director circle of ellipse, chord of contact, conjugate lines and conjugate diameter, Co-normal Points and its geometrical properties.
Hyperbola: Properties of hyperbola, fundamental rectangle, parametric representation of hyperbola, asymptotes of hyperbola, Conjugate hyperbola, rectangular hyperbola, tangents and normals.

SECTION-B

Sphere: General equation of a sphere, Plane section of a sphere, Intersection of two spheres, Sphere through a given circle, Intersection of a straight line and a sphere, Equation of a tangent plane to sphere, Condition of tangency. Plane of contact, Orthogonal Spheres, Angle of intersection of two spheres, Length of tangent, Radical plane, Coaxial system of spheres.
Cone: Equation of a cone whose vertex is at origin, Equation of a cone with a given vertex and a given conic as base, Condition that general equation of second degree represent a cone, Equation of a tangent plane, Condition of tangency of a plane and a cone, Reciprocal cone, Right circular cone,
Cylinder:- Equation of right circular cylinder, enveloping cylinder

Text Books:-

1. N.Saran and R.S. Gupta, : Analytical Geometry of Three Dimensions, Pothishala Pvt. Ltd. Allahabad.

Reference Books:

P.K. Jain and Khalil Ahmad:A Text Book of Analytical Geometry of two Dimensions Wiley Eastern Ltd. 1994.

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(An Autonomous College)

CHOICE BASED CREDIT SYSTEM (CBCS)
FOR MSc MATHEMATICS
(SEMESTER III & IV)

Department of Mathematics

POST GRADUATE PROGRAMME
COURSES EFFECTIVE FROM SESSION (2020-2021)

Program outcomes of Post Graduate Program in Mathematics:-
On completion of course students will be able:

1. **To develop skills required for sound analytical and practical knowledge to pursue careers in research, education and industry.**
2. **To train computational scientists who can work for real life challenging problems.**
3. **To develop their understanding and professional capabilities through lifelong Learning.**
4. **To develop an ability to communicate effectively with a range of audiences.**
5. **To inculcate recognition of the need for and an ability to engage in continuing Professional development.**

(Study Scheme)
M.Sc. Mathematics (Part-II)
Session 2020-21
Semester-III

Students will study total five subjects, two compulsory papers and any three elective papers.

Paper Code	Paper Name	Credits	Maximum Marks	Internal Marks	External Marks
MM 601	Functional Analysis(Compulsory)	5	100	30	70
MM 602	Topology II(Compulsory)	5	100	30	70
MM 603	Mathematical Statistics – I	5	100	30	70
MM 604	Numerical Analysis-I	5	100	30	70
MM 605	Differentiable Manifolds	5	100	30	70
MM 606	Optimization Techniques-I	5	100	30	70
MM 607	Solid Mechanics	5	100	30	70
MM 608	Algebraic Coding Theory	5	100	30	70
MM 609	Category Theory	5	100	30	70

Semester-IV

Students can study total five subjects, two compulsory papers and any three elective papers.

Paper Code	Paper Name	Credits	Maximum Marks	Internal Marks	External Marks
MM 701	Geometry of Differentiable Manifolds(Compulsory)	5	100	30	70
MM 702	Theory of Linear Operators	5	100	30	70
MM 703	Mathematical Statistics-II	5	100	30	70
MM 704	Numerical Analysis II	5	100	30	70
MM 705	Commutative Algebra	5	100	30	70
MM 706	Non-Linear Programming	5	100	30	70
MM 707	Optimization Techniques-II	5	100	30	70
MM 708	Classical Mechanics	5	100	30	70
MM 709	Fuzzy Sets and Applications	5	100	30	70
MM 710 *	Project				

***Students, whose CGPA more or equal 7, can opt for the project (MM710) instead of two elective courses. The evaluation of project will be done by external expert committee.**

MM 601: Functional Analysis

Credits: 5 **External Exam: 70**

Minimum passing marks:35% **Internal Assessment: 30**

Time Allowed: 3 hours **Total: 100**

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections: A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus. Sections C will consist of one compulsory question having ten short answers questions of covering the entire syllabus uniformly. Each question in Section A and B will be of 10 marks and Section C will be of 30 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each section A and B and entire section C.

Course Outcome :- This Course will enable the students :

i. To learn recognize the fundamental properties of normed linear spaces.
ii. To understand the concepts of Banach , Inner product and Hilbert spaces and to learn to classify the examples.
iii. To study the main properties of bounded linear transformations over Banach and Hilbert spaces.
iv. To be acquainted with the statements and proofs of Hahn-Banach theorem, Open mapping, Closed graph, Uniform boundedness, Riesz representation theorem, spectral and Banach fixed point theorems.
v. Identify complete orthonormal sets, orthogonal complement, adjoint, self-adjoint, normal and unitary, projection operators.

SECTION-A

Normed Linear Spaces: Banach spaces, Examples of Banach spaces and subspaces, Quotient Spaces, Completeness in the Quotient spaces, Holder's , Minkowski and Schwarz inequality, Continuous linear transformation, Norm linear spaces of bounded linear maps. Bounded Linear functional, equivalent norms, Conjugate space N^*, Natural imbedding of N into N^{**}, Projections on Banach spaces, Hahn Banach Theorem in normed linear spaces, Inner Product Space: Definition and examples**,** Hilbert Spaces, Statement of Baire's Category Theorem, Open mapping theorem, Closed graph theorem .

[Scope as in the book 'Introductory Functional Analysis with applications' by E. Kreyszig ,Chapter 2, Chapter 3,section 3.1, 3.2, 3.3, 3.4, Chapter 4, section 4.1, 4.2, 4.3, 4.4, 4.5,4.12, 4.13]

SECTION-B

Uniform boundedness theorem, Complete Orthonormal set: Complete orthonormal sets, Orthogonal Complements, Bessel's inequality Cauchy Schwarz inequality, Gram Schmidt orthogonalisation process, Dual or Conjugate spaces: First and second dual spaces, second conjugate space of l_p and C[a,b], The Riesz representation theorem for linear functional on Hilbert spaces. The conjugate of an operator, Adjoint operators, Self-adjoint operators, Normal and unitary operators, Projection operators, Eigen values, Eigen vectors, Eigen spaces, invariant spaces, Spectrum of an operator, Spectral Theorem , Banach Fixed Point Theorem.

[Scope as in the book 'Introductory Functional Analysis with applications' by E. Kreyszig ,Chapter 5,section 5.1, 5.2, Chapter 7]

[Scope as in the book 'Introduction to Toplogy and modern Analysis' by G.F.Simmons, Chapter 9,10, 11, Appendix 1]

Text Books:-

1. G.F.Simmons : Introduction to Toplogy and modern Analysis.
2. E. Kreyszig, Introductory Functional Analysis with applications

Reference Books

1.George Bachman & Lawrence Narici: Functional Analysis.

2. Abul Hasan Siddiqi , Applied Functional Analysis. Marcel Dekker.

3. B.V. Limaye: Functional Analysis (Wiley Eastern Ltd.)1985.

4. Walter Rudin: Functional Analysis, McGraw-Hill, 1991.

MM 602: TOPOLOGY II

Credits: 5 **University Exam: 70**

Minimum passing marks: 35% **Internal Assessment: 30**

Time Allowed: 3 hours **Total: 100**

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of five sections: A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus. Sections C will consist of one compulsory question having ten short answers covering the entire syllabus uniformly. Each question in Section A and B will be of 10 marks and Section C will be of 30 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each sections A and B and compulsory question of section C.

Course Outcomes:

1) To acquaint students with the concepts of order types of sets
2) To teach students the higher separation axioms and related fundamental results
3) To equip students with knowledge of nets, filters and identification topology

SECTION-A

Higher Separation Axioms : Regular, Completely Regular, Normal and Completely Normal Spaces. Metric Spaces as Completely Normal T_2 Spaces. Urysohns Lemma and The Tietze Extension Theorem. Point finite and Locally Finite families.

Products : Products of first countable, Regular, T_2 and Completely Regular Spaces. Non invariance of normality under products. Embedding of Tichonov spaces into parallelotope and the Stone Cech Compactification.

SECTION –B

Nets and Filters : Nets and Subnets,Convergence and Clustering of a net,Closures and Nets, Nets and Continuity, Nets in Products, Ultrafilter, Relationship between Nets and Filters, Nets and Filter Characterization of Compactness and The Tychonoff Theorem.

Identification Topology: Identification Topology, Identification Map, Subspaces, General Theorem, Transgression, Transitivity Spaces with Equivalance Relation, Quotient Spaces. Cones and Suspensions, Attaching of Spaces, Adjunction Space, The relation K(f) for continuous maps and Weak Topologies.

Text Books:-

1. W.J. Pervin : Foundations of General Topology, (Sections 2.3 to 2.5), Section 5.5 to 5.6
2. Stephen Willard : GENERAL TOPOLOGY Ch 4 (excluding section 10), Ch 6 (Theorems 17.4 and 17.8 only)

Reference Book:-

3. James Dugundji : TOPOLOGY. Chapter VI,VII (1.3(3), 2.3(2), 3.3(3), 7.2 to 7.4 only and theorem 8.2 of Chapter XI

MM-603 MATHEMATICAL STATISTICS-I

Credits: 5	**University Exam: 70**
Minimum Passing marks: 35%	**Internal Assessment: 30**
Time Allowed: 3 hours	**Total: 100**

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus and Section C will consist of one compulsory question having ten short answer type questions covering the entire syllabus uniformly. Each question in Sections A and B will be of 10 marks and Section C will be of 30 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each sections A and B and compulsory question of section C.

Course Outcome: This Course will enable the students to:

i. Analyze statistical data using measures of central tendency and dispersion.
ii. Use the basic probability rules, including additive and multiplicative laws, using the terms independent and mutually exclusive events.
iii. Explain the concepts of random variable, probability distribution, distribution function, expected value, variance and higher moments.
iv. Calculate probabilities and derive the marginal and conditional distributions of bivariate random variables.
v. Define probability density function, moment generating function and use them to evaluate moments.
vi. Define basic discrete and continuous distributions and be able to apply them.

SECTION –A

Measures of central tendency and dispersion, moments, Measures of skewness and kurtosis, Classical and axiomatic approach to the theory of probability, additive and multiplicative law of probability, conditional probability and Bayes theorem. Random variable, probability mass function, probability density function, cumulative distribution function, Two and higher dimensional random variables, joint distribution, marginal and conditional distributions, Independence of random variables. [Scope as in the book ‘Fundamental of Mathematical Statistics’ by Gupta S.C., Kapoor V.K. Chapter 2, 3,4, 5]

SECTION-B

Mathematical expectations, Linear properties of expectations, conditional expectations, moments, moment generating function and its properties, Chebyshev's inequality and its application. Characteristic functions, their simple properties. Discrete Probability Distributions: Bernoulli distribution, Binomial, Poisson, Poisson distribution as a limiting case of Binomial distribution, Geometric distributions, Hypergeometric distribution, power series distribution. Continuous probability distributions: Uniform, Exponential, Gamma, Beta, Normal distributions. Correlation and linear regression analysis.

[Scope as in the book 'Fundamental of Mathematical Statistics' by Gupta S.C., Kapoor V.K. Chapter 6, 7, Chapter 8, section 8.1-8.6, Chapter 10, section 10.1-10.6,10.7]

Text Books:-

1. Gupta S.C., Kapoor V.K., Fundamental of Mathematical Statistics, 10th Edition.
2. Goon A.M., Gupta M.K. and Das gupta B., Fundamentals of Statistics,Vol.1,8th Ed., World Press Publishers Private Limited, Kolkata, 2008

Reference Books

1. Goon A.M., Gupta, M.K., An Outline of Statistical Theory, Vol-I & II, World Press Publishers Pvt. Ltd., 2010.
2. Hogg R. V., Mckean J. and Craig A.T, Introduction to Mathematical Statistics, 7th Ed., Collier Macmillan Publisher, 2012.
3. Elhance D.N., Elhance Veena and Aggarwal B.M., Fundamentals of Statistics, Kitab Mahal Publishers, 2014.
4. Lehmann, E. L., & Casella, G. (1998). *Theory of point estimation* (Vol. 31). Springer Science & Business Media.
5. Lehmann, E. L., & Romano, J. P. (2006). *Testing statistical hypotheses*. Springer Science & Business Media.
6. Rohatgi, V. K., & Saleh, A. M. E. (2011). *An introduction to probability and statistics*. John Wiley & Sons.

MM 604- NUMERICAL ANALYSIS - I

Credits: 5	**External Assessment: 70**
Minimum passing marks: 35%	**Internal Assessment: 30**
Time Allowed: 3 hours	**Total: 100**

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus and Section C will consist of one compulsory question having ten short answer type questions covering the entire syllabus uniformly. Each question in Sections A and B will be of 10 marks and and Section C will be of 30 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each of the Section A and B and compulsory question of Section C. Use of Calculators is allowed.

Course Outcomes:-1) Introduce various iterative methods available to solve differential equations.

2)The course will also help the students to develop knowledge of C .

SECTION-A

Z-Transforms and Difference Equations: -Definition, rules for formulating, Finding CF and PI . Definition of Z- Transform, Linearity property , Useful Z and Inverse Z transforms , Convolution theorem and application of Z transforms to Difference equations .

Solution of Differential Equations: Picard's Method ,Tayler's Series, Euler's method, Improved Euler method, Modified Euler method, and Runge-Kutta methods (upto fourth order), Predictor Corrector methods. Stability and Convergence of Euler, Euler Modified Method ,Taylor Series Method , Runge-Kutta and Predictor Corrector Methods.

SECTION-B

Solution of Ordinary Differntial Equations boundary value problems:- Numerical Integration (Trapezoidal Rule, Simpson's 1/3 and 3/8 rule , Gaussian Quadrature Formula , Weddle's Rule) , Approximations , Shooting Method, Finite difference Method and its convergence and stability.

Spline Interpolation: A piece wise polynomial, Spline Approximation, Uniqueness of cubic spline,Construction of cubic spline (Second Derivative form, First Derivative form), Minimal property of cubic spline . Appication to Differential equations.

TEXT BOOKS:-

1. Smith, G D, Numerical solution of partial differential equations, Oxford Univ. Press (1982).
2. R.S. Gupta, Elements of Numerical Analysis, Macmillan India Ltd., 2009.
3 Jain, M. K., Numerical solutions of Differential equations, John Wiley (1984).

Reference Books:-

1. Mitchell, A. R., Computational methods in partial differential equations, John Wiley (1975).
2. Froberg, C. E., Introduction to Numerical Analysis, Addision-Wesley, Reading, Mass (1969).
3. Gerald, C. F., Applied Numerical Analysis Addision Wesley, Reading, Mass (1970).

4. Collatz, L., Numerical Treatment of Differential Equations, Springer - Verlag, Berlin (1966)
5. Grewal B.S Higher Engineering Mathematics ,Khanna Publishers.

MM-605 DIFFERENTIABLE MANIFOLDS

Credits: 5 **University Exam: 70**
Minimum passing marks: 35% **Internal Assessment: 30**
Time Allowed: 3 hours **Total: 100**

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus and Section C will consist of one compulsory question having ten short answer type questions covering the entire syllabus uniformly. Each question in Sections A and B will be of 10 marks and and Section C will be of 30 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each of the Section A and B and compulsory question of Section C.

Course Outcomes: 1) To equip students with the idea of manifolds and tensors

2) To acquaint the students with concepts of torsion and curvature in higher dimensions

3) To teach students fundamentals of Riemannian geometry and give idea about concept of sectional curvature of a manifold

SECTION-A

Differentiable Manifolds, examples of differentiable manifolds, Differentiable maps on manifolds, tangent vectors and tangent space, cotangent space, Vector Fields, Lie-bracket of vector fields. Jacobian of a map. Integral curves, Immersions and embeddings. Tensors and forms. Exterior product and Grassman algebra, Connections, Difference tensor, existence of parallelism and geodesics, covariant derivative, exterior derivative, Contraction, Lie-derivative.

SECTION-B

Torsion tensor and curvature tensor of a connection, properties of torsion and curvature tensor, Bianchi's identities, Structure equations of Cartan. Riemannian manifolds, Fundamental theorem of Riemannian geometry, Riemannian connection. Riemannian curvature tensor and its properties. Bianchi's identities, Sectional curvature, Theorem of Schur.

Text Books:

1. Loring W. Tu, Introduction to Manifolds, Springer
2. Loring W. Tu, Differential Geometry: Connections, Curvature and Characteristic Classes, Springer

Reference Books:-

3. John M. Lee, Introduction to Smooth Manifolds, Springer
4. S. Kumaresan, A Course in Differential Geometry and Lie Groups, Springer
5. Kobayashi and Nomizu, Foundations of Differential Geometry, Wiley Publications
6. U.C. De : Differential Geometry of Manifolds, Alpha Science Int. Ltd., Oxford,U.K.

MM-606 OPTIMIZATION TECHNIQUES-I

Credits: 5	**External Examination: 70**
Minimum passing marks: 35%	**Internal Assessment: 30**
Time Allowed: 3 hours	**Max. Marks: 100**

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Sections A and B will have four questions each of 10 marks from the respective sections of the syllabus. Sections C will consist of one compulsory question having ten short-answer questions of 3 marks each covering the entire syllabus uniformly. Section C will be of 30 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from sections A and B and entire section C.

Course Outcomes:

1) Introduce the concept of operation research along with models and general methods of solving thee models.
2) Familiarise students with Linear programming problem and different methods of solving these problems
3) Enable students to acquire the knowledge of Transportation and Assignment problems
4) Make student understand various methods of solving Transportation and assignment problems
5) Make students familiar with various methods and theories of games

SECTION-A

Introduction: Definition of Operation research, Models in operation research, General Methods for solving O.R. models, Elementary theory of convex sets.

Linear Programming Problems: Definition of LPP, Examples of LPPs, Mathematical formulation of the mathematical programming problems, Graphical solution of the problem.

Simplex method, Big M method, Two Phase method, Problem of degeneracy.

Duality in linear programming: Concept of duality, fundamental properties of duality, duality theorems, complementary slackness theorem, duality and simplex method, dual simplex method.

Sensitivity Analysis: Discrete changes in the cost vector, requirement vector, addition of a new variable, deletion of a variable, addition of new constraint, deletion of a constraint.

SECTION-B

Transportation Problem: Introduction, Mathematical formulation of the problem, initial basic feasible solution using North West Corner Method, Least Cost Method and Vogel's Approximation Method, Optimal solution using MODI method, degeneracy in transportation problems, some exceptional cases in transportation problems.

Assignment Problems: Introduction, Mathematical formulation of an assignment problem, assignment algorithm, unbalanced assignment problems.

Games & Strategies: Definition & characteristics of Games, Two person zero sum games, Maximin-minimax principle, Games without saddle points, Mixed Strategies, Graphical method for solving games, Concept of Dominance.

Text Books:-

1. Kanti Swarup, P. K. Gupta and Man Mohan,"Operations Research", Sultan Chand and Sons, New Delhi, 14th Edition 2008.
2. H. A. Taha, "Operations Research An Introduction", Pearson, 9th Edition, 2010.

Reference Books:-

3. Chander Mohan and KusumDeep,"Optimization Techniques", New Age International Publishers, 2009.

4. G. Hadley, “Linear Programming” Narosa Book Distributors Private Ltd., 2002.
5. S.D. Sharma, “Operations Research”, KedarNath and Co. Meerut,2009.

MM-607 SOLID MECHANICS

Credits: 5 **External Exam: 70**

Minimum passing marks: 35% **Internal Assessment: 30**

Time Allowed: 3 hours **Total: 100**

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections: A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus. Sections C will consist of one compulsory question having ten short answers questions of covering the entire syllabus uniformly. Each question in Section A and B will be of 10 marks and Section C will be of 30 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each section A and B and entire section C.

Course outcome: In this course, the students will be able to learn

(1) The laws of transformations, tensors and their properties.

(2) Mathematical theory of deformations, analysis of strain and analysis of stress in elastic solids will be learnt next.

(3) A student will also learn basic equations of elasticity and two dimensional problem in stress and strain.

Section A

Tensor Algebra: Coordinate-transformation, Cartesian Tensor of different order. Properties of Tensors, Isotropic tensors of different orders and relation between them, symmetric and skew-symmetric tensors. Tensor Invariants, Deviatoric tensors, eigenvalues and eigen-vectors of a tensor.

Tensor analysis: scalar, vector, tensor functions, Comma notation, gradient, divergence and curl of a vector/tensor field. (Relevant portions of Chapters 2 and 3 of book by D.S. Chandrasekharaiah and L. Debnath)

Analysis of strain: Affine transformation, Infinitesimal affine deformation, Geometrical Interpretation of the components of strain. Strain quadric of Cauchy. Principal strains and invariance, General infinitesimal deformation, Saint-Venants equations of compatibility, Finite deformations

Analysis of Stress: Stress tensor, Equations of equilibrium, Transformation of coordinates, Stress quadric of Cauchy, Principal stress and invariants, Maximum normal and shear stresses. (Relevant portion of Chapter 1 & 2 of book by I.S. Sokolnikoff)

Section B

Equations of Elasticity: Generalized Hooks Law, Anisotropic medium, Homogeneous isotropic media, Elasticity, moduli for Isotropic media. Equilibrium and dynamic equations, for an isotropic elastic solid, Strain energy function and its connection with Hooke's Law, Uniqueness of solution. Beltrami-Michell compatibilty equations, Saint-Venant's principle. (Relevant portion of Chapter 3 of book by I.S. Sokonikoff).

Two dimensional problems: Plane stress, Generalized plane stress, Airy stress function. General solution of biharmonic equation. Stresses and displacements in terms of complex potentials. The structure of functions of □□(z) and (z). (Section 65-74 of I.S.Sokolnikoff).

Text Books:

1. I.S. Sokolnikoff, Mathematical Theory of Elasticity, Tata-McGraw Hill Publishing company Ltd. New Delhi, 1977.
2. D.S. Chandrasekharai and L. Debnath, Continuum Mechanics, Academic Press, 1994.

Reference Books:

1. A.E.H. Love, A Treatise on the Mathematical theory of Elasticity, Dover Publications, New York.
2. Y.C. Fung. Foundations of Solid Mechanics, Prentice Hall, New Delhi, 1965.
3. Shanti Narayan, Text Book of Cartesian Tensor, S. Chand & Co., 1950.
4. S. Timeshenki and N. Goodier. Theory of Elasticity, McGraw Hill, New York, 1970.
5. I.H. Shames, Introduction to Solid Mechanics, Prentice Hall, New Delhi, 19

MM-608 ALGEBRAIC CODING THEORY

Credits: 5	**External Assessment: 70**
Minimum passing marks: 35%	**Internal Assessment: 30**
Time Allowed: 3 hours	**Total: 100**

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus and Section C will consist of one compulsory question having ten short answer type questions covering the entire syllabus uniformly. Each question in Sections A and B will be of 10 marks and Section C will be of 30 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each of the Section A and B and compulsory question of Section C.

Course Outcomes: Coding theory is widely used these days in digital payments interface. The course has been designed to introduce the applications of Finite Field Methods to the problems of the Coding Theory and use in cryptography.

SECTION-A

Error detecting and error correcting codes, maximum likelihood decoding, Hamming distance, Finite Fields, Minimal polynomials, Linear Codes, Encoding with a Linear code, Generator matrix and parity check matrix, Dual Codes, Syndrome Decoding,

SECTION-B

ISBN Codes, New Codes from old, Sphere covering bound, Sphere packing bound, Gilbert Varshamov bound, perfect codes, Hamming Codes, Golay codes, Simplex Codes, Singleton bound and MDS codes, Plotkin bound, Griesmer bound, Reed-Muller codes, Linear Programming bounds.

Text Book

1Raymond Hill- Introduction to Error Correcting Codes, Oxford University Press, 1986, reprint 2009.

REFERENCE BOOKS

1 San Ling and Chaoping Xing- Coding Theory, Cambridge University Press, 1st Edition, 2004. (Chapters 2-5)

2 W. C. Huffman and Vera Pless – Fundamentals of Error Correcting Codes, Cambridge University Press, 1st South Asian Edition, 2004 (Sec 1.5 of Chapter 1)

MM 609:CATEGORY THEORY

Credits: 5 **University Exam: 70**
Minimum passing marks: 35% **Internal Assessment: 30**
Time Allowed: 3 hours **Total: 100**

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus and Section C will consist of one compulsory question having ten short answer type questions covering the entire syllabus uniformly. Each question in Sections A and B will be of 10 marks and Section C will be of 30 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each of the Section A and B and compulsory question of Section C.

Course Outcomes: 1 Introduce the modern way of looking at the mathematical objects and their universal properties with the help of Categories.

2. It provides common language to almost all of mathematics i. e common unifying language.

3. Inculcate rational thinking and make them less superficial.

4. It allows to make precise the meaning of certain construction being natural.

SECTION – A

Categories: Introduction with Functions of Sets, Definition and examples of Categories: Sets, Pos, Rel, Mon, Groups, Top, Dis (X),. Finite Category, The category of modules, The concept of functor and the category Cat, Functors of several variables. Isomorhism. Constructions: Product of two categories, The Dual Category, The Arrow Category, The Slice and Co- Slice Category. The Category of Graphs. Free Monoids and their UMP.

Abstract Structures: Epis and mono, Initial and Terminal objects, Generalized elements, Sections and Retractions, Product diagrams and their Universal Mapping Property, Uniqueness up to isomorphism, Examples of products: Hom-Sets, Covariant representable functors, Functors preserving binary product.

SECTION –B

Duality: The duality principle, Coproducts, Examples in Sets, Mon, Top, Coproduct of monoids, of Abelian Groups and Coproduct in the category of Abelian Groups. Equalizers, Equalizers as a monic, Coequalizers, Coequalizers as an epic.Coequalizer diagram for a monoid.

Limits and Co-limits: Subojects, Pullbacks, Properties of Pullbacks, Pullback as a functor, Limits, Cone to a diagram, limit for a diagram, Co-cones and Colimits. Preservation of limits, contra variant functors.Direct limit of groups.Functors Creating limits and co-limits.

Naturality: Exponential in a category, Cartesian Closed categories, Category of Categories, Representable Structure, Stone Duality; ultrafilters in Boolean Algebra, Naturality, Examples of natural transformations

Text Book:-

1. StevenAwodey: Category Theory, (Oxford Logic Guides, 49, Oxford University Press.) Chapter 1 to 3 Excluding Example 6 of Sec 2.6 and Chapter 5 and Sections 6.1, 6.2 and Chapter 7; Sections 7.1 to 7.5).

Semester IV

MM 701 GEOMETRY OF DIFFERENTIABLE MANIFOLDS

Credits: 5 **University Exam: 70**
Minimum passing marks: 35% **Internal Assessment: 30**
Time Allowed: 3 hours **Total: 100**

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus and Section C will consist of one compulsory question having ten short answer type questions covering the entire syllabus uniformly. Each question in Sections A and B will be of 10 marks and Section C will be of 30 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each of the Section A and B and compulsory question of Section C.

Course Outcomes: 1) To introduce to the students the theory of topological groups, Lie groups and fibre bundles

2) To teach students the concepts of Riemannian submanifolds

3) To equip students with the knowledge of complex geometry

SECTION-A

Topological Groups and Lie Groups: Topological groups (Definition and examples), Lie groups, Examples of Lie groups, Lie algebras. One parameter subgroups and exponential maps. Homomorphism and Isomorphism, Lie transformation groups, General Linear groups.
Fibre Bundles: Principal fibre bundle, Linear frame bundle, Associated fibre bundle, Vector bundle, Tangent bundle, Bundle homomorphism.
Riemannian Submanifolds: Sub-manifolds, induced connection and second fundamental form. Normals, Gauss formulae, Weingarten equations, Lines of curvature, Gauss and Mainardi–Codazzi equations.

SECTION-B

Complex Manifolds: Almost Complex manifolds, Nijenhuis tensor, Contravariant and covariant almost analytic vector fields, F-connection, Hermitian metric, almost Hermitian manifolds, linear connections in an almost Hermitian manifolds, Hermitian manifolds with their characterizations, the fundamental 2 - form phi, Kaehlerian metric, almost Kaehler manifolds, Kaehler manifold, constant holomorphic sectional curvature, complex space form.

TEXT BOOKS:

1. Loring W. Tu, Introduction to manifolds, Springer
2. K. Yano and M. Kon : Structure of Manifolds, World. Scientific Publishing Co. Pvt. Ltd., 1984 (Rel. Portion).

REFERENCE BOOKS:-

1. Nomizu and Kobayashi: Foundation of Differential Geometry

2. U.C. De and A.A. Shaikh : Complex manifolds and contact manifolds , Narosa Publishing House

MM702 THEORY OF LINEAR OPERATORS

Credits: 5 **External Examination: 70**
Minimum passing marks: 35% **Internal Assessment: 30**
Time Allowed: 3 hours **Max. Marks: 100**

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus and Section C will consist of one compulsory question having ten short answer type questions covering the entire syllabus uniformly. Each question in Sections A and B will be of 10 marks and Section C will be of 30 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each of the Section A and B and compulsory question of Section C.

Course Outcomes:-

This Course will enable the students :
i)To learn the spectral properties of normed linear spaces.
ii) To understand the difference between eigen and spectral values which help in understanding resolvant and spectrum sets.
iii)To study the elementary theory of banach algebra.
iv)To study the general and spectral properties of compact linear operators.
v) To undertand behaviour of compact linear operators with respect to solvability of operator equations and positive operators.

SECTION-A

Spectral theory in normed linear spaces, resolvant set and spectrum. Spectral properties of bounded linear operator. Properties of resolvant and spectrum. Spectral mapping theorem for polynomials, spectral radius of bounded linear operator on a complex Banach space.

Elementary theory of Banach algebras. Resolvant set and spectrum. Invertible elements, Resolvant equation. General properties of compact linear operators.

[Scope as in the book 'Introductory Functional Analysis with applications' by E.Kreyszig ,Chapter 7 section 7.1 to 7.7, Chapter 8 section 8.1,8.2,8.3]

SECTION-B

Spectral properties of compact linear operators on normed space. Behaviour of compact linear operators with respect to solvability of operator equations. Fredholm type theorems. Fredholm alternative theorems.

Spectral properties of bounded self-adjoint linear operators on a complex Hilbert space. Positive operators. Monotone sequence theorem for bounded self-adjoint operators on a complex Hilbertspace. Square roots of positive operators. Spectral family of a bounded self-adjoint linear operator and its properties, Spectral theorem.

[Scope as in the book 'Introductory Functional Analysis with applications' by E. Kreyszig ,Chapter 8, section 8.4 to 8.7, Chapter 9, section 9.1 to 9.11]

TEXT BOOK:-

1. E. Kreyszic : Introductory Functional Analysis with Applications.

REFERENCE BOOKS

1. Bachman and Narici : Functional Analysis
2. P.R. Halmos, Introduction to Hilbert Space and the Theory of Spectral Multiplicity, Second-Edition, Chelsea Publishing Co., New York, 1957.
3. N. Dunford and J.T. Schwartz, Linear Operators -3 Parts, Interscience/Wiley, New York, 1958-71.

MM-703 MATHEMATICAL STATISTICS-II

Credits: 5 **University Exam: 70**

Minimum passing marks: 35% **Internal Assessment: 30**
Time Allowed: 3 hours **Total: 100**

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus and Section C will consist of one compulsory question having ten short answer type questions covering the entire syllabus uniformly. Each question in Sections A and B will be of 10 marks and Section C will be of 30 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each sections A and B and compulsory question of section C.

Course Outcome:

This Course will enable the students to:

i. Explain the concepts of random sampling, statistical inference and sampling distribution.
ii. Describe the main methods of estimation and main properties of estimators and apply them.
iii. Construct the confidence intervals for unknown parameter.
iv. Test Null and Alternative Hypothesis.

SECTION-A

Theory of Estimation: Population, sample, parameter and statistic, sampling distribution of a statistic, standard error. Interval estimation, Methods of estimation, properties of estimators, confidence intervals. Properties of unbiasedness , consistency, sufficiency, efficiency, Completeness, uniqueness, methods of estimation. ***Exact Sampling Distributions:*** Chi-square distribution, Student’s t distribution, Snedecor’s F-distribution, Fisher’s – Z distribution and their properties.

SECTION-B

Hypothesis Testing: Tests of significance for small samples, Null and Alternative hypothesis, Type-I & Type-II error, Critical region and level of significance. Tests of hypotheses: most powerful and uniformly most powerful tests, likelihood ratio tests. Tests of significance based on t, Z and F distributions, Chi square test of goodness of fit. Large Sample tests, Sampling of attributes , Tests of significance for single proportion and for difference of proportions, Sampling of variables, tests of significance for single mean and for difference of means and for difference of standard deviations. Linear Estimation: analysis of variance, analysis of variance for one way and two way classified data with one observation per cell.

[Scope as in the book ‘Fundamental of Mathematical Statistics’ by Gupta S.C., Kapoor V.K. Chapter 12,13,14,15, 16]

TextBooks:-

1. Gupta S.C., Kapoor V.K., Fundamental of Mathematical Statistics, 10th Edition.
2. Goon A.M., Gupta M.K. and Das gupta B., Fundamentals of Statistics,Vol.1,8th Ed., World Press Publishers Private Limited, Kolkata, 2008.

Reference Books

1. Goon A.M., Gupta, M.K., An Outline of Statistical Theory, Vol-I & II, World Press Publishers Pvt. Ltd., 2010.
2. Hogg R. V., Mckean J. and Craig A.T, Introduction to Mathematical Statistics, 7th Ed., Collier Macmillan Publisher, 2012.
3. Elhance D.N., Elhance Veena and Aggarwal B.M., Fundamentals of Statistics, Kitab Mahal Publishers, 2014.
4. Lehmann, E. L., & Casella, G. (1998). *Theory of point estimation* (Vol. 31). Springer Science & Business Media.
5. Lehmann, E. L., & Romano, J. P. (2006). *Testing statistical hypotheses*. Springer Science & Business Media.
6. Rohatgi, V. K., & Saleh, A. M. E. (2011). *An introduction to probability and statistics*. John Wiley & Sons.

MM-704 NUMERICAL ANALYSIS - II

Credits: 5	**External Assessment: 70**
Minimum passing marks: 35%	**Internal Assessment: 30**
Time Allowed: 3 hours	**Total: 100**

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus and Section C will consist of one compulsory question having ten short answer type questions covering the entire syllabus uniformly. Each question in Sections A and B will be of 10 marks and and Section C will be of 30 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each of the Section A and B and compulsory question of Section C. Use of Calculators is allowed.

Course Outcomes: -

1) The course is being introduced to aware students of various indirect methods available for solving partial differential equations.

2) The student gains knowledge of different schemes to solve differential equations.

SECTION-A

Parabolic Equation: Explicit and Implicit schemes for solution of one dimensional equations,Crank-Nicolson, Du fort and Frankel schemes for one dimension equations. Discussion of their compatibility, stability and convergence. Peaceman-Rachford A.D.I. scheme for two dimensional equations.

Hyperbolic equations: Solution by finite difference methods on rectangular and characteristics Grids and their stability.

SECTION-B

Elliptic Equation: Finite difference replacement and reduction to block tridiagonal form and its solution; Dirichlet and Neumann boundary conditions. Treatment of curved boundaries; Solution by A.D.I. method.

Finite Element Methods: - Introduction to finite element methods, comparison with finite difference methods. Methods of weighted residual, Collocation, Least-squares and Galerkin' s methods. Variational formulation of boundary value problems, Ritz method. equivalence of Galerkin and Ritz methods. Applications to solving simple problems of ordinary differential equations. Simple examples from ODE and PDE.

TEXT BOOKS:-

1. Smith, G D, Numerical solution of partial differential equations, Oxford Univ. Press (1982).
2. R.S. Gupta, Elements of Numerical Analysis, Macmillan India Ltd., 2009.
3. Jain, M. K., Numerical solutions of Differential equations, John Wiley (1984).

Reference Books:-

1. Mitchell, A. R., Computational methods in partial differential equations, John Wiley (1975).
2. Froberg, C. E., Introduction to Numerical Analysis, Addision-Wesley, Reading, Mass (1969).
3. Gerald, C. F., Applied Numerical Analysis Addision Wesley, Reading, Mass (1970).

4. Collatz, L., Numerical Treatment of Differential Equations, Springer - Verlag, Berlin (1966)
5. Grewal B.S Higher Engineering Mathematics ,Khanna Publishers.

MM 705- Commutative Algebra

Credits: 5	**University Exam: 70**
Minimum passing marks: 35%	**Internal Assessment: 30**
Time Allowed: 3 hours	**Total: 100**

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus and Section C will consist of one compulsory question having ten short answer type questions covering the entire syllabus uniformly. Each question in Sections A and B will be of 10 marks and Section C will be of 30 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each of the Section A and B and compulsory question of Section C.

Course Outcomes: This course introduces basic techniques of commutative algebra and discusses the behaviour of prime ideals under localization.

SECTION-A

Modules: Modules and Modules Homomorphism, Quotient Modules, Submodules and Operations on Submodules, Direct sum and product. Finitely generated Modules. Exact Sequences Tensor product of modules, Restriction and Extension of Scalars, Exactness property of Tensor product.

SECTION-B

Algebras in Modules, Tensor product of Algebra. Nil radical and Jacobson radical of Ring, Operation on ideals, Extension and Contraction of Ideals, Rings and Modules of Fractions, Local properties, Extended and Contracted ideals in rigs of Fractions. Noetherian Rings, Cohen theorem and Hilbert Basis theorem.

TEXT BOOK:

1. M.F. Atiyah, I.G MacDonald : Introduction to Commutative Algebra (Chapter 1-3 and chapter 7)

Reference books:

1. NS Gopalakrishnan :Commutative algebra second edition.

2. Musili C, Introduction to Rings and Modules, Second Revised Edition, Narosa Publishing House, 1994.

3Bhattacharya, Jain and Nagpaul: Basic Abstract Algebra, Second Edition, Cambridge University Press.

4. David S. Dummit M. Foote : Abstract Algebra second edition.

MM 706- Nonlinear Programming

Credits: 5 **University Exam: 70**
Minimum passing marks: 35% **Internal Assessment: 30**
Time Allowed: 3 hours **Total: 100**

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus and Section C will consist of one compulsory question having ten short answer type questions covering the entire syllabus uniformly. Each question in Sections A and B will be of 10 marks and Section C will be of 30 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each of the Section A and B and compulsory question of Section C.

Course Outcome: This Course will enable the students to:

i. Describe non-linear programming problems.
ii. Distinguish non-linear and linear programming problems.
iii. Develop a fundamental understanding of non-linear unconstrained and constrained optimization problems.
iv. Learn Direct search and Gradient search methods for solving non-linear problems.

SECTION–A

Convex sets, Convex Functions and Generalizations: Definition and basic properties, subgradients of Convex functions, Differentiable convex function, Non-linear Programming: Definition & examples of non-linear programming, its formulation, unconstrained problems, constrained problems with equality & inequality constraints, Fritz John and Kuhn-Tucker optimality conditions , saddle point , Lagrange's method of solution.
Direct Search Methods**:** Solution of unconstrained non-linear optimization problems One-Dimensional Problems: Dichotomous Search, Fibonacci Search, Golden-Section Search,
Rosen Brock search Method, Methods requiring function to be differentiable: Bisection Method, Method of False Position, Newton- Raphson Method, Quadratic interpolation method, Cubic interpolation method, Direct Search Methods for multidimensional optimization problems: Evolutionary search method, Simplex search method.
[Scope as in the book 'Nonlinear programming: Theory and Algorithm' by Bazaraa, M.S., Sherali, Hanif D and Shetty, Chapter 2,3]

Section B

Gradient search based methods for Multidimensional nonlinear optimization problems:
Unconstrained problems: Hooke & Jeeves method, Steepest Descent method, Newton-Raphson Method, Marquardt's method, Conjugate Direction Methods: Concept of Conjugate Directions, Basic Conjugate- Directions method, method of Fletcher-Reeves, Partan method.
Constrained optimization Problems: Solution through Kuhn-Tucker conditions, Penalty function Methods (Interior Penalty function method and Exterior Penalty function method),
Methods of Feasible Directions: Zoutendijk method, Gradient Projection method, Wolfe's reduced Gradients method.

[Scope as in the book ‘Optimization Techniques’ by Chander Mohan and Kusum deep, Chapter 8, 9,10, 11]

Text Book:-

1. Bazaraa, M.S., Sherali, Hanif D and Shetty, C.M., Nonlinear programming: Theory and Algorithm, John Wiley, Second Edition, 1993.
2. Chander Mohan and Kusum Deep, Optimization Techniques, New Age International, 2009.

Reference Books:-

1. Simmons, D.M., Non-Linear Programming for Operations Research, Prentice Hall, 1975.
2. Avriel, M., Non-linear Programming: Analysis & methods, Englewood Cliffs, Prentice Hall , 1976.

MM -707 Optimization Techniques -II

Credits: 5 **External Examination: 70**
Minimum passing marks: 35% **Internal Assessment: 30**
Time Allowed: 3 hours **Max. Marks: 100**

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Sections A and B will have four questions each of 10 marks from the respective sections of the syllabus. Sections C will consist of one compulsory question having ten short-answer questions of 3 marks each covering the entire syllabus uniformly.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from sections A and B and entire section C.

Course Learning Outcomes : On Completion of this course, a student should be able to

1. Deep understanding of the theoretical background of queueing systems.
2. To apply and extend queueing models to analyze real world systems.
3. Identify the goals and objectives of Inventory management and describe the importance of Stokes in an organization and the reasons for holding costs and explains the various costs related to inventory system.
4. To find solutions to network flow problems using standard algorithms.
5. Use CPM and PERT techniques ,to plan ,to schedule and control project activities.

SECTION-A

Queueing Problems: Characteristics of Queueing System, Distribution in Queueing Systems, Poission arrivals and Exponential Service Time, Transient and Steady State, Probabilistic Queueing Models (Model I (M/M/1) (∞/FCFS), Model II (General ErlangQueueing Model), Model III (M/M/1) : (N/FCFS) , Model-IV (M/M/S):(∞/FCFS)

Inventory Models: Classification of Inventory Models, Deterministic Inventory Model (DIM), Basic Economic Order Quantity (EOQ) models with no shortages, Deterministic Inventory Model (DIM) with Shortages, EOQ with Finite Replenishment.

SECTION-B

Replacement & Maintenance Problems: Replacement policy when money value changes & does not change with time, Group Replacement of item that fails suddenly.

Network Analysis: Introduction to Networks, Minimal Spanning Tree Problem, Shortest Path Problem, Dijkastra's Algorithm, Floyd's Algorithm, Maximum Flow Problem.

Project Management: Critical Path Method, Critical Path Computations, Optimal Scheduling by CPM, PERT, Distinction between CPM and PERT.

TEXT BOOKS:-

1. KantiSwarup, P. K. Gupta and Man Mohan,"Operations Research", Sultan Chand and Sons, New Delhi, 14th Edition 2017.

2. S. D. Sharma, “Operations Research”, KedarNath and Co., Meerut, 2009.
3. D. S. Hira and P. K. Gupta, “Operations Research”, S. Chand Publisher, 2014.

REFERENCE BOOKS:-

1. H. A. Taha, “Operations Research An Introduction”, Pearson, 10th Edition, 2010.
2. Chander Mohan and KusumDeep,“Optimization Techniques”, New Age International Publishers, 2009.
3. G. Hadley, “Linear Programming” Narosa Book Distributors Private Ltd, 2002.
4. H. S. Kasana and K. D. Kumar, “Introductory Operation Research”, Springer, 2005.

MM-708 CLASSICAL MECHANICS

Credits: 5 **External Exam: 70**

Minimum Passing marks: 35% **Internal Assessment: 30**
Time Allowed: 3 hours **Total: 100**

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections: A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus. Sections C will consist of one compulsory question having ten short answers questions of covering the entire syllabus uniformly. Each question in Section A and B will be of 10 marks and Section C will be of 30 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each section A and B and entire section C.

Course Outcome: This course will demonstrate knowledge and understanding of the following fundamental concepts in

1. Lagrangian and Hamiltonian formulation of mechanics.
2. The kinematics of rigid body motion.
3. To develop math skills as applied to physics.

SECTION-A

Basic Principles: Mechanics of a Particle and a System of Particles, Constraints , Generalized Coordinates, Holonomic and Non-Holonomic Constraints. D'Alemberts Principle and Lagrange's Equations, Velocity Dependent Potentials and the Dissipation Function, Simple Applications of the Lagrangian formulation.

Variational Principles and Lagrange's Equations: Hamilton's Principle, Derivation of Lagrange's Equations from Hamilton's Principle, Extension of Hamilton's Principle to Non-Holonomic Systems.

Conservation Theorems and Symmetry Properties: Cyclic Coordinates, Canonical Momentum and its Conservation, The Generalized Force, and Angular Momentum Conservation Theorem.

The Two-Body Central Force Problem: Reduction to the Equivalent One-Body Problem, The Equation of Motion, The Equivalent One Dimensional Problem and the Classification of Orbits, The Virial Theorem, Conditions for Closed Orbits, Bertrand's Theorem.

SECTION - B

The Kepler Problem: Inverse Square Law of Force, The Motion in Time in the Kepler Problem, Kepler's Laws, Kepler's Equation, The Laplace-Runge-Lenz Vector.

Scattering in a Central Force Field: Cross Section of Scattering, Rutherford Scattering Cross Section, Total Scattering Cross Section, Transformation of the Scattering Problem to Laboratory Coordinates.

The Kinematics of Rigid Body Motion: The Independent Coordinates of Rigid Body, The Transformation Matrix, The Euler Angles, The Cayley-Klein Parameters and Related Quantities, Euler’s Theorem on the Motion of Rigid Bodies, Finite Rotations, Infinitesimal Rotations, The Coriolis Force.

Text Book:

1. H. Goldstein, Classical Mechanics, Narosa Publishing (Second edition) (Third Edition) House (1980).

Reference Books:

1. L. N. Hand and J. D. Finch, Analytical Mechanics, (Cambridge University Press, 1998)

2. G. R. Fowles and G. L. Cassiday, Analytical Mechanics, (Thomson Brooks/Cole, 2005).

MM-709 Fuzzy Sets and Applications

Credits: 5 **External Assessment: 70**
Minimum passing marks: 35% **Internal Assessment: 30**
Time Allowed: 3 hours **Total: 100**

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus and Section C will consist of one compulsory question having ten short answer type questions covering the entire syllabus uniformly. Each question in Sections A and B will be of 10 marks and Section C will be of 30 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each of the Section A and B and compulsory question of Section C.

Course Outcomes: Fuzzy set is computer oriented subject. Due to large scale implementation of computer based applications in research, the course has been planned. This course introduces Fuzzy Techniques to the students. The techniques have found many applications in sciences to solve problems with limit and incomplete information.

SECTION-A

Classical Sets and Fuzzy Sets: Overview of Classical Sets, Membership Function, a-cuts, Properties of a-cuts, Decomposition theorems, Extension Principle.
Operations on Fuzzy Sets: Compliment, Intersections, Unions, Combinations of operations, Aggregation Operations.
Fuzzy Arithmetic: Fuzzy Numbers, Linguistic Variables, Arithmetic Operations on intervals and Numbers, Lattice of Fuzzy Numbers, Fuzzy Equations.
Fuzzy Relations: Crisp and Fuzzy Relations, Projections and Cylindric Extensions, Binary Fuzzy Relations, Binary Relations on single set, Equivalence, Compatibility and Ordering Relations, Morphisms, Fuzzy Relation Equations.

SECTION-B

Possibility Theory: Fuzzy Measures, Evidence and Possibility Theory, Possibility versus Probability Theory.
Fuzzy Logic: Classical Logic, Multi-valued Logics, Fuzzy Propositions, Fuzzy Qualifiers, Linguistic Hedges.
Uncertainty based Information: Information and Uncertainty, Non-specificity of Fuzzy and Crisp sets, Fuzziness of Fuzzy Sets. Applications of Fuzzy Logic.

Text Book
1. **Chander Mohan**, An Introduction to Fuzzy Set Theory and Fuzzy Logic, M V Learning Publishers(2015), New Delhi (INDIA) and London (UK)

References
1. Klir G. J. and Folyger T. A., Fuzzy Sets: Uncertainty and Information, PHI (1988).
2. Klir G. J. and Yuan B., Fuzzy sets and Fuzzy logic: Theory and Applications, PHI(1995).
3. Zimmermann H. J., Fuzzy Set Theory and its Applications, Allied Publishers (1991).

MM 601: Finite Element Analysis and Laboratory

Credits: 3(T) and 2(P) **External Exam: (50T+20P)**

Minimum passing marks: 35% **Internal Assessment:-(10T+20P)**

Time Allowed: 3 hours **Total: 100**

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections: A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus. Sections C will consist of one compulsory question having ten short answers questions of covering the entire syllabus uniformly. Each question in Section A and B will be of 10 marks and Section C will be of 30 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each section A and B and entire section C.

Course Outcome :- This Course will enable the students :

1 : Understand the need of Finite Element Method in design of machine elements
2 : Solve elasticity problems of truss and beam structures using FEM
3 : Analyse the concept of plane stress and plane strain condition in structural applications using FEM
4 : Analyse the accuracy of solution of FEM

Unit I

Introduction : What is the FEM and How FEM works, Introduction to ANSYS, Finite elements of an elastic continuum displacement approach, Type of coordinate systems in FEM, Type of elements, Introduction to shape function, Shape function of bar, beam and plane elements, Convergence requirement for shape function

Unit II

Introduction to Stiffness Matrix : Assembling stiffness equation using direct approach, Assembling stiffness equations using variational method, Potential energy approach, Rayleigh-Ritz method, Assembling stiffness equations using weighted residual method, Galerkin's method, Application to spring problems, Application to bar problems

Unit III

Elasticity Problems : Application to Plane truss, Transformation of vectors in two dimensions, Stiffness of Truss Members, Stresses in each element, Reaction forces, Inclined or skewed supports

Unit IV

Application to structural mechanics problems : Beam element, Shear Force, Bending moment and Fixed-end Reaction Vector, Load Vector Formulation : Point load and Uniformly distributed load, Plane stress and plane strains, Axisymmetric stress analysis

Unit V

Computer procedures for Finite element analysis : Accuracy of solution, Approximation of error, Common mistakes, Convergence of solution, Convergence with mesh refinement, Stress concentration & submodeling, Various measure of errors

Text Books:

1. A FIRST COURSE IN FINITE ELEMENT METHOD by DARYL L. LOGAN, CENGAGE LEARNING

References:

1. INTRODUCTION TO FINITE ELEMENT IN ENGINEERING by R.CHANDRUPATLA, PEARSON

2. FINITE ELEMENT ANALYSIS by S S BHAVIKATTI,, NEW AGE INTERNATIONAL

3. FINITE ELEMENT ANALYSIS THEORY AND PROGRAMMING by C.S. KRISHNAMOORTHY, Tata McGraw Hill, India

4. AN INTRODUCTION TO THE FINITE ELEMENT METHOD by J. N. REDDY, MCGRAW HILL EDUCATION

Lab Work

1. Introduction to ANSYS

- Introduction to ANSYS
- Different types of elements used in ANSYS
- Graphical user interface of ANSYS
- File operations in ANSYS

2. Introduction to ANSYS pre-processor

- Geometry creation
- Different types of meshing
- Mesh tool
- Boundary conditions

Post-processing in ANSYS

- Animating results
- Plotting results

3. Structural Analysis

- Truss analysis
- Analysis of beams with variable loads and variable boundary conditions
- Static analysis of axially loaded plate with center hole in tension
- Static analysis of axisymmetric cylindrical pressure vessel

4. Contact Analysis

- Modeling and Solution of Contact Problem.

5. Dynamic Analysis

- Modal Analysis of Bar and Beam

Text Books For Practical:-

1. FINITE ELEMENT ANALYSIS USING ANSYS® 11.0 by SRINIVAS, PALETI , SAMBANA, KRISHNA CHAITANYA , DATTI AND RAJESH KUMAR, PHI Learning Pvt Ltd
2. FINITE ELEMENT METHOD by R. DHANRAJ, K. PRABHAKARAN NAIR, OXFORD UNIVERSITY PRESS
3. FINITE ELEMENT ANALYSIS USING ANSYS® 11.0 by SRINIVAS, PALETI , SAMBANA, KRISHNA CHAITANYA , DATTI AND RAJESH KUMAR, PHI Learning Pvt Ltd
4. FINITE ELEMENT ANALYSIS THEORY AND APPLICATION WITH ANSYS by SAEED MOAVENI, PEARSON

Sri Guru Teg Bahadur Khalsa College

Sri Anandpur Sahib, Distt- Ropar (Punjab) 140118
(An Autonomous College)

CHOICE BASED CREDIT SYSTEM (CBCS)
FOR MSc MATHEMATICS

(SEMESTER I & II)

Department of Mathematics

POST GRADUATE PROGRAMME
COURSES EFFECTIVE FROM SESSION (2020-2021)

Program outcomes of Post Graduate Program in Mathematics:-
On completion of course students will be able:

(1) **To develop skills required for sound analytical and practical knowledge to pursue careers in research, education and industry.**

(2) **To train computational scientists who can work for real life challenging problems.**

(3) **To develop their understanding and professional capabilities through lifelong Learning.**

(4) **To develop an ability to communicate effectively with a range of audiences.**

(5) **To inculcate recognition of the need for and an ability to engage in continuing Professional development.**

(Study Scheme)
M.Sc. Mathematics (Part-I)
Session 2020-2021, 2021-22
Semester-I

Paper Code	Paper Name	Credits	Maximum Marks	Internal Marks	External Marks
MM 401	Algebra-I	5	100	30	70
MM 402	Real Analysis-I	5	100	30	70
MM 403	Topology-I	5	100	30	70
MM 404	Differential Geometry	5	100	30	70
MM 405	Complex Analysis	5	100	30	70

Semester-II

Paper Code	Paper Name	Credits	Maximum Marks	Internal Marks	External Marks
MM 501	Algebra-II	5	100	30	70
MM 502	Real Analysis-II	5	100	30	70
MM 503	Differential Equations	5	100	30	70
MM 504	Topology-II	5	100	30	70
MM 505	Mathematical Methods	5	100	30	70

Semester-III

Students can select any five subjects from the following:

Paper Code	Paper Name	Credits	Maximum Marks	Internal Marks	External Marks
MM 601	Functional Analysis	5	100	30	70
MM 602	Field Theory	5	100	30	70
MM 603	Mathematical Statistics – I	5	100	30	70
MM 604	Numerical Analysis-I	5	100	30	70
MM 605	Differentiable Manifolds	5	100	30	70
MM 606	Optimization Techniques-I	5	100	30	70
MM 607	Solid Mechanics	5	100	30	70
MM 608	Algebraic Coding Theory	5	100	30	70
MM 609	Category Theory	5	100	30	70

Semester-IV

Students can select any five subjects from the following:

Paper Code	**Paper Name**	**Credits**	**Maximum Marks**	**Internal Marks**	**External Marks**
MM 701	Geometry of Differentiable Manifolds	5	100	30	70
MM 702	Theory of Linear Operators	5	100	30	70
MM 703	Mathematical Statistics-II	5	100	30	70
MM 704	Numerical Analysis II	5	100	30	70
MM 705	Commutative Algebra	5	100	30	70
MM 706	Non-Linear Programming	5	100	30	70
MM 707	Optimization Techniques-II	5	100	30	70
MM 708	Classical Mechanics	5	100	30	70
MM 709	Fuzzy Sets and Applications	5	100	30	70
MM 710 *	Project				

***Students, whose CGPA more or equal 7, can opt for the project (MM710) instead of two elective courses. The evaluation of project will be done by external expert committee.**

MM 401: ALGEBRA - I

Credits: 5 **External Exam: 70**

Minimum passing marks: 35% **Internal Assessment: 30**

Time Allowed: 3 hours **Total: 100**

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections: A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus. Sections C will consist of one compulsory question having ten short answers questions of 3 marks each covering the entire syllabus uniformly.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each section A and B and entire section C.

Course Outcomes:- Upon completion of the course , students will be able to

1. Demonstrate understanding of Group, permutation group
2. Acquire the notion of permutations and operations on them
3. Prove Cayley's theorem, Sylow's theorem and its application
4. Understand polynomial Rings, Matrix Rings, Ideals, Field of quotients of integral domain

SECTION –A

Review of Groups, Permutation Group, Even and odd permutations, Conjugacy classes of permutations, Alternating group A_n, Simplicity of A_n, Cayley's theorem, Normal and subnormal series, Refinement theorem, Zassenhaus' Lemma, Schreier theorem, Descending and Ascending subnormal chain, Composition Series, Jordan Holder theorem for groups also implies Fundamental theorem of Arithmetic, Nilpotent and Solvable groups, Cyclic decomposition, Group action, Stabilizer, orbit.

SECTION-B

Direct products, Fundamental theorem of finitely generated abelian groups, Invariants of a finite abelian group, Table of groups of small order, Sylow's theorems and their applications, Groups of order p^2, pq. Review of rings, polynomial rings, formal power series rings, matrix ring, the ring of Gaussian integers, Ideals, Maximal and prime ideals, Nilpotent and nil Ideal, Ideal in Quotient rings, Field of Quotients of integral Domains , Zorn's lemma.

[Scope as in chapters 2-4 and 6-9 of Modern Algebra by Surjeet Singh and Qazi Zameerudin, Eight Edition, 2006 and 11, 24, 25 of Contemporary Abstract Algebra by Gallian, Fourth Edition]

Text Book:-

1. Bhattacharya, Jain & Nagpaul : Basic Abstract Algebra, Second Edition (Ch. 6, 7, 8, 10)
2. Surjeet Singh, Qazi Zameeruddin : Modern Algebra, Vikas publishing house, New Delhi, 8th Edition, 2006.
3. J.A. Gallian, Contemporary Abstract Algebra, Narosa Publishing House, New Delhi.

Reference books:-

1. David S. Dummit and Richard M Foote: Abstract Algebra, John Wiley & Sons, 2004.
2. I.N. Herstein : Topics in Algebra, Second Edition

MM 402 : REAL ANALYSIS-I

Credits: 5 **External Exam: 70**

Minimum passing marks: 35% **Internal Assessment: 30**

Time Allowed: 3 hours **Total: 100**

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections: A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus. Sections C will consist of one compulsory question having ten short answers questions of 3 marks each covering the entire syllabus uniformly.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each section A and B and entire section C.

Course Outcome: Upon completion of the course, students will be able to

1. Explain Fundamental concepts like countable and uncountable sets, Metric spaces
2. Understand compactness, sequence, subsequence convergent sequences in Metric space
3. Understand Continuity , discontinuity and connectedness in Metric spaces
4. Acquire the idea of Riemann Steilje's integral and prove associated theorems

SECTION-A

Countable and Uncountable sets. Metric spaces: Definition and examples, open sets, closed sets, compact sets, elementary properties of compact sets.

Compactness of k-cells, Compact subsets of Euclidean space R^k . Heine Borel theorem, Perfect sets, The Cantor set, Separated sets, connected sets in a metric space, connected subsets of real line.

Sequences in Metric Spaces: Convergent sequences (in Metric Spaces), sub sequences, Cauchy sequences, Complete metric spaces, Cantor's Intersection Theorem, Baire's theorem, Banach contraction principle,

Continuity: Limits of functions (in metric spaces) Continuous functions, Continuity and Compactness, Continuity and Connectedness, Discontinuities, Monotonic functions, Uniform Continuity. Properties of Monotonic Functions,

SECTION-B

The Riemann Steiltje's Integral: Definition and existence of Riemann Steiltje's integral, Properties of integral. Integration and Differentiation, Fundamental Theorem of Calculus, 1st and 2nd Mean Value Theorems of Riemann Stieltje's integral.

Integration of vector valued functions, Sequence and Series of functions: Uniform Convergence, Uniform Convergence and continuity, Uniform Convergence and Integration, Uniform Convergence and Differentiation Equi continuous families of functions, Arzela's Theorem, Weierstrass Approximation theorem. The Stone-Weierstrass theorem

TEXT BOOKS :

1. Walter Rudin : Principles of Mathematical Analysis (3rd Edition) McGraw-Hill Ltd Ch.2, Ch.3, (3.1-3.12), Ch.4, Ch.6, (6.1-6.22) , Ch 7
2. Simmons, G.F. : Introduction to Topology and Modern Analysis, McGraw- Hill Ltd(App.1) Ch.2
3. Shanti Narayan : A course of Mathematical Analysis.

REFERENCE BOOKS:-

1. Apostol, T.M. : Mathematical Analysis 2nd Edition.
2. Malik, S.C. : Mathematical Analysis, Wiley Eastern Ltd
3. H.L. Royden: Real analysis, Macmillan Pub. co. Inc. 4th Edition, New York, 1993.
   (Chapters 3, 4, 5 and Sections 1 to 4 of Chapter 11).

MM 403 : TOPOLOGY I

Credits: 5 **University Exam: 70**

Minimum passing marks: 35% **Internal Assessment: 30**

Time Allowed: 3 hours **Total: 100**

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of five sections: A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus. Sections C will consist of one compulsory question having ten short answers covering the entire syllabus uniformly. Each question in Section A and B will be of 10 marks and Section C will be of 30 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each sections A and B and compulsory question of section C.

Objective :- The objective of the course is to introduce the concept of topological spaces , their various properties and other separation axioms.

SECTION A

Cardinals: Equipotent sets, Countable and Uncountable sets, Cardinal Numbers and their Arithmetic, Bernstein's Theorem and the Continumm Hypothesis.

Topological Spaces: Definition and examples, Euclidean spaces as topological spaces, Basis for a given topology, Topologizing of Sets; Sub-basis, Equivalent Basis.

Elementary Concepts: Closure, Interior, Frontier and Dense Sets, Topologizing with pre-assigned elementary operations. Relativization, Subspaces.

Maps and Product Spaces: Continuous Maps, Restriction of Domain and Range, Characterization of Continuity, Continuity at a point, Piecewise definition of Maps and Neighborhood finite families. Open Maps and Closed Maps, Homeomorphisms and Embeddings.

SECTION B

Cartesian Product Topology, Elementary Concepts in Product Spaces, Continuity of Maps in Product Spaces and Slices in Cartesian Products.

Connectedness: Connectedness and its characterizations, Continuous image of connected sets, Connectedness of Product Spaces, Applications to Euclidean spaces. Components, Local Connectedness and Components, Product of Locally Connected Spaces. Path Connectedness.

Compactness and Countability: Compactness and Countable Compactness, Local Compactness, One-point Compactification, $T_{0,}$ T_1, and T_2 spaces, T_2 spaces and Sequences and Hausdorfness of One-Point Compactification.

Axioms of Countablity and Separability, Equivalence of Second axiom, Separable and Lindelof in Metric Spaces. Equivalence of Compact and Countably Compact Sets in Metric Spaces.

Text Books

1. W.J. Pervin : Foundations of General Topology, Ch. 2 (Sections 2.1, 2.2), Section 4.2, and Ch 5 (Sec 5.1 to 5.3).
2. James Dugundji : TOPOLOGY. Relevant Portions from Ch.III (excluding Sec 6 and Sec 10) , Ch IV; (Sections 1-3) and ChV

MM 404: DIFFERENTIAL GEOMETRY

Credits: 5 **University Exam: 70**

Minimum passing marks: 35% **Internal Assessment: 30**

Time Allowed: 3 hours **Total: 100**

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of five sections: A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus. Sections C will consist of one compulsory question having ten short answers covering the entire syllabus uniformly. Each question in Section A and B will be of 10 marks and Section C will be of 30 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each sections A and B and compulsory question of section C.

Course Outcomes: 1) To acquaint students with the idea of parameterization, curvature and torsion of space curves

2) To euip the students with concepts like surface patches, fundamental forms and normal curvature.

3) To teach students about Gaussian curvature and proof of Gauss Remarkable theorem

Section A

Theory of Space Curves: Curves in the planes and in space, arc length, reparametrization, curvature, osculating circles, evolutes and involutes of curves, space curves, torsion, Serret-Frenet formulae. Theory of Surfaces, smooth surfaces, tangents, normals and orientability, level surfaces, quadric surfaces, ruled surfaces and surface of revolution, the first fundamental form, Isometries on surfaces.

(Scope as in text book 1: Chaper 1, Chapter 2, Chapter 4, Chapter 5 (Sec. 5.1, 5.2, 5.3) and Chapter 6 (Sec. 6.1, 6.2, 6.3, 6.4)

Section B

The second fundamental forms, Gauss and Weignarten maps, Normal and geodesic curvatures, Meusnier's theorem, Asymptotic curve, Gauss equations Gaussian, mean and principal curvatures, Euler's theorem, Rodrigue's formula, the pseudosphere, flat surfaces, Geodesics, geodesic equations, geodesics of surfaces of revolution, geodesics as shortest paths The Codazzi-Mainardi Equations, Gauss's Remarkable Theorem

(Scope as in text book 1: Chapter 7 (Sec. 7.1, 7.2, 7.3), Chapter 8 (Sec. 8.1, 8.2, 8.3, 8.4), Chapter 9 (Sec. 9.1, 9.2, 9.3, 9.4),
Chapter 10 (Sec. 10.1, 10.2)

Text Books:

1. Andrew Pressley, Elementary Differential Geometry, Springer, Fourth Indian Reprint 2009. (Relevant portion as mentioned above)

2. Manfredo P. Do Carmo, Differential Geometry of Curves and Surfaces, Second Edition

MM 405: COMPLEX ANALYSIS

Credits: 5 **University Exam: 70**

Minimum passing marks: 35% **Internal Assessment: 30**

Time Allowed: 3 hours **Total: 100**

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of five sections: A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus. Sections C will consist of one compulsory question having ten short answers covering the entire syllabus uniformly. Each question in Section A and B will be of 10 marks and Section C will be of 30 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each sections A and B and compulsory question of section C.

Course Outcomes: -

1. This course will provide an introduction to the theories for functions of complex variable.
2. It begins with the exploration of the algebraic, geometric and topological structures of the complex number field.
3. The concepts of analyticity, Cauchy Riemann relations and harmonic functions are introduced.
4. Students will be equipped with the understanding of the fundamental concepts of complex variable theory.

SECTION-A

Function of complex variable, Analytic function, Cauchy-Riemann equations, Harmonic function and Harmonic conjugates, Branches of multivalued functions with reference to arg z, logz and z^c, Conformal Mapping, Mobius transformation, Riemann mapping theorem. Complex Integration, Cauchy's theorem, Cauchy Goursat theorem Cauchy integral formula, Morera's theorem, Liouville's theorem, Poisson integral formula, Cauchy's inequality, Fundamental theorem of Algebra, Maximum Modulus Principle. Schwarz lemma.

SECTION-B

Taylor's theorem. Laurent series in an annulus. Singularities, Meromorphic function, Rouche's theorem, the argument principle. Cauchy's theorem on residues, Jordan's Lemma. Application to evaluation of definite integrals. Principle of analytic continuation, General definition of an analytic function. Analytic continuation by power series method, Schwarz Reflection principle, Mittag-Leffler's theorem (only in case when the set of isolated singularities admits the point at infinity alone as an accumulation point).

Text Books :-

1. J.B. Conway, Functions of one complex variable, Narosa, New Delhi, 2002
2. J. W. Brown and R. V. Churchill, Complex Variables and Applications, 7th edition, McGraw Hill, 2003.

Reference Books

1. S. Ponnusamy, Foundations of Complex Analysis by Narosa Publishing House, New Delhi, 2nd Edition, 2005.

2. E.T.Copson, An introduction to Theory of Functions of a Complex Variable
3. H.S. Kasana, Complex Variables, Prentice Hall of India

MM 501: ALGEBRA-II

Credits: 5 **University Exam: 70**

Minimum passing marks: 35% **Internal Assessment: 30**

Time Allowed: 3 hours **Total: 100**

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of five sections: A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus. Sections C will consist of one compulsory question having ten short answers covering the entire syllabus uniformly. Each question in Section A and B will be of 10 marks and Section C will be of 30 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each sections A and B and compulsory question of section C.

Course outcomes:

1. Familiarize students with the concepts of UFD, PID, ED
2. Acquaint students with modules , submodules , free modules and modules with chain conditions.
3. Enable students to differentiate between modules and vector spaces
4. Explain Rational canonical form and Jordan Canonical form

SECTION-A

Unique Factorization Domains, Principal Ideal Domains, Euclidean Domain and their relationships, Factorization in R [x], Polynomial ring over UFD, Noetherian and Artinian Rings and examples, Artinian Rings without zero divisors, Nil ideal in Artinian Rings, Hilbert Basis theorem
Modules: Definition and Examples, Submodules, Direct sum of Submodules

SECTION – B

Difference between Modules and Vector spaces, Quotient modules, Homomorphism, Simple modules, Semisimple Modules, Free Modules, Representation and Rank of Linear mapping, Finitely generated Modules over PID, Rational Canonical Form, Jordan Canonical Form, Modules with chain conditions: Artinian Modules, Noetherian Modules, Cohen Theorem.

[Scope as chapters 10 and 15 of Modern Algebra by Surjeet Singh and Qazi Zameerudin, 8th Edition, 2006 and chapters 14, 20 and 21 of Basic Abstract Algebra by P.B. Bhattacharya, S.K Jain, S.R. Nagpal, Cambridge University press, 1986]

Text Books:-

1. Bhattacharya, Jain & Nagpaul : Basic Abstract Algebra, Second Edition (Ch. 6, 7, 8, 10)
2. Surjeet Singh, Qazi Zameeruddin : Modern Algebra, Vikas publishing house, New Delhi, 8th Edition, 2006.
3. J.A. Gallian, Contemporary Abstract Algebra, Narosa Publishing House, New Delhi.

Reference books

1. David S. Dummit and Richard M Foote: Abstract Algebra, John Wiley & Sons, 2004.
2. I.N. Herstein : Topics in Algebra, Second Edition

MM 502: REAL ANALYSIS-II

Credits: 5 **University Exam: 70**

Minimum passing marks: 35% **Internal Assessment: 30**

Time Allowed: 3 hours **Total: 100**

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of five sections: A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus. Sections C will consist of one compulsory question having ten short answers covering the entire syllabus uniformly. Each question in Section A and B will be of 10 marks and Section C will be of 30 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each sections A and B and compulsory question of section C.

Course Outcomes: Students will be able to

1. Define and understand differentiation of vector valued functions of several variables.
2. Understand Inverse function theorem and Implicit function theorem
3. Describe and apply the notion of measurable functions and sets
4. Use Lebesgue monotone and dominated convergence theorems and Fatou’s lemma
5. Describe and apply Lebesgue integral
6. Explain the concepts of Functions of bounded variations, Absolute continuity and convex functions.

Section-A

Differentiation: Differentiation of vector-valued functions. Functions of several variables: The space of linear transformations on R^n to R^m as a metric space. Differentiation of a vector-valued function of several variables, The inverse function theorem. The implicit function theorem,

Algebras, σ- algebra, their properties, General measurable spaces, measure spaces, properties of measure, Complete measure, Lebesgue outer measure and its properties, Measurable sets, Lebesque measure, A non-measurable set, Measurable function w.r.t. general measure, Borel and Lebesgue measurability, Step functions and Simple function, Littlewood’s three principles.

Section-B

Lebesgue integral of simple function and bounded function of a set of finite measure, Integration of non-negative measurable functions, Fatou’s lemma, Monotone convergence theorem, Lebesgue convergence theorem, The general Lebesgue integral, Lebesgue Dominated Convergence theorem, Integration of series, Egorov’s theorem, Riemann and Lebesgue integrals, Convergence in measure, almost uniform convergence, Riesz representation theorem .

Functions of Bounded Variations, Total Variation, Additive Property of Total Variation, Total Variation on [a , x]as a Function of x, Function of Bounded Variation as difference of increasing function, Continuous function of Bounded Variation, Jordan Decomposition theorem, Absolute Continuity, Convex functions and Jensen’s inequality.

TEXT BOOKS:-

1. Walter Rudin : Principles of Mathematical Analysis (3rd edition) McGraw Hill Ltd. Ch. 5, 7 (7.1-7.27) ,9

2. Royden, H.L. :Real Analysis, Macmillan Co. (Ch. 3, 4, 5 excluding section 2, 5)

REFERENCE BOOK:-

1. 4. Jain, P.K. and Gupta, V.P. : Lebesgue Measure and Integration.

2. Barra, G De. : Introduction to Measure Theory, Van Nosh and Reinhold Company

Malik, S.C. : Mathematical Analysis, Wiley Eastern

MM 503 : DIFFERENTIAL EQUATIONS

Credits: 5 **University Exam: 70**

Minimum passing marks: 35% **Internal Assessment: 30**

Time Allowed: 3 hours **Total: 100**

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of five sections: A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus. Sections C will consist of one compulsory question having ten short answers covering the entire syllabus uniformly. Each question in Section A and B will be of 10 marks and Section C will be of 30 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each sections A and B and compulsory question of section C.

Course Outcomes: Enable students to understand various analytical methods to find exact solution of ordinary differential equations and their implementation to solve real life problems.

SECTION- A

Existence of solution of ODE of first order, initial value problem, Ascoli's Lemma, Gronwall's inequality, Cauchy Peano Existence Theorem, Uniqueness of Solutions. Method of successive approximations , Existence and Uniqueness Theorem. System of differential equations, nth order differential equation, Existence and Uniqueness of solutions, dependence of solutions on initial conditions and parameters. (Scope as per chapter I of text book 1, chapter 10 of text book 2)

SECTION- B

Linear system of equations (homogeneous & non homogeneous). Superposition principle, Fundamental set of solutions, Fundamental Matrix, Wronskian, Abel Liouville formula, Reduction of order Self adjoint systems of second order, Lagrange Identity . Results on self adjoint operators. Abel Formula Sturm's separation theorem, Sturm's fundamental comparison theorem, Sturm First and Second Comparison theorm, Sturm Liouville boundary value problem, Characteristic values & Characteristic functions, Orthogonality of Characteristic functions, Expansion of a function in a series of orthonormal functions. (Scope as per chapter 10 and 11 of text book 2)

Text Books

1. E. Coddington & N. Levinson, Theory of Ordinary Differential Equations, Tata Mc-Graw Hill, India
2. S.L. Ross, Differential Equations, 3rd edition, John Wiley & sons (Asia).

Reference Books :-

1 D.A. Sanchez, Ordinary Differential Equations & Stability Theory, Freeman & company.

2 A.C. King, J. Billingham, S.R. Otto, Differential Equations, Linear, Nonlinear, Ordinary, Partial, Cambridge University Press.

MM 504: TOPOLOGY II

Credits: 5 **University Exam: 70**

Minimum passing marks: 35% **Internal Assessment: 30**

Time Allowed: 3 hours **Total: 100**

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of five sections: A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus. Sections C will consist of one compulsory question having ten short answers covering the entire syllabus uniformly. Each question in Section A and B will be of 10 marks and Section C will be of 30 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each sections A and B and compulsory question of section C.

Course Outcomes:

1) To acquaint students with the concepts of order types of sets
2) To teach students the higher separation axioms and related fundamental results
3) To equip students with knowledge of nets, filters and identification topology

SECTION-A

Higher Separation Axioms : Regular, Completely Regular, Normal and Completely Normal Spaces. Metric Spaces as Completely Normal T_2 Spaces. Urysohns Lemma and The Tietze Extension Theorem. Point finite and Locally Finite families.

Products : Products of first countable, Regular, T_2 and Completely Regular Spaces. Non invariance of normality under products. Embedding of Tichonov spaces into parallelotope and the Stone Cech Compactification.

SECTION –B

Nets and Filters : Nets and Subnets,Convergence and Clustering of a net,Closures and Nets, Nets and Continuity, Nets in Products, Ultrafilter, Relationship between Nets and Filters, Nets and Filter Characterization of Compactness and The Tychonoff Theorem.

Identification Topology: Identification Topology, Identification Map, Subspaces, General Theorem, Transgression, Transitivity Spaces with Equivalance Relation, Quotient Spaces. Cones and Suspensions, Attaching of Spaces, Adjunction Space, The relation K(f) for continuous maps and Weak Topologies.

TEXTBOOKS:-

4. W.J. Pervin : Foundations of General Topology, (Sections 2.3 to 2.5), Section 5.5 to 5.6
5. Stephen Willard : GENERAL TOPOLOGY Ch 4 (excluding section 10), Ch 6 (Theorems 17.4 and 17.8 only)
6. James Dugundji : TOPOLOGY. Chapter VI,VII (1.3(3), 2.3(2), 3.3(3), 7.2 to 7.4 only and theorem 8.2 of Chapter XI

MM 505 : MATHEMATICAL METHODS

Credits: 5	**External Exam: 70**
Minimum passing marks: 35%	**Internal Assessment: 30**
Time Allowed: 3 hours	**Total: 100**

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus and Section C will consist of one compulsory question having ten short answer type questions of 3 marks each covering the entire syllabus uniformly. Each question in Sections A and B will be of 10 marks and Section C will be of 30 marks

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each of the Section A and B and compulsory question of Section C.

Course Outcomes: Students will be able to

1. Identify Linear integral equations and Volterra's equation, Non linear and singular equations
2. Solve Volterra's and Fredholm equations
3. Be familiar with Hadamard's theorem, Riesz Fischer theorem and Schwarz's theorem
4. Understand Green's function and its application to untegral equations
5. Acquire the knowledge of variational methods

SECTION –A

Linear integral equations of first and second kind, Abel's problem, Relation between linear differential equation and Volterra's equation, Non linear and Singular equations, Solution by successive substitutions and Successive Approximations of Volterra's equation and Fredholm equations iterated and reciprocal functions, Volterra's solution of Fredholm's equation.
Fredholm's equation as limit of finite system of linear equations, Hadamard's theorem, convergence proof, Fredholm's two fundamental relations, Fredholm's solution of integral equation when $D(\lambda) \neq 0$, Lemmas on iterations of symmetric kernel, Schwarz's inequality and its applications, Riesz Fischer Theorem , Greens Function and its applications to Integral Equations (Scope as per chapter 1- 8 of TB 1)

SECTION –B

Simple variational problems, Necessary condition for an extremum, Euler's equation, End point problem, Variational derivative, Invariance of Euler's equation, Fixed end point problem for n unknown functions, Variational problem in parametric form, Functionals depending on higher order derivatives. Geodesics, The brachistochrone, Minimum surface of revolution, Brachistochrone from a given curve to a fixed point. Jacobi's and Legendre's Condition (Scope as per chapter 1,2 of TB2)

Text Books:-

1. Linear Integral Equations by M.D Raisinghania S Chand Publications

2. I.M. Gelfand& S.V. Fomin, Calculus of Variations, Prentice Hall, India.

Reference Books:-

1 W.W. Lovitt, Linear Integral Equations, Tata-McGraw Hill, India.

2 Robert Weinstock, Calculus of Variations, McGraw Hill, London.

3 L.B. Chambers, Integral Equations, International Text Book Co.

Sri Guru Teg Bahadur Khalsa College

Sri Anandpur Sahib, Distt- Ropar (Punjab) 140118
(An Autonomous College)

CHOICE BASED CREDIT SYSTEM (CBCS)
FOR BA
(SEMESTER III & IV)

Department of Mathematics

UNDER GRADUATE PROGRAMME
COURSES EFFECTIVE FROM SESSION (2020-2021)

Study Scheme for BA

Subject :- Mathematics

For the students of Batch 2019-2020, 2020-21, 2021-22

Paper Code	**Paper Name**	**Credits**			**Maximum Marks**	**Internal Marks**	**External Marks**
		L	**T**	**P**			
BA MAT 105	Advanced Calculus and Geometry	5	1	0	100	30	70
BA MAT 205	Analysis	5	1	0	100	30	70
BA MAT 305	Calculus-II	3	1	0	50	15	35
BA MAT 306	Ordinary and Partial Differential equations	3	1	0	50	15	35
BA MAT 405	Algebra and Numerical Methods	3	1	0	50	15	35
BA MAT 406	Statics and Dynamics	3	1	0	50	15	35
BA MAT 505	Algebra-I	3	1	0	50	15	35
BA MAT 506	Mathematical Methods	3	1	0	50	15	35
BA MAT 605	Algebra –II	3	1	0	50	15	35
BA MAT 606	Discrete Mathematics	3	1	0	50	15	35
SEC 1	Number Theory-I	2	0	0	50	15	35
SEC 2	Number Theory II	2	0	0	50	15	35

BA MAT 305 Calculus –II (Paper A)

L	T	P	
3	1	0	

External Assessment: 35
Internal Assessment: 15
Time Allowed: 3 hours
Minimum Pass Percentage:35%

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus and Section C will consist of one compulsory question having nine short answer type questions covering the entire syllabus uniformly. Each question in Sections A and B will be of 6.5 marks and Section C will be of 9 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each of the Section A and B and compulsory question of Section C. Use of Calculators is allowed.

Course Outcomes: -The course will augment the earlier knowledge of calculus. The students will learn new concepts of differential calculus and integral calculus.

SECTION-A

Limits and Continuity using definition, Uniform Continuity , Successive differentiation , Asymptotes, Multiple points, Concavity and Convexity, Points of inflexion, Tracing of curves in Cartesian, Parametric and Polar forms. Curvature, Radius of curvature, Center of curvature , Envelopes and Evolutes.

SECTION-B

Integration of hyperbolic and inverse hyperbolic functions, Reduction Formulae, Application of definite integral to find Quadrature (Cartesian, Parametric, Polar curves) , Rectification , Improper integrals (Convergence, Comparison tests, Absolute and conditional convergence, Abel’s and Dirichlet’s tests) Frullani integral, Beta – Gamma Functions and their convergence **.**

Text Books:-

1 Mathematical Analysis, Malik and Arora. New Age Publishers

Reference Books:-

2 Calculus and Analytic Geometry, Thomas and Finney, Ninth Edition.

BA MAT -306 Ordinary and Partial Differential Equations

(PaperB)

L	T	P	
3	1	0	External Assessment: 35
			Internal Assessments: 15

Time Allowed: 3 hours
Minimum Pass Percentage:35%

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus and Section C will consist of one compulsory question having nine short answer type questions covering the entire syllabus uniformly. Each question in Sections A and B will be of 6.5 marks and Section C will be of 9 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each of the Section A and B and compulsory question of Section C.

Course Outcomes: -The course will introduce the concept of ordinary and Partial Differential Equations to the students. The students will be able to learn applications of Differential equations to solve various practical problems.

SECTION-A

First order differential equations:

Exact differential equations. Linear differential equations and equations reducible to linear differential equations.Solution of Linear homogeneous and non-homogeneous differential equations of higher order with constant coefficients and with variable coefficients. Method of Variation of Parameters. Differential operator method. Linear non-homogeneous differential equations with variable coefficients, Euler's Cauchy method.

SECTION-B

Partial differential equations:

Partial differential equation of first order, Lagrange's solution,, Integral surfaces passing through a given curve, surfaces orthogonal to a given system of surfaces, Partial differential equation of first order but of any degree , Charpit's general method of solution.

Partial differential equations of second and higher order :

Partial differential equations of the second order and their classification into hyperbolic, elliptic and parabolic types, Homogeneous and non-homogeneous partial differential equations with constant coefficients. One dimension Wave and Heat Equation. Two dimensional Laplace equation by separation of variable method and Alembert's solution of wave equation.

Text Books:-

1 MD Rai Singhania : Ordinary and Partial Differential Equations" , S.Chand &Company,New Delhi

Books Recommended:

1 R. K. Jain and S.R.K. Iyengar:Advanced Engineering Mathematics, Narosa Publishing House.
2 Zafar Ahsan: Differential Equations and Their Applications, Prentice-Hall of India Pvt. Ltd. New Delhi-Second edition

BA MAT-405 Algebra and Numerical methods

(Paper A)

L	T	P	
			External Assessment: 35
3	1	0	Internal Assessment: 15

Time Allowed: 3 hours
Minimum pass percentage: 35%

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus and Section C will consist of one compulsory question having nine short answer type questions covering the entire syllabus uniformly. Each question in Sections A and B will be of 6.5 marks and Section C will be of 9 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each of the Section A and B and compulsory question of Section C. Use of Calculators is allowed.

Course Outcomes: -The course will augment the earlier knowledge of Algebra. The students will learn new methods of solving algebraic equations and will learn about new properties of Matrices.

Section - A

CRank, characteristic equation of a matrix , Eigen Values and Eigen Vectors, Diagonalization, Cayley-Hamilton theorem. Consistency of a system of linear equations. Relations between roots and coefficients of a general polynomial, Tranformation of equation. Solution of cubic equations, Biquadratic equations . De Moivre's theorem and its application, Direct and inverse circular functions, hyperbolic and logarithmic functions. Summation of series.

Section-B

Bisection Method, Regula-falsi method, Secant method, Newton-Raphson method (without Convergence) Pivoting strategies, Gauss-Elimination, Gauss Jordan and Triangularisation method, Jacobi Method, Gauss Seidel Method. Finite differences, Divided differences, Gauss Forward and Backward Interpolation formula, Lagrange’s formula, Newton’s formulae, Central Differences, Stirling, Bessel’s and Everett’s formulae.

Text Books:-

3 Text Book of Algebra by Chandrika Prasad.
4 Algebra-I by Sharma and Shah Pearson Ed.

Reference Books:

5. Linear Algebra by Scham outline Series.
6. Trigonometry by S.L. Loney. Macmilan and Company London.

BA MAT-406 Statics and Dynamics

(Paper B)

L T P External Assessment: 35
3 1 0 Internal Assessment: 15
Time Allowed: 3 hours Minimum pass percentage: 35%

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus and Section C will consist of one compulsory question having nine short answer type questions covering the entire syllabus uniformly. Each question in Sections A and B will be of 6.5 marks and Section C will be of 9 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each of the Section A and B and compulsory question of Section C. Use of Calculators is allowed.

Course Outcomes :-The course will introduce the concept of statics and dynamics to the students. The students will learn the methods to solve various problems in mechanics and will learn the concept of motion.

SECTION-A

Basic notation, Newton Laws of motion, system of two forces, parallelogram law of forces, resultant of two collinear forces, resolution of forces, moment of a force, couple, theorem on moments of a couple, coplanar forces, resultant of three coplanar concurrent forces, theorem of resolved parts, resultant of two forces acting on a rigid body, Varignon's theorem, generalized theorem of moments. , Lami's theorem. λ - μ theorem, theorems of moments, resultant of a force and a couple.

SECTION-B

Motion of a particle with constant acceleration, acceleration of falling bodies, motion under gravity, motion of a body projected vertically upward, motion of a two particles connected by a string, motion along a smooth inclined plane, constrained motion along a smooth inclined plane. Variable Acceleration, Simple harmonic motion

Text Books:-

1. John L. Synge and Byron A. Griffith :*Principles of Mechanics* 3rd Edition McGraw-Hill international student editions

Reference Books:

1. S.L. Loney: The elements of statics and dynamics, 5th edition, Cambridge University Press, 1947.

SEC -1 Number Theory - I

Maximum Marks: 50 **EXT:- 35/ INT:15**

Time allowed: 3 Hrs. **Minimum Pass percentage: 35%**

Credits: 2

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus and Section C will consist of one compulsory question having nine short answer type questions covering the entire syllabus uniformly. Each question in Sections A and B will be of 6.5 marks and Section C will be of 9 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt one long question and three short questions from each of the Section A and B and compulsory question of Section C.

SECTION-A

Divisibility, Greatest common divisor, Fundamental Theorem of arithmetic, congruences, residue classes and reduced residue classes, Euler-Fermat theorem, Wilsons's theorem, Linear congruences, Chinese Remainder theorem.

SECTION-B

An Application to cryptography, primitive roots, indices, quadratic residues, Legendre Symbol, Euler's criterion, Gauss Lemma, Arithmetic functions $\mu(n)$, $d(n)$, $\varphi(n)$, $\sigma_\alpha(n)$, Mobius inversion Formula.

TEXT BOOKS:-

1. David M.Burton, *Elementary Number Theory*, 3rd Edition WmC, Brown Publishers (scope as in Chapters I-II).
2. Niven&Zuckeman, *Introduction to Number Theory*, Wiley Eastern (Scope as in Chapters 1-7).

Reference Books:-

1. T.N. Apostal, *Introduction to Analytic Number Theory,* Springer Verlag. (Scope as in Chapters 1-7).
2. Hardy & Wright, *Number Theory*, Oxford Univ. Press (Scope as in Chapter 19).
3. H. Davertport, *Higher Arithmetic,*Camb. Uni. Press.
4. E. Landau, *Elementary Number Theory*, Chelsea, Part-III.

SEC -2 Number Theory - II

Maximum Marks: 50 **EXT:- 35/ INT:15**

Time allowed: 3 Hrs. **Minimum Pass percentage: 35%**

Credits: 2

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus and Section C will consist of one compulsory question having nine short answer type questions covering the entire syllabus uniformly. Each question in Sections A and B will be of 6.5 marks and Section C will be of 9 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt one long question and three short questions from each of the Section A and B and compulsory question of Section C.

SECTION-A

The Diophantine equations .Farey sequences, continued Fractions, Approximation of reals by rationals, Pell's equations. The Partitions. Minkowski's theorem in Geometry of Numbers

SECTION-B

Binary quadratic forms, Hermite's theorem on minima of positive definite quadratic forms and its applications to representation of a number as a sum of two, three and four squares. Order of magnitude and average order of arithmetical functions, Euler summation formula, Abel's Identity.

TEXT BOOKS:-

1. David M.Burton, *Elementary Number Theory*, 3rd Edition WmC, Brown Publishers (scope as in Chapters I-II).
2. Niven&Zuckeman, *Introduction to Number Theory*, Wiley Eastern (Scope as in Chapters 1-7).

Reference Books:-

1. T.N. Apostal, *Introduction to Analytic Number Theory*, Springer Verlag. (Scope as in Chapters 1-7).
2. Hardy & Wright, *Number Theory*, Oxford Univ. Press (Scope as in Chapter 19).
3. H. Davertport, *Higher Arithmetic*,Camb. Uni. Press.
4. E. Landau, *Elementary Number Theory*, Chelsea, Part-III.

Sri Guru Teg Bahadur Khalsa College

Sri Anandpur Sahib, Distt- Ropar (Punjab) 140118
(An Autonomous College)

CHOICE BASED CREDIT SYSTEM (CBCS)
FOR B.A.
(SEMESTER I & II)

Department of Mathematics

UNDER GRADUATE PROGRAMME
COURSES EFFECTIVE FROM SESSION (2020-2021)

Study Scheme for BA
Subject :- Mathematics
Session: 2020-21, 2021-22, 2022-23

Paper Code	**Paper Name**	**Credits** **L T P**	**Maximum Marks**	**Internal Marks**	**External Marks**
BA MAT 105	Calculus (Differential and Integral)	3 1 0	75	25	50
BA MAT 106	Ordinary and Partial Differential Equations	3 1 0	75	25	50
BA MAT 205	Algebra and Trigonometry	3 1 0	75	25	50
BA MAT 206	Analytic Geometry	3 1 0	75	25	50
BA MAT 305	Analysis-I	3 1 0	75	25	50
BA MAT 306	Advance Calculus	3 1 0	75	25	50
BA MAT 405	Numerical Methods	3 1 0	75	25	50
BA MAT 406	Statics & Dynamics	3 1 0	75	25	50
BA MAT 505	Algebra-I	3 1 0	75	25	50
BA MAT 506	Mathematical Methods	3 1 0	75	25	50
BA MAT 605	Algebra-II	3 1 0	75	25	50
BA MAT 606	Discrete Mathematics	3 1 0	75	25	50
SEC 1	Number Theory-I	2 0 0	50	15	35
SEC 2	Number Theory II	2 0 0	50	15	35

Semester-I

BA MAT 105 Calculus (Differential and Integral)

L T P External Assessment: 35
3 1 0 Internal Assessment: 15
Time Allowed: 3 hours Minimum Pass Percentage:35%

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus and Section C will consist of one compulsory question having nine short answer type questions covering the entire syllabus uniformly. Each question in Sections A and B will be of 6.5 marks and Section C will be of 9 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each of the Section A and B and compulsory question of Section C. Use of Calculators is allowed.

Course Outcomes: -The course will augment the earlier knowledge of calculus. The students will learn new concepts of differential calculus and integral calculus.

SECTION-A

Limits and Continuity using definition, Uniform Continuity , Successive differentiation , Asymptotes, Multiple points, Concavity and Convexity, Points of inflexion, Tracing of curves in Cartesian, Parametric and Polar forms. Curvature, Radius of curvature, Center of curvature .

SECTION-B

Integration of hyperbolic and inverse hyperbolic functions, Reduction Formulae, Application of definite integral to find Quadrature (Cartesian, Parametric, Polar curves) , Rectification , Improper integrals (Convergence, Comparison tests, Absolute and conditional convergence, Abel's and Dirichlet's tests) Frullani integral, Beta – Gamma Functions and their convergence **.**

Text Book

1 Mathematical Analysis, Malik and Arora. New Age Publishers

Reference Books:-

2 Calculus and Analytic Geometry, Thomas and Finney, Ninth Edition.

BA MAT 106 Ordinary and Partial Differential Equations

(Paper B)

L	T	P	
3	1	0	External Assessment: 35
			Internal Assessment: 15

Time Allowed: 3 hours
Minimum Pass Percentage: 35%

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus and Section C will consist of one compulsory question having nine short answer type questions covering the entire syllabus uniformly. Each question in Sections A and B will be of 6.5 marks and Section C will be of 9 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each of the Section A and B and compulsory question of Section C. Use of Calculators is allowed.

Course Outcomes: -The course will introduce the concept of ordinary and Partial Differential Equations to the students. The students will be able to learn applications of Differential equations to solve various practical problems.

SECTION-A

First order differential equations:

Exact differential equations. Linear differential equations and equations reducible to linear differential equations. Solution of Linear homogeneous and non-homogeneous differential equations of higher order with constant coefficients and with variable coefficients. Method of Variation of Parameters. Differential operator method. Linear non-homogeneous differential equations with variable coefficients, Euler's Cauchy method.

SECTION-B

Partial differential equations:

Partial differential equation of first order, Lagrange’s solution,, Integral surfaces passing through a given curve, surfaces orthogonal to a given system of surfaces, Partial differential equation of first order but of any degree , Charpit’s general method of solution.

Partial differential equations of second and higher order:

Partial differential equations of the second order and their classification into hyperbolic,elliptic and parabolic types, Homogeneous and non-homogeneous partial differential equations with constant coefficients. One dimention Wave and Heat Equation. Two dimensional Laplace equation by separation of variable method and Alembert’s solution of wave equation.

Text Books

1 Rai Singhania:Ordinary and Partial Differential Equations” , S.Chand&Company, New Delhi

Reference Books:

1. R. K. Jain and S.R.K. Iyengar:Advanced Engineering Mathematics,Narosa Publishing House.
2. Zafar Ahsan: Differential Equations and Their Applications, Prentice-Hall of India Pvt. Ltd. New Delhi-Second edition

Semester II

BA MAT 205 Algebra and Trigonometry

(Paper A)

L	T	P	External Assessment: 35
3	1	0	Internal Assessment: 15

Time Allowed: 3 hours
Minimum Pass Percentage:35%

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus and Section C will consist of one compulsory question having nine short answer type questions covering the entire syllabus uniformly. Each question in Sections A and B will be of 6.5 marks and Section C will be of 9 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each of the Section A and B and compulsory question of Section C. Use of Calculators is allowed.

Course Outcomes: -The course will augment the earlier knowledge of Algebra. The students will learn new methods of solving algebraic equations and will learn about new properties of Matrices.

Section - A

Hermitian, Skew-Hermitian, Orthogonal and Unitary matrices, .Elementary operation on matrices. Inverse of a matrix using Gauss Jordan Method. Linear independence of row and column vectors, Row rank, Column rank and their equivalence. Eigen values, Eigen vectors and the characteristic equation of a matrix, Properties of eigen values for special type of matrices, Diagonalization, Cayley-Hamilton theorem. Consistency of a system of linear equations.

Section-B

Relations between roots and coefficients of a general polynomial, Tranformation of equation.Descartes' rule of signs, Solution of cubic equations(Cardan's Method), Biquadratic equations and their solution(Descarete's Method and Ferrari's method). De Moivre's theorem and its application, Direct and inverse circular functions, hyperbolic and logarithmic functions. Summation of series.

Text Books:-

2 Text Book of Algebra by Chandrika Prasad.
3 Algebra-I by Sharma and Shah Pearson Ed.

Reference Books:

2. Linear Algebra by Scham outline Series.
3. Trigonometry by S.L. Loney. Macmilan and Company London.

BA MAT 206 Analytic Geometry (Paper B)

L	T	P	
			External Assessment: 35
3	1	0	Internal Assessment: 15
Time Allowed: 3 hours			Minimum Pass Percentage:35%

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus and Section C will consist of one compulsory question having nine short answer type questions covering the entire syllabus uniformly. Each question in Sections A and B will be of 6.5 marks and Section C will be of 9 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each of the Section A and B and compulsory question of Section C. Use of Calculators is allowed.

Course Outcomes: -The course will introduce the concept of Analytic Geometry to the students. The students will be able to learn the properties of various geometric curves in two dimensional and three dimensional.

SECTION-A

Parabola: Pole and polar, pair of tangents from a point, chord of contact, equation of chord in terms of midpoints and diameter of conic, Subtangent and Subnormal and its geometrical properties.
Ellipse: Properties of ellipse, parametric representation of ellipse, tangents, normals, equation of chord joining two points on ellipse. Director circle of ellipse, chord of contact, conjugate lines and conjugate diameter, Co-normal Points and its geometrical properties.
Hyperbola: Properties of hyperbola, fundamental rectangle, parametric representation of hyperbola, asymptotes of hyperbola, Conjugate hyperbola, rectangular hyperbola, tangents and normals.

SECTION-B

Sphere: General equation of a sphere, Plane section of a sphere, Intersection of two spheres,
Sphere through a given circle, Intersection of a straight line and a sphere, Equation of a tangent plane to sphere, Condition of tangency. Plane of contact, Orthogonal Spheres, Angle of intersection of two spheres, Length of tangent, Radical plane, Coaxial system of spheres.
Cone: Equation of a cone whose vertex is at origin, Equation of a cone with a given vertex and a given conic as base, Condition that general equation of second degree represent a cone, Equation of a tangent plane, Condition of tangency of a plane and a cone, Reciprocal cone, Right circular cone,
Cylinder:- Equation of right circular cylinder, enveloping cylinder

Text Books:-

1. N.Saran and R.S. Gupta, : Analytical Geometry of Three Dimensions, Pothishala Pvt. Ltd. Allahabad.

SGTB Khalsa College, Sri Anandpur sahib

Department of Agriculture

Scheme of Studies & Examination and Syllabus for B.Sc. (Hons.) Agriculture

(5th Dean committee)

Session - 2021-22

Scheme of Studies and Examination

B.Sc. (Hons.) Agriculture Part II (Semester III)

Course No.	Paper Code	Subject	Credits (L+P)	Periods per week		Marks			Grand Total
				Theory	Practical	External Theory	Practical	Internal Ass	
I	AGRON-211	Crop Production Technology – I *(Kharif Crops)*	2(1+1)	1	2	50	30	20	100
II	PBG-211	Fundamentals of Plant Breeding	3(2+1)	2	2	50	25	25	100
III	ECON-211	Agricultural Finance and Co-operation	3(2+1)	2	2	50	25	25	100
IV	AGINF-211	Agri- Informatics	2(1+1)	1	2	50	30	20	100
V	AE-211	Farm Machinery and Power	2(1+1)	1	2	50	30	20	100
VI	HORT-211	Production Technology for Vegetables and Spices	3(2+1)	2	2	50	25	25	100
VII	STAT-211	Statistical Methods	2(1+1)	1	2	50	30	20	100
VIII	LPM-211	Livestockand Poultry Management	4(3+1)	3	2	50	20	30	100
IX	EXT-211	Human Values and Ethics*	**1(1+0)* (NC)**	1	0	50*****	0	50*	100*
	TOTAL		**21**(13+8)+**1***	**14**	**16**	**400**	**215**	**185**	**800**

Note: Allotment of marks of each course is on the basis of credit hours specified by ICAR (5th Deans' Committee Report, 2016)

*NC - Non Credited

** Allotment of marks of each course is on the basis of credit hours specified by ICAR (5th Deans' Committee Report, 2016)

SGTB Khalsa College, Sri Anandpur sahib

Department of Agriculture

Scheme of Studies & Examination and Syllabus for B.Sc. (Hons.) Agriculture
(5th Dean committee)
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B.Sc. (Hons.) Agriculture Part II (Semester IV)

Course No.	**Paper Code**	**Subject**	**Credits (L+P)**	**Periods per week**		**Marks**			**Grand Total**
				Theory	**Practical**	**External Theory**	**Practical**	**Internal**	
I	AGRON -222	Crop Production Technology –II *(Rabi Crops)*	2(1+1)	1	2	50	30	20	100
II	HORT -222	Production Technology for Ornamental Crops, MAP and Landscaping	3(2+1)	2	2	50	25	25	100
III	HORT-223	Production Technology for Fruit and Plantation Crops	2(1+1)	1	2	50	30	20	100
IV	AE-222	Renewable Energy and Green Technology	2(1+1)	1	2	50	30	20	100
V	SOILS-221	Problematic Soils and their Management	2(2+0)	2	0	50	0	50	100
VI	ENT-221	Pests of Crops and Stored Grains and their Management	3(2+1)	2	2	50	25	25	100
VII	PBG-222	Principles of Seed Technology	4(2+2)	1	2	50	40	10	100
VIII	ECON-222	Agricultural Marketing Trade and Prices	3(2+1)	2	2	50	25	25	100
IX	AGRON-223	Farming System and Sustainable Agriculture	1(1+0)	1	0	50	0	50	100
X	(Elective-I) ABM-221 AGRON-224 FST-221	(Any One Option) Agri-business Management Weed Management Food Safety and Standards	3(2+1)	2	2	50	25	25	100
	TOTAL		**25**	**15**	**16**	**500**	**230**	**270**	**1000**

Note: Allotment of marks of each course is on the basis of credit hours specified by ICAR (5th Deans' Committee Report, 2016)

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Internal Assessment Criteria

Sr. No	Points	Weightage-20 marks 2(1+1)	Weightage-50 marks 2(2+0)	Weightage-30 marks 3(2+1)
1	Mid Semester Exam	25%	30%	30%
2	Class test	25%	25%	30%
3	Assignment	25%	25%	20%
4	Attendance	25%	20%	20%
Internal assessment – Total marks		20	50	30

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B.Sc. (Hons.) Agriculture Part II (Semester III)

AGRON-211: Crop Production Technology-I (*Kharif* crops)

Credit: 2(1+1)

Max. Marks: 100 **Time: 3 Hours**
External Theory: 50 **Pass Percentage: 50 %**
Mid semester Exam: 15
Internal Assessment: 20 **No. of Lectures: 15**
Theory Credit: 1

Internal assessment includes – Class test, Mid-semester, Assignment and Attendance.

INSTRUCTIONS FOR PAPER SETTER

Question paper should be set strictly according to the syllabus.

The language of questions should be straight & simple.

The question paper will consist of three sections A, B and C. Section A and B will have 4 questions from the respective sections of the syllabus and each will carry 10 marks.

Section C will consist of 10 short-answer type questions of 1 mark each which will cover the entire syllabus uniformly.

INSTRUCTIONS FOR CANDIDATES

Candidates are required to attempt two questions from each section A and B and the entire section C.

Learning Objectives: 1. To familiarize students with basic principles of agronomic practice of kharif crops.

2. To learn different types of methods of intercultural operations operated during crop cycle.

Theory

Section-A

Origin, geographical distribution, economic importance, soil and climatic requirements, varieties, cultural practices and yield of kharif crops:

1. **Cereals**–rice, maize, sorghum.
2. Pearl millet and finger millet
3. **Pulses**-pigeon pea, mung bean and Urd-bean.

Section-B

Origin, geographical distribution, economic importance, soil and climatic requirements, varieties, cultural practices and yield of Kharif crops:

4. **Oilseeds**-groundnut and soybean;
5. **Fibre crops**-cotton & jute;
6. **Forage crops**-sorghum, cowpea, cluster bean and napier.

Practical

Practical: 30 **Pass Marks: 50 %**
Credit: 1 **No. of Lectures: 15**

INSTRUCTIONS FOR THE PRACTICAL

The Final practical paper shall be divided in three parts.

Part-I will contain a write up of 10 marks from the list of practical’s pertaining to lab course.

Part-II will contain a practical to be performed in the examination of 10 Marks.

Part-III will contain Practical Notebook Evaluation and Viva Voce which will having 5 Marks each.

Topics:

1. Rice nursery preparation and transplanting of rice.
2. Sowing of soybean, pigeon-pea and mung bean. maize, groundnut and cotton.
3. Effect of seed size on germination and seedling vigour of kharif season crops.
4. Effect of sowing depth on germination of kharif crops.
5. Identification of weeds in kharif season crops.
6. Top dressing and foliar feeding of nutrients.
7. Study of yield contributing characters and yield calculation of kharif season crops.
8. Study of crop varieties and important agronomic experiments at experimental farm.
9. Study of forage experiments, morphological description of kharif season crops, visit to research centres of related crops.

Learning Outcomes:

1. Students will learn to grow crops for commercial purposes.
2. Students will learn to grow crops with minimum input and get maximum output.

Books Recommended:

1. Prasad R. 2017.Textbook of Field crops,ICAR, New Delhi
2. Pearson. 2006. Handbook of Agriculture, ICAR, New Delhi.
3. Package of practices for rabi crops. 2019. P.A.U Bulletin.
4. Package of practices for kharif crops. 2019. P.A.U Bulletin.
5. Singh C and Singh P. 2003. Modern techniques of raising field crops. Oxford and IBH Publication.
6. Reddy S.R.2016. Agronomy of Field Crops, Kalyani Publishers, New Delhi.

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PBG-211: Fundamentals of Plant Breeding

Credit: 3(2+1)

Max. Marks: 100 **Time: 3 Hours**
External Theory: 50 **Pass Percentage: 50 %**
Mid semester Exam: 20 **External Theory: 25**
Internal Assessment: 25
No. of Lectures: 30
Theory Credit: 2

****Internal assessment includes – Class test, Mid-semester, Assignment and Attendance***

INSTRUCTIONS FOR PAPER SETTER

Question paper should be set strictly according to the syllabus.

The language of questions should be straight & simple.

The question paper will consist of three sections A, B and C. Section A and B will have 4 questions from the respective sections of the syllabus and each will carry 10 marks.

Section C will consist of 10 short-answer type questions of 1 mark each which will cover the entire syllabus uniformly.

INSTRUCTIONS FOR CANDIDATES

Candidates are required to attempt two questions from each section A and B and the entire section C.

Learning Objectives: 1. To familiarize the students with basics of breeding practices.
2. To learn different types of methods of breeding and genetics operations.
3. Locate, analyse, evaluate and synthesise information relevant to plant breeding.

Theory

Section-A

1. Historical development, concept, nature and role of plant breeding, major achievements and future prospects;
2. Genetics in relation to plant breeding, modes of reproduction and apomixes, self-incompatibility and male sterility-genetic consequences, cultivar options.
3. Domestication, Acclimatization and Introduction; Centres of origin/ diversity, components of Genetic variation; Heritability and genetic advance; Genetic basis and breeding methods in self- pollinated crops - mass and pure line selection, hybridization techniques and handling of segregating population; Multiline concept.
4. Concepts of population genetics and Hardy-Weinberg Law, Genetic basis and methods of breeding cross pollinated crops, modes of selection.

Section-B

5. Population improvement Schemes- Ear to row method, Modified Ear to Row, recurrent selection schemes;
6. Heterosis and inbreeding depression, development of inbred lines and hybrids, composite and synthetic varieties; Breeding methods in asexually propagated crops, clonal selection and hybridization;
7. Maintenance of breeding records and data collection; Wide hybridization and pre- breeding; Polyploidy in relation to plant breeding, mutation breeding-methods and uses; Breeding for important biotic and abiotic stresses;

8. Biotechnological tools-DNA markers and marker assisted selection. Participatory plant breeding; Intellectual Property Rights, Patenting, Plant Breeders and & Farmer's Rights.

Practical

Practical: 25 **Pass Marks: 50 %**

Credit: 1 **No. of Lectures: 15**

INSTRUCTIONS FOR THE PRACTICAL

The Final practical paper shall be divided in three parts.
Part-I will contain a write up of 10 marks from the list of practical's pertaining to lab course.
Part-II will contain a practical to be performed in the examination of 10 Marks.
Part-III will contain Practical Notebook Evaluation and Viva Voce which will having 2.5 Marks each.

Topics

1. Plant Breeder's kit, Study of germplasm of various crops.
2. Study of floral structure of self-pollinated and cross pollinated crops.
3. Emasculation and hybridization techniques in self & cross pollinated crops.
4. Consequences of inbreeding on genetic structure of resulting populations.
5. Study of male sterility system.
6. Handling of segregation populations.
7. Methods of calculating mean, range, variance, standard deviation, heritability.
8. Designs used in plant breeding experiments, analysis of Randomized Block Design.
9. To work out the mode of pollination in a given crop and extent of natural out-crossing.
10. Prediction of performance of double cross hybrids.

Learning Outcomes:

1. Students will learn pollination, hybridization and methods of breeding.

Reference Books:

1. Hayes, immar & Smith. 1955. Methods of plant breeding, New York, Mc Graw Hill.
2. Poelhhlman J.M & Borthakur. 1969. Breeding of Asian field crops, oxford & IBH Publishing.
3. Singh B.D. 2015. Plant breeding- Principls and Methods, Kalyani.
4. Singh B.D. 2015. A text book of plant breeding, Kalyani.
5. Singh Phundan. 2017. Essentials of plant breeding, Kalyani Publishers.
6. Chahal G.S and Gosal S.S. 2002. Principles and procedures of plant breeding, Biotechnological and conventional approaches, Narosa.

ECON-211: Agricultural Finance and Co-operation

Credit: 3(2+1)

Max. Marks: 100 **Time: 3 Hours**
External Theory: 50 **Pass Percentage: 50 %**
Mid semester Exam: 20
Internal Assessment: 25 **No. of Lectures: 30**
Theory Credit: 2

Internal assessment includes – Class test, Mid-semester, Assignment and Attendance

INSTRUCTIONS FOR PAPER SETTER

Question paper should be set strictly according to the syllabus.

The language of questions should be straight & simple.

The question paper will consist of three sections A, B and C. Section A and B will have 4 questions from the respective sections of the syllabus and each will carry 10 marks.

Section C will consist of 10 short-answer type questions of 1 mark each which will cover the entire syllabus uniformly.

INSTRUCTIONS FOR CANDIDATES

Candidates are required to attempt two questions from each section A and B and the entire section C.

Learning Objectives: 1. With this course the students will know about the banks, different financing systems, policies, schemes and institutes involve for agriculture.

2. To study about the role of cooperative socities, market and its importance from agriculture point of view.

Section-A

1. Agricultural Finance- Meaning, scope and significance, credit needs and its role in Indian agriculture. Agricultural credit: meaning, definition, need, classification.
2. Credit analysis: 4 R's, and 3C's of credits. Sources of agricultural finance: institutional and non-institutional sources, commercial banks, social control and nationalization of commercial banks, Micro financing including KCC.
3. Lead bank scheme, RRBs, Scale of finance and unit cost. An introduction to higher financing institutions – RBI, NABARD, Cooperative Credit Societies.
4. World Bank, Insurance and Credit Guarantee Corporation of India. Cost of credit. Recent development in agricultural credit.

Section-B

5. Agricultural Cooperation – Meaning, brief history of cooperative development in India, objectives, principles of cooperation, significance of cooperatives in Indian agriculture.
6. Agricultural Cooperation in India- credit, marketing, consumer and multi-purpose cooperatives, farmers' service cooperative societies, processing cooperatives, farming cooperatives, cooperative warehousing; role of ICA, NCUI, NCDC, NAFED.

Practical

L	T	P	Practical Marks: 25
0	0	1	

Time Allowed: 3 hours
(Credit Hours – 15P)
NOTE: *Pass Percentage: 50 %

INSTRUCTIONS FOR THE PRACTICAL

The Final practical paper shall be divided in three parts.

Part-I will contain a write up of 10 marks from the list of practical's pertaining to lab course.

Part-II will contain a practical to be performed in the examination of 10 Marks.

Part-III will contain Practical Notebook Evaluation and Viva Voce which will having 2.5 Marks each.

Topics:

1. Determination of most profitable level of capital use.
2. Optimum allocation of limited amount of capital among different enterprise. Analysis of progress and performance of cooperatives using published data.
3. Analysis of progress and performance of commercial banks and RRBs using published data.
4. Visit to a commercial bank, cooperative bank and cooperative society to acquire firsthand knowledge of their management, schemes and procedures.
5. Estimation of credit requirement of farm business – A case study.
6. Preparation and analysis of balance sheet – A case study.
7. Preparation and analysis of income statement – A case study.
8. Appraisal of a loan proposal –A case study. Techno-economic parameters for preparation of projects.
9. Preparation of Bank projects for various agricultural products and its value added products Seminar on selected topics.

Learning outcomes: 1. The students will learn about loans and other projects for agriculture. 2. Students can execute this practical knowledge in their own business

Reference Books:

1. Andrew Barkley & Paul Barkley W. 2016. Principles of Agricultural Economics, Routledge.
2. Reddy S.S &Ragher R.P. 2018. Agricultural Economics, Oxford & IBH Publishers.
3. Soni R.N. 2015. Leading Issues in Agricultural Economics, Vishal, Publishing Co.
4. Choudhary S.N. 2012. Agribusiness Markets & Management.
5. Choudhary S.N. 2012. Handbook of Agriculture Economics.

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AGINF-211: Agri- Informatics

Credit: 2(1+1)

Max. Marks: 100 **Time: 3 Hours**
External Theory: 50 **Pass Percentage: 50 %**
Mid semester Exam: 15
Internal Assessment: 20
No. of Lectures: 15
Theory Credit: 1

****Internal assessment includes – Class test, Mid-semester, Assignment and Attendance***

INSTRUCTIONS FOR PAPER SETTER

Question paper should be set strictly according to the syllabus.
The language of questions should be straight & simple.
The question paper will consist of three sections A, B and C. Section A and B will have 4 questions from the respective sections of the syllabus and each will carry 10 marks.
Section C will consist of 10 short-answer type questions of 1 mark each which will cover the entire syllabus uniformly.

INSTRUCTIONS FOR CANDIDATES

Candidates are required to attempt two questions from each section A and B and the entire section C.

Learning Objectives: 1. To familiarize the students with basic computer operations and techniques.
2. To learn different types of concepts and applications of computer in agriculture.

Theory

Section-A

1. **Introduction:** Computer, Operating Systems, definition and types of Operating System. Introduction to types of computer programming languages, standard input/output operations.
2. **MS- Office**: Documentation, Introduction to Office Automation, Creating & Editing Document, Formatting Document, Auto-text, Autocorrect, Spelling and Grammar Tool**,** Dictionary, Page Formatting, Bookmark, Advanced features of MS-Word-Mail Merge, Macros, Tables, File Management, Printing, Styles, linking and embedding object, Template
3. **MS-Excel** : Introduction to MS-Excel, Creating& Editing Worksheet, Formatting and Essential Operations, Formulas and Functions, Graph creation, statistical analysis, mathematical expressions, Database, concepts and types, uses of DBMS in Agriculture,
4. **Introduction to concept of Internet**: www, Email, ftp, web browsers (Internet explorer, Google Chrome, Mozilla) applications of Internet in Agriculture.

Section-B

5. **E-Agriculture,** concepts and applications, Use of ICT in Agriculture. Computer Models for understanding plant processes. IT application for computation of water and nutrient requirement of crops, Computer-controlled devices (automated systems) for Agri-input management,
6. Smartphone Apps in Agriculture for farm advises, market price, postharvest management etc; Geospatial technology for generating valuable agri-information.

7. Decision support systems, concepts, components and applications in Agriculture, Agriculture Expert System, Soil Information Systems etc. for supporting Farm decisions. Preparation of contingent crop-planning using IT tools.

Practical

Internal Practical: 30 **Pass Marks: 50 %**
Credit: 1 **No. of Lectures: 15**

INSTRUCTIONS FOR THE PRACTICAL

The Final practical paper shall be divided in three parts.
Part-I will contain a write up of 10 marks from the list of practical's pertaining to lab course.
Part-II will contain a practical to be performed in the examination of 10 Marks.
Part-III will contain Practical Notebook Evaluation and Viva Voce which will having 5 Marks each.

Topics:

1. Study of Computer Components, accessories, Creating, Files & Folders, File Management.
2. MS-WORD and MS Power-point for creating, editing and presenting a scientific Document.
3. MS-EXCEL - Creating a spreadsheet, use of statistical tools, writing expressions, creating graphs, analysis of scientific data.
4. MS-ACCESS**:** Creating Database, preparing queries and reports, demonstration of Agri-information system.
5. Hands on Crop Simulation Models (CSM) such as DSSAT/Crop-Info/CropSyst/ Wofost.
6. Computation of water and nutrient requirements of crop using CSM and IT tools.
7. Introduction of Geospatial Technology for generating valuable information for Agriculture.
8. Hands on Decision Support System.
9. Preparation of contingent crop planning

Learning Outcomes:

1. Students will able to understand analogy of computer, basic knowledge of MS Office, MS-Excel, MS-Power Point, basic knowledge of Internet and WWW.
2. Students will able to know about application of IT tools in Agriculture.

Reference Books:

1. Sinha P.K & Sinha P. 1982. Foundation of Computing, first edition, BPB.
2. Jain S. 2012. Information Technology, Concepts BPB.
3. Mclean T & Metbrete. 2001. Information Technology & Management, 2ND edition.
4. Rajaraman V. 2014. Fundamental of Computers, Prentice Hall India Learning Pvt. Ltd.
5. Microsoft Office. 2019, BPB Publication.

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AE-211: Farm Machinery and Power

Credit: 2(1+1)

Max. Marks: 100 **Time: 3 Hours**
External Theory: 50 **Pass Percentage: 50 %**
Mid semester Exam: 15
Internal Assessment: 20
No. of Lectures: 15
Theory Credit: 1

Internal assessment includes – Class test, Mid-semester, Assignment and Attendance

INSTRUCTIONS FOR PAPER SETTER

Question paper should be set strictly according to the syllabus.
The language of questions should be straight & simple.
The question paper will consist of three sections A, B and C. Section A and B will have four questions from the respective sections of the syllabus and each will carry 10 marks.
Section C will consist of 10 short-answer type questions of 1 mark each which will cover the entire syllabus uniformly and will carry 10 marks in all.

INSTRUCTIONS FOR CANDIDATES

Candidates are required to attempt two questions from each section A and B and the entire section C.

Learning objectives: 1. To provide the knowledge about tractor engines, different systems of tractor, different operations, implements and cost of operations.
2. Students will learn about the role of technology and new implements in the agriculture.

Theory

Section-A

1. Status of Farm Power in India, Sources of Farm Power, I.C. engines, working principles of I C engines, comparison of two stroke and four stroke cycle engines.
2. Study of different components of I.C. engine, I.C. engine terminology and solved problems.
3. Familiarization with different systems of I.C. engines: Air cleaning, cooling, lubrication, fuel supply and hydraulic control system of a tractor.
4. Familiarization with Power transmission system: clutch, gear box, differential and final drive of a tractor, Tractor types, Cost analysis of tractor power and attached implement.

Section-B

5. Familiarization with Primary and Secondary Tillage implement, Implement for hill agriculture, implement for intercultural operations.
6. Familiarization with sowing and planting equipment, calibration of a seed drill and solved examples.
7. Familiarization with Plant Protection equipment.
8. Familiarization with harvesting and threshing equipment.

Practical

Practical: 30 **Pass Marks: 50 %**
Credit: 1 **No. of Lectures: 15**

INSTRUCTIONS FOR THE PRACTICAL

The Final practical paper shall be divided in three parts.
Part-I will contain a write up of 10 marks from the list of practical's pertaining to lab course.
Part-II will contain a practical to be performed in the examination of 10 Marks.
Part-III will contain Practical Notebook Evaluation and Viva Voce which will having 5 Marks each.

Topics:

1. Study of different components of I.C. engine.
2. To study air cleaning and cooling system of engine.
3. Familiarization with clutch, transmission, differential and final drive of a tractor.
4. Familiarization with lubrication and fuel supply system of engine.
5. Familiarization with brake, steering and hydraulic control system of engine.
6. Learning of tractor driving.
7. Familiarization with operation of power tiller, Implements for hill agriculture.
8. Familiarization with different types of primary and secondary tillage implements: mould plough, disc plough and disc harrow.
9. Familiarization with seed- cum-fertilizer drills their seed metering mechanism and calibration, planters and transplanter.
10. Familiarization with different types of sprayers and dusters.
11. Familiarization with different inter- cultivation equipment.
12. Familiarization with harvesting and threshing machinery.

Learning Outcomes:

1. Students will learn about tractors and become familiar with its system which will helpful during working in the field.
2. They become familiar with different kind of implements used in agriculture, their required adjustments and the financial aspects of using farm power.

Reference Books:

1. Ojha T.P. 1966. Principles of Agri. vol.-1 Jain brothers, Publishers, New Delhi.
2. Ojha T.P &Michale A.M. 2016. Principal of Agriculture Engg, Jain Brother.
3. Smith kanis Person. 1962. Farm machinery and equipments: Tata Mc Graw Hill Publishing Co.New Delhi.
4. Jain S.C & Rai C.R. 3rd edition. Tractor Engine- Maintance & Repair, Tata Mc Graw Hill Publishing Co. Ltd.
5. Sahey J. 2016. Elements of Agricultural Engineering, Standard Publishers Distributors.
6. Jain S.C & Er. Philip G. 1st edition. Farm machinery - An Appraoch, Standard Publishers Distributors.

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HORT-211: Production Technology for Vegetables and Spices

Credit: 3(2+1)

Max. Marks: 100 **Time: 3 Hours**
External Theory: 50 **Pass Percentage: 50 %**
Mid semester Exam: 20
Internal Assessment: 25
No. of Lectures: 30
Theory Credit: 2

Internal assessment includes – Class test, Mid-semester, Assignment and Attendance

INSTRUCTIONS FOR PAPER SETTER

Question paper should be set strictly according to the syllabus.

The language of questions should be straight & simple.

The question paper will consist of three sections A, B and C. Section A and B will have 4 questions from the respective sections of the syllabus and each will carry 10 marks.

Section C will consist of 10 short-answer type questions of 1 mark each which will cover the entire syllabus uniformly.

INSTRUCTIONS FOR CANDIDATES

Candidates are required to attempt two questions from each section A and B and the entire section C.

Learning Objective: 1. To teach about the cultivation of vegetables. Also teach about the detailed knowledge of plantation of important spices.

2. To provide the knowledge about kitchen gardening, nutrition value, techniques and weed management.

Theory

Section-A

Importance of vegetables in human nutrition and national economy, kitchen gardening, brief about origin, area, climate, soil, improved varieties and cultivation practices such as Time of sowing, transplanting techniques, planting distance, fertilizer requirements, irrigation, weed management, harvesting and Yield, physiological disorders, of important vegetable and spices:

1. Tomato, Brinjal, Chilli, Capsicum,
2. Cucumber, Melons, Gourds, Pumpkin,
3. French bean, Peas; Cole crops such as Cabbage, Cauliflower, Knol-khol.
4. Termeric, Ginger.

Section-B

Importance of spices in human nutrition and national economy, kitchen gardening, brief about origin, area, climate, soil, improved varieties and cultivation practices such as Time of sowing, transplanting techniques, planting distance, fertilizer requirements, irrigation, weed management, harvesting and yield, physiological disorders, of important vegetable and spices:

5. Bulb crops such as Onion, Garlic;
6. Root crops such as Carrot, Raddish, Beetroot; Tuber crops such as Potato;
7. Leafy vegetables such as Amaranth, Palak. Perennial vegetables.
8. Fennel, Cumin, Fenugreek and coriander.

Practical

Practical: 25 **Pass Marks: 40 %**

Credit: 1 **No. of Lectures: 15**

INSTRUCTIONS FOR THE PRACTICAL

The Final practical paper shall be divided in three parts.

Part-I will contain a write up of 10 marks from the list of practical's pertaining to lab course.

Part-II will contain a practical to be performed in the examination of 10 Marks.

Part-III will contain Practical Notebook Evaluation and Viva Voce which will having 2.5 Marks each.

Topics:

1. Identification of vegetables & spice crops and their seeds.
2. Nursery raising.
3. Direct seed sowing and transplanting.
4. Study of morphological characters of different vegetables & spices.
5. Fertilizers applications.
6. Harvesting & preparation for market.
7. Economics of vegetables and spices cultivation.

Learning Outcomes:

1. Students will learn to grow crops for commercial purpose with minimum input and get maximum output.

2. To give scientific knowledge about the cultivation and processing of vegetables, spices and nutritional value of crops.

Reference Books:

1. Dhaliwal M.S. 2012. Handbook of vegetable crops, Kalyani Publishers.
2. Saini G.S. 1996.Textbook of vegetable production, Aman Publishing House.
3. Chadha K.L. 2001.Handbook of horticulture, ICAR.
4. PAU Ludhiana.2019.Package of Practices of for cultivation of vegetables.

STAT-211: Statistical Methods
Credits: 2(1+1)

Total marks: 100
L T P **External Marks: 50**
1 0 1 **Mid Semester: 15**
Internal Assessment: 20
Practical Marks: 35

Time Allowed: 3 hours
(Credit Hours – 15 L+ 15P)
NOTE: *Pass Percentage: 50 %

Internal assessment includes – Class test, Mid-semester, Assignment and Attendance

INSTRUCTIONS FOR PAPER SETTER

Question paper should be set strictly according to the syllabus. The language of questions should be straight & simple. The question paper will consist of three sections A, B and C. Each Section A and B will have four questions from the respective sections of the syllabus and will carry 10 marks each. Section C will consist of 10 short-answer type questions of 1 mark each which will cover the entire syllabus uniformly.

INSTRUCTIONS FOR CANDIDATES

Candidates are required to attempt two questions from each section A and B and the entire section C.

Learning objectives: 1. The goal of this course to strengthen student's critical thinking and reasoning skills at planning economic research and to enable them to communicate results effectively.
2. The basic aim is provide methods of organizing and simplifying data so that their significance is comprehensible.

Section-A

1. Introduction to Statistics and its Applications in Agriculture, Graphical Representation of Data, Measures of Central Tendency – Arithmetic Mean, Median and Mode.
2. Correlation: Meaning, Karl Pearson's Coefficient of Correlation and Spearsman Rank Correlation. Linear Regression Equations: Meaning, Least Square Method.

Section-B

3. Probability- Addition and Multiplication Theoram (without proof). Introduction to Test of Significance,
4. Simple applications of T-Test and Chi-square Test (with formulas only). Introduction to Sampling Methods and different types of sampling methods.

Practical:

L T P **Practical Marks: 30**
0 0 1
Time Allowed: 3 hours
(Credit Hours – 15P)
NOTE: *Pass Percentage: 50 %

INSTRUCTIONS FOR THE PRACTICAL

The Final practical paper shall be divided in three parts.

Part-I will contain a write up of 10 marks from the list of practical's pertaining to lab course.

Part-II will contain a practical to be performed in the examination of 10 Marks.

Part-III will contain Practical Notebook Evaluation and Viva Voce which will having 5 Marks each.

Topics:

1. Graphical Representation of Data. Measures of Central Tendency (Ungrouped data) with Calculation of Quartiles, Deciles & Percentiles.
2. Measures of Central Tendency (Grouped data) with Calculation of Quartiles, Deciles & Percentiles.
3. Correlation & Regression Analysis.
4. Application of One Sample t-test. Application of Two Sample Fisher's t-test. Chi-Square test of Goodness of Fit.
5. Selection of random sample using Simple Random Sampling..

Learning outcomes: 1. Students will acquaint with some basic concepts in statistics and analysis of data pertaining to attributes and to interpret the results.

2. Making familiar with some elementary statistical methods of analysis of data viz. Measures of Central Tendency and to interpret them.

Reference Books:

1. Gupta S.P. 2012. Statistical Methods, Sultan Chand & Sons.
2. Das N. 2018. Statistical Methods, McGraw Hill HED.
3. Dr S.P Gupta. 2012. Elementary Statistical Methods, Sultan Chand & Sons.
4. Gupta S.C. 2018. Fundamentals of Statistical Methods, Himalaya Publishing House.
5. Singh S.R.J. 2012. Statistical Methods for Agricultural Workers, Oxford Book Company.

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LPM-211: Livestock and Poultry Management

Credit: 4(3+1)

Max. Marks: 100 **Time: 3 Hours**
External Theory: 50 **Pass Percentage: 50 %**
Mid semester Exam: 25
Internal Assessment: 30
No. of Lectures: 30
Theory Credit: 2

Internal assessment includes – Class test, Mid-semester, Assignment and Attendance

INSTRUCTIONS FOR PAPER SETTER

Question paper should be set strictly according to the syllabus.

The language of questions should be straight & simple.

The question paper will consist of three sections A, B and C. Section A and B will have 4 questions from the respective sections of the syllabus and each will carry 10 marks.

Section C will consist of 10 short-answer type questions of 1 mark each which will cover the entire syllabus uniformly.

INSTRUCTIONS FOR CANDIDATES

Candidates are required to attempt two questions from each section A and B and the entire section C.

Learning objectives: 1. To meet the basic and overall knowledge requirement of the students, the extension workers and the progressive farmers on various livestock specifically the farm animals including poultry with respect to physiological and reproductive system.
2. To have expertisation on the housing system, feeding requirements, feeding habits and use of low-cost feed technology for better economic return.
3. To have minimum basic concepts on different disease encountered in the farm animal and poultry and their preventive and control measures.

Theory

Section-A

1. Role of livestock in the national economy. Reproduction in farm animals and poultry.
2. Housing principles, space requirements for different species of livestock and poultry.
3. Management of calves, growing heifers and milch animals.
4. Management of sheep, goat and swine. Incubation, hatching and brooding. Management of growers and layers.

Section-B

5. Important Indian and exotic breeds of cattle, buffalo, sheep, goat, swine and poultry. Improvement of farm animals and poultry.
6. Digestion in livestock and poultry. Classification of feedstuffs. Proximate principles of feed. Nutrients and their functions.
7. Feed ingredients for ration for livestock and poultry. Feed supplements and feed additives. Feeding of livestock and poultry.
8. Introduction of livestock and poultry diseases. Prevention (including vaccination schedule) and control of important diseases of livestock and poultry.

Practical

Practical: 20 **Pass Marks: 50 %**
Credit: 1 **No. of Lectures: 15**

INSTRUCTIONS FOR THE PRACTICAL

The Final practical paper shall be divided in three parts.
Part-I will contain a write up of 8 marks from the list of practical's pertaining to lab course.
Part-II will contain a practical to be performed in the examination of 7 Marks.
Part-III will contain Practical Notebook Evaluation and Viva Voce which will having 2.5 Marks each.

Topics:

1. External body parts of cattle, buffalo, sheep, goat, swine and poultry.
2. Handling and restraining of livestock.
3. Identification methods of farm animals and poultry.
4. Visit to IDF and IPF to study breeds of livestock and poultry and daily routine farm operations and farm records.
5. Judging of cattle, buffalo and poultry.
6. Culling of livestock and poultry.
7. Planning and layout of housing for different types of livestock.
8. Computation of rations for livestock.
9. Formulation of concentrate mixtures.
10. Clean milk production, milking methods.
11. Hatchery operations, incubation and hatching equipments.
12. Management of chicks, growers and layers.
13. De-beaking, dusting and vaccination.
14. Economics of cattle, buffalo, sheep, goat, swine and poultry production.

Learning outcomes: 1. The course knowledge directly reflects on the operation of livestock and poultry farming being taken as a major component of integrated farming system in agriculture.
2. Mini farming unit provides a sustainable source of income to landless farmers and generate employment opportunity in rural areas. The course provides basic knowledge for its operation.

Reference Books:

1. Ghosh N. 2019.Livestock Production Management, PHI Learning Pvt. Ltd.
2. Banerjee G.C. (1999). Text Book of Animal Husbandry, Oxford and IBH Publishers, New Delhi. 9th ed.
3. Singh H. & Moore, E. N. (1968). Livestock and poultry Production.
4. Morning & Williamson G.K pyare. 1978. Management Animal Husbandry in the tropic London &Co. London.
5. W.J.A & G.S. Banerjee. 2019. An Introduction Text Book of Animal Husbandary, Oxford I.B.H. New Delhi.
6. Singh H. 2011. Handbook of animal husbandary, ICAR, New Delhi.
7. Harbans & Moore. 1978. Livestock and Poultry Production, Prentice Hall of India Pvt.Ltd. New Delhi.
8. Juergensens E.M & Mortenson W.P. Approved practices in Dairying, oxford I.B.U. Publishing, New Delhi.

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EXT-211: Human Values and Ethics*
Non-Credit: 1(1+0)*

Max. Marks: 100 **Time: 3 Hours**
External Theory: 50 **Pass Percentage: 50 %**
Mid semester Exam: 40
Internal Assessment: 50
No. of Lectures: 15
Theory Credit: 1

Internal assessment includes – Class test, Mid-semester, Assignment and Attendance

INSTRUCTIONS FOR PAPER SETTER

Question paper should be set strictly according to the syllabus.
The language of questions should be straight & simple.
The question paper will consist of three sections A, B and C. Section A and B will have four questions from the respective sections of the syllabus and will carry 4 marks each.
Section C will consist of 3 short-answer type questions of 1 mark each which will cover the entire syllabus uniformly and will carry 3 marks in all.

INSTRUCTIONS FOR CANDIDATES

Candidates are required to attempt two questions from each section A and B and the entire section C.

Learning objectives: 1. The main objective of this course to teach fundamental values, duties and ethics towards the society.

2. Students will learn about team work, rights, responsibilities, Human relations and family harmony.

Theory

Section-A

1. Concept, definition, significance and sources; Fundamental values: Right conduct, peace, truth, love and non-violence: Ethics: professional and environmental.
2. ICT; Sensitization towards others particularly senior citizens, developmentally challenged and gender.

Section-B

3. Spirituality, positive attitude and scientific temper; Team work and volunteering; Rights and responsibilities; Road safety; Human relations and family harmony;
4. Modern challenges and value conflict: Sensitization against drug abuse and other social evils; developing personal code of conduct (SWOT Analysis); Management of anger and stress.

Learning outcomes: 1. After this course, students will creating a value and ethical based society.
2. Distinguish between values and skills, happiness and accumulation of physical facilities.

Books Recommended:

1. Gogate S.B. 2018.Human Values and Professional Ethics, Vikas Publishing.
2. Tripathi. 2009.Human Values, New Age International.

3. Slote M. 2012.Education and Human Values, Reconciling Talent with an Ethics of Care, Routledge.

B.Sc. (Hons.) Agriculture Part II (Semester IV)
AGRON-222: Crop Production Technology-II (*Rabi Crops*)

Credit: 2(1+1)

Max. Marks: 100 **Time: 3 Hours**
External Theory: 50 **Pass Percentage: 50 %**
Mid semester Exam: 15
Internal Assessment: 20
No. of Lectures: 15
Theory Credit: 1

Internal assessment includes – Class test, Mid-semester, Assignment and Attendance

INSTRUCTIONS FOR PAPER SETTER

Question paper should be set strictly according to the syllabus.

The language of questions should be straight & simple.

The question paper will consist of three sections A, B and C. Section A and B will have four questions from the respective sections of the syllabus and each will carry 10 marks.

Section C will consist of 10 short-answer type questions of 1 mark each which will cover the entire syllabus uniformly and will carry 10 marks in all.

INSTRUCTIONS FOR CANDIDATES

Candidates are required to attempt two questions from each section A and B and the entire section C.

Learning Objectives: 1. To familiarize students with basic principles of agronomic practice of rabi crops.

2. To learn different types of methods of intercultural operations operated during crop cycle.

Theory

Section-A

Origin, geographical distribution, economic importance, soil and climatic requirements, varieties, cultural practices and yield of Rabi crops:

1. **Cereals** –wheat and barley,
2. **Pulses**-chickpea, lentil, peas,
3. **Oilseeds**-rapeseed, mustard and sunflower;

Section-B

Origin, geographical distribution, economic importance, soil and climatic requirements, varieties, cultural practices and yield of Rabi crops:

4. **Sugar crops**-sugarcane;
5. **Medicinal and Aromatic crops**-mentha, lemon grass and citronella,
6. **Forage crops**-berseem, lucerne and oat.

Practical

Practical: 30 **Pass Marks: 40 %**
Credit: 1 **No. of Lectures: 15**

INSTRUCTIONS FOR THE PRACTICAL

The Final practical paper shall be divided in three parts.

Part-I will contain a write up of 10 marks from the list of practical’s pertaining to lab course.

Part-II will contain a practical to be performed in the examination of 10 Marks.

Part-III will contain Practical Notebook Evaluation and Viva Voce which will having 5 Marks each.

Topics:

1. Sowing methods of wheat and sugarcane.
2. Identification of weeds in rabi season crops.
3. Study of morphological characteristics of rabi crops.
4. Study of yield contributing characters of rabi season crops.
5. Yield and juice quality analysis of sugarcane.
6. Study of important agronomic experiments of rabi crops at experimental farms.
7. Study of rabi forage experiments.
8. Oil extraction of medicinal crops.
9. Visit to research stations of related crops.

Learning Outcomes:

1. Students will learn to grow crops for commercial purposes.
2. Students will learn to grow crops with minimum input and get maximum output.

Reference Books:

1. Prasad R. Year.Field Crops Vol.1 & 2 published by ICAR.
2. Pearson. 2010. Handbook of agriculture ICAR, 6th revised edition, New Delhi.
3. Fugh B.M. 2006. Production of field crops in India, Kitabistan, Allahabad.
4. Harlison C.M. 2010. Field Crops, Mc Graw Hill Book Co., New Delhi.
5. P.A.U Bulletin: 2019 Package of Practices for Rabi crops.
6. P.A.U Bulletin: 2019 Package of Practices for Kharif crops.
7. Chhidda Singh & Prem Singh. 2009. Modern Techniques of raising field crops, Oxford & IBH Publishing.
8. S.R Reddy. 2016. Agronomy of field crops, Kalyani Publisher.

HORT-222: Production Technology for Ornamental Crops, MAPs and Landscaping

Credit: 3(2+1)

Max. Marks: 100	**Time: 3 Hours**
External Theory: 50	**Pass Percentage: 50 %**
Mid semester Exam: 20	
Internal Assessment: 25	
No. of Lectures: 30	
Theory Credit: 2	

Internal assessment includes – Class test, Mid-semester, Assignment and Attendance

INSTRUCTIONS FOR PAPER SETTER

Question paper should be set strictly according to the syllabus.

The language of questions should be straight & simple.

The question paper will consist of three sections A, B and C. Section A and B will have four questions from the respective sections of the syllabus and each will carry 10 marks.

Section C will consist of 10 short-answer type questions of 1 mark each which will cover the entire syllabus uniformly and will carry 10 marks in all.

INSTRUCTIONS FOR CANDIDATES

Candidates are required to attempt two questions from each section A and B and the entire section C.

Learning Objective: To teach about the production technology of ornamental crops and medicinal crops. Also teach about the detailed knowledge of landscape gardening.

Theory

Section-A

Importance and scope of ornamental crops, medicinal and aromatic plants and landscaping. Principles of landscaping. Landscape uses of trees, shrubs and climbers.

1. Production technology of important cut flowers like rose, gerbera, carnation, lilium and orchids under protected conditions and gladiolus, tuberose, chrysanthemum under open conditions.
2. Package of practices for loose flowers like marigold and jasmine under open conditions.

Section-B

Production technology of important medicinal plants like

3. Ashwagandha, asparagus, aloe, costus, Cinnamomum, periwinkle, isabgol and
4. Aromatic plants like mint, lemongrass, citronella, palmarosa, ocimum, rose, geranium, vetiver.
5. Processing and value addition in ornamental crops and MAPs produce.

Practical

Practical: 25	**Pass Marks: 50 %**
Credit: 1	**No. of Lectures: 15**

INSTRUCTIONS FOR THE PRACTICAL

The Final practical paper shall be divided in three parts.
Part-I will contain a write up of 10 marks from the list of practical's pertaining to lab course.
Part-II will contain a practical to be performed in the examination of 10 Marks.
Part-III will contain Practical Notebook Evaluation and Viva Voce which will having 2.5 Marks each.

Topics:

1. Identification of Ornamental plants.
2. Identification of Medicinal and Aromatic Plants.
3. Nursery bed preparation and seed sowing.
4. Training and pruning of Ornamental plants.
5. Planning and layout of garden.
6. Bed preparation and planting of MAP.
7. Protected structures – care and maintenance.
8. Intercultural operations in flowers and MAP.
9. Harvesting and post harvest handling of cut and loose flowers.
10. Processing of MAP.
11. Visit to commercial flower/MAP unit.

Learning Outcomes:

1. To know about the uses of ornamental and medicinal trees, shrubs and climbers.
2. To give scientific knowledge about the cultivation and processing of ornamental, aromatic and medicinal crops.
3. To know about the landscaping and its features.

Reference Books:

1. Singh A K & Sisodia A. 2017.Textbook of Floriculture & Landscaping, New India Publishing Agency.
2. Dr. Balaji S. Kulkarni. 2016. Floriculture & landscaping, Agro India Publishcation.
3. Jack E. Ingels. 2009. Landscaping: Principles & Practices, Delmen Cengag Learning.

HORT-223: Production Technology for Fruit and Plantation Crops

Credit: 2(1+1)

Max. Marks: 100 **Time: 3 Hours**
External Theory: 50 **Pass Percentage: 50 %**
Mid semester Exam: 15
Internal Assessment: 20
No. of Lectures: 15
Theory Credit: 1

Internal assessment includes – Class test, Mid-semester, Assignment and Attendance

INSTRUCTIONS FOR PAPER SETTER

Question paper should be set strictly according to the syllabus.

The language of questions should be straight & simple.

The question paper will consist of three sections A, B and C. Section A and B will have four questions from the respective sections of the syllabus and each will carry 10 marks.

Section C will consist of 10 short-answer type questions of 1 mark each which will cover the entire syllabus uniformly and will carry 10 marks in all.

INSTRUCTIONS FOR CANDIDATES

Candidates are required to attempt two questions from each section A and B and the entire section C.

Learning Objective: 1. To teach about the production technology of fruit crops. Also teach about the detailed knowledge of plantation.

2. To provide the knowledge about fruits related pests, harvesting and handling.

Theory

Section-A

Importance and scope of fruit and plantation crop industry in India; Importance of rootstocks; Production technologies for the cultivation of Major fruits –

1. Mango, banana, citrus, grape, guava, litchi, papaya, sapota,
2. Apple, pear, peach, walnut, almond.

Section-B

Importance and scope of fruit and plantation crop industry in India; Importance of rootstocks; Production technologies for the cultivation of minor fruits-

3. Date, ber, pineapple, pomegranate, jackfruit, strawberry;
4. Plantation crops-coconut, arecanut, cashew, tea, coffee & rubber.

Practical

Practical: 30 **Pass Marks: 50 %**
Credit: 1 **No. of Lectures: 15**

INSTRUCTIONS FOR THE PRACTICAL

The Final practical paper shall be divided in three parts.

Part-I will contain a write up of 10 marks from the list of practical’s pertaining to lab course.

Part-II will contain a practical to be performed in the examination of 10 Marks.

Part-III will contain Practical Notebook Evaluation and Viva Voce which will having 5 Marks each.

Topics:

1. Seed propagation.
2. Scarification and stratification of seeds.
3. Propagation methods for fruit and plantation crops.
4. Description and identification of fruit.
5. Preparation of plant bio regulators and their uses.
6. Important pests, diseases and physiological disorders of above fruit and plantation crops.
7. Visit to commercial orchards.

Learning Outcomes:

1. To know about the uses of fruit trees.

2. To give scientific knowledge about the plantation, cultivation and processing of fruits.

Reference Books:

1. Bal J.S, 2014: Fruit growing, Kalyani Publishers.
2. Chadha K.L, 2012: Handbook of Horticulture, Oxford Book Company.
3. Chatopadhie T.K, 2014: A textbook of pomology, Kalyani Publishers.
Singh Ranjit, 1992: A Textbook of fruits, National Book Trust.

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AE-222: Renewable Energy and Green Technology

Credit: 2(1+1)

Max. Marks: 100 **Time: 3 Hours**
External Theory: 50 **Pass Percentage: 50 %**
Mid semester Exam: 15
Internal Assessment: 20
No. of Lectures: 15
Theory Credit: 1

***Internal assessment includes – Class test, Mid-semester, Assignment and Attendance**

INSTRUCTIONS FOR PAPER SETTER

Question paper should be set strictly according to the syllabus.
The language of questions should be straight & simple.
The question paper will consist of three sections A, B and C. Section A and B will have four questions from the respective sections of the syllabus and each will carry 10 marks.
Section C will consist of 10 short-answer type questions of 1 mark each which will cover the entire syllabus uniformly and will carry 10 marks in all.

INSTRUCTIONS FOR CANDIDATES

Candidates are required to attempt two questions from each section A and B and the entire section C.

Learning objectives: 1. The aim of this course, provide the knowledge of energy sources, role of renewable energy, technology and new appliances related to green energy in the agriculture.
2. To study the importance of renewable energy, its source, how they are important and utilization of sources

Theory

Section-A

1. Classification of energy sources, contribution of these of sources in agricultural sector,
2. Familiarization with biomass utilization for biofuel production and their application,
3. Familiarization with types of bio-gas plants and gasifiers, bio-gas, bio-alcohol, bio-diesel and bio-oil production and their utilization as bioenergy resource.

Section-B

4. Introduction of solar energy, collection and their application,
5. Familiarization with solar energy gadgets: solar cooker, solar water heater, application of solar energy: solar drying, solar pond, solar distillation, solar photovoltaic system and their application,
6. Introduction of wind energy and their application.

Practical

Practical: 30 **Pass Marks: 40 %**
Credit: 1 **No. of Lectures: 15**

INSTRUCTIONS FOR THE PRACTICAL

The Final practical paper shall be divided in three parts.

Part-I will contain a write up of 10 marks from the list of practical's pertaining to lab course.
Part-II will contain a practical to be performed in the examination of 10 Marks.
Part-III will contain Practical Notebook Evaluation and Viva Voce which will having 5 Marks each.

Topics:

1. Familiarization with renewable energy gadgets.
2. To study biogas plants and gasifiers.
3. To study the production process of biodiesel,
4. To study briquetting machine,
5. To study the production process of bio-fuels.
6. Familiarization with different solar energy gadgets.
7. To study solar photovoltaic system: solar light, solar pumping and solar fencing.
8. To study solar cooker and solar drying system.
9. To study solar distillation and solar pond.

Learning outcomes: 1. Students will understand the importance of renewable energy resources and its utilization.

2. the course should enable the students acquire the knowledge of biogas, its application, fuel cell, solar, wind and various components used in energy production.

BOOKS RECOMMENDED:

1. Bent Sorensen, 2018. Renewable Energy conversion, Transmission and storage. Academic Press by Elsevier.
2. Bent Sorenson, 2017. Renewable Energy (its physics, engineering, impact and planning) 3rd edition. Roskilde University, Academic Press by Elsevier.
3. Kumar S, 2017. Renewable Energy, Kalyani publisher.
4. Rao S & Dr. B.B Parulekar.1994. Energy Technology (Non-convensional, Convensional and Renewable), Khanna.
5. Rai G.D. 1988. Non-conventional Energy sources, Khanna.

SOILS-221: Problematic Soils and their Management

Credit: 2(2+0)

Max. Marks: 100 **Time: 3 Hours**
External Theory: 50 **Pass Percentage: 50 %**
Mid semester Exam: 40
Internal Assessment: 50
No. of Lectures: 30
Theory Credit: 2

INSTRUCTIONS FOR PAPER SETTER

Question paper should be set strictly according to the syllabus.

The language of questions should be straight & simple.

The question paper will consist of three sections A, B and C. Section A and B will have four questions from the respective sections of the syllabus and each will carry 10 marks.

Section C will consist of 10 short-answer type questions of 1 mark each which will cover the entire syllabus uniformly and will carry 10 marks in all.

INSTRUCTIONS FOR CANDIDATES

Candidates are required to attempt two questions from each section A and B and the entire section C.

Learning objective- 1. To impart knowledge of soil quality and health.

2. To impart knowledge of acids saline and sodic soils, their reclamation and management

Theory

Section-A

1. Soil quality and health, Distribution of Waste land and problem soils in India. Their categorization based on properties.
2. Reclamation and management of Saline and sodic soils, Acid soils, Acid Sulphate soils, Eroded and Compacted soils, Flooded soils, Polluted soils.

Section-B

3. Irrigation water – quality and standards, utilization of saline water in agriculture. Remote sensing and GIS in diagnosis and management of problem soils.
4. Multipurpose tree species, bio remediation through MPTs of soils, land capability and classification, land suitability classification. Problematic soils under different Agro-ecosystems.

Leaning Outcomes: 1. to know about the knowledge of soil quality, soil health, characteristics of soil health, to give scientific knowledge of acidic, saline & sodic soil and their management.

Books Recommended:

1. Nyle C. Brady, Raj R. Weil. 2013.The Nature & Properties of Soils, Pearson Education India.
2. Mahendron P.P.2008.Soil Resource Inventory &Management of Problematic Soils, Agrotech Publishing Academy.
3. Das D.K. 2015. Introductory Soil Science, Kalyani Publishers.

ENT-221: Pests of Crops and Stored Grains and their Management

Credit: 3(2+1)

Max. Marks: 100 **Time: 3 Hours**
External Theory: 50 **Pass Percentage: 50 %**
Mid semester Exam: 20
Internal Assessment: 25
No. of Lectures: 30
Theory Credit: 2

Internal assessment includes – Class test, Mid-semester, Assignment and Attendance

INSTRUCTIONS FOR PAPER SETTER

Question paper should be set strictly according to the syllabus.

The language of questions should be straight & simple.

The question paper will consist of three sections A, B and C. Section A and B will have four questions from the respective sections of the syllabus and each will carry 10 marks.

Section C will consist of 10 short-answer type questions of 1 mark each which will cover the entire syllabus uniformly and will carry 10 marks in all.

INSTRUCTIONS FOR CANDIDATES

Candidates are required to attempt two questions from each section A and B and the entire section C.

Learning Objectives: 1. To acquaint the students about the pest infestation and type of damage caused by invertebrate and vertebrate pests such as insect, mites, slugs, rodents, birds and their management.

2. The pest's infestation in stored grains and their produce and their management

Theory

Section-A

1. General account on nature and type of damage by different arthropods pests.
2. Scientific name, order, family, host range, distribution, biology and bionomics,
3. Nature of damage, and management of major pests of various field crop, vegetable crop, fruit crop, plantation crops, ornamental crops, spices and condiments.

Section-B

4. Factors affecting losses of stored grain and role of physical, biological, mechanical and chemical factors in deterioration of grain.
5. Insect pests, mites, rodents, birds and microorganisms associated with stored grain and their management.
6. Storage structure and methods of grain storage and fundamental principles of grain store management.

Practical

Practical: 25 **Pass Marks: 50 %**
Credit: 1 **No. of Lectures: 15**

INSTRUCTIONS FOR THE PRACTICAL

The Final practical paper shall be divided in three parts.

Part-I will contain a write up of 10 marks from the list of practical's pertaining to lab course.

Part-II will contain a practical to be performed in the examination of 10 Marks.
Part-III will contain Practical Notebook Evaluation and Viva Voce which will having 2.5 Marks each.

Topics:

1. Identification of different types of damage.
2. Identification and study of life cycle and seasonal history of various insect pests attacking crops and their produce: (a) Field Crops; (b) Vegetable Crops; (c) Fruit Crops; (d) Plantation, gardens, Narcotics, spices & condiments.
3. Identification of insect pests and Mites associated with stored grain.
4. Determination of insect infestation by different methods.
5. Assessment of losses due to insects.
6. Calculations on the doses of insecticides application technique.
7. Fumigation of grain store / godown.
8. Identification of rodents and rodent control operations in godowns.
9. Identification of birds and bird control operations in godowns.
10. Determination of moisture content of grain.
11. Methods of grain sampling under storage condition.
12. Visit to Indian Storage Management and Research Institute, Hapur and Quality Laboratory, Department of Food., Delhi.
13. Visit to nearest FCI godowns.

Learning Outcomes: 1. Students will gain knowledge about the types of damage caused by different types of pests infesting different agricultural crops and how to manage them by the use of different management available options.
2. They will also learn different types of storage structures, pest infesting stored grains and their management.

Reference Books:

1. Mani, M.S. 2009. General Entomology, Oxford & IBH, New Delhi.
2. Ross H.H. 2004.A text book of entomology, John Willen & Sons.
3. Imms. A.D. 2011.Outlines of entomology, Springer.
4. Atwal A.S. 2015. Insect pests of South East Asia, Kalyani Publishers, New Delhi.
5. Narayan K.K. 2011. General & applied entomology, Tata McGraw Hill Education, New Delhi.
6. Pruthi. H.S. 2010. A textbook of entomology Destructive and useful Insect, McGraw Hill.

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PBG-222: Principles of Seed Technology

Credit: 4(2+2)

Max. Marks: 100 **Time: 3 Hours**
External Theory: 50 **Pass Percentage: 50 %**
Mid semester Exam: 10
Internal Assessment: 10
No. of Lectures: 30
Theory Credit: 2

INSTRUCTIONS FOR PAPER SETTER

Question paper should be set strictly according to the syllabus.

The language of questions should be straight & simple.

The question paper will consist of three sections A, B and C. Section A and B will have four questions from the respective sections of the syllabus and each will carry 10 marks.

Section C will consist of 10 short-answer type questions of 1 mark each which will cover the entire syllabus uniformly and will carry 10 marks in all.

INSTRUCTIONS FOR CANDIDATES

Candidates are required to attempt two questions from each section A and B and the entire section C.

Learning Objectives: 1. To strengthen undergraduate student in the field of seed science & technology.
2. To impart training for entrepreneurship programme.
3. To initiate basic research related to genetic purity, seed health and seed storage.

Theory

Section-A

1. **Seed and seed technology**: introduction, definition and importance. Deterioration causes of crop varieties and their control; Maintenance of genetic purity during seed production, seed quality;
2. Definition, Characters of good quality seed, different classes of seed. Foundation and certified seed production of important cereals, pulses, oilseeds, fodder and vegetables. Seed certification, phases of certification, procedure for seed certification, field inspection.
3. Seed Act and Seed Act enforcement. Duty and powers of seed inspector, offences and penalties. Seeds Control Order 1983, Varietal Identification through Grow Out Test and Electrophoresis, Molecular and Biochemical test.
4. Detection of genetically modified crops, Transgene contamination in non-GM crops, GM crops and organic seed production.

Section-B

5. Seed drying, processing and their steps, seed testing for quality assessment, seed treatment, its importance, method of application and seed packing.
6. **Seed storage**; general principles, stages and factors affecting seed longevity during storage. Measures for pest and disease control during storage.
7. **Seed marketing**: structure and organization, sales generation activities, promotional media.

8. Factors affecting seed marketing, Role of WTO and OECD in seed marketing. Private and public sectors and their production and marketing strategies.

Practical

Practical: 40 **Pass Marks: 50 %**

Credit: 2 **No. of Lectures: 30**

INSTRUCTIONS FOR THE PRACTICAL

The Final practical paper shall be divided in three parts.
Part-I will contain a write up of 10 marks from the list of practical's pertaining to lab course.
Part-II will contain a practical to be performed in the examination of 10 Marks.
Part-III will contain Practical Notebook Evaluation and Viva Voce which will having 5 Marks each.

Topics:

1. Seed production in major cereals: Wheat, Rice, Maize, Sorghum, Bajra and Ragi.
2. Seed production in major pulses: Urd, Mung, Pigeonpea, Lentil, Gram, Field bean, pea.
3. Seed production in major oilseeds: Soybean, Sunflower, Rapeseed, Groundnut and Mustard.
4. Seed production in important vegetable crops.
5. Seed sampling and testing: Physical purity, germination, viability, etc.
6. Seed and seedling vigour test. Genetic purity test: Grow out test and electrophoresis.
7. Seed certification: Procedure, Field inspection, Preparation of field and inspection report.
8. Visit to seed production farms, seed testing laboratories and seed processing plant.

Learning outcomes: 1**.** Core competency in the subject & comparative evidence on development of seed.
2. High analytical ability in understanding the application of scientific principles and students will acquire skills & handling operations of different equipment's in seed science laboratory.

Reference Books:

1. Agarwal RL. 1997. Seed Technology, Oxford & IBH.
2. Desai BB, Katecha PM & Salunkhe DK. 1997. Seed Handbook: Biology, Production, Processing and storage.
3. Marcel Dekker. Kelly A. 2013. Seed Production of agricultural Crops, Scientific Publisher India.
4. Longman. Mcdonald MB jr. & Copeland LO. 2001. Seed Production: Principles & Practices, Springer Boston MA.
5. Chapman & Hall. Thompson JR. 1979. An Introduction to seed technology, Leonard hill.

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AGRON-223: Farming System and Sustainable Agriculture

Credit: 1(1+0)

Max. Marks: 100 **Time: 3 Hours**
External Theory: 50 **Pass Percentage: 50 %**
Internal Assessment: 50
No. of Lectures: 30
Theory Credit: 1

Internal assessment includes – Class test, Mid-semester, Assignment and Attendance

INSTRUCTIONS FOR PAPER SETTER

Question paper should be set strictly according to the syllabus.
The language of questions should be straight & simple.
The question paper will consist of three sections A, B and C. Section A and B will have four questions from the respective sections of the syllabus and each will carry 10 marks.
Section C will consist of 10 short-answer type questions of 1 mark each which will cover the entire syllabus uniformly and will carry 10 marks in all.

INSTRUCTIONS FOR CANDIDATES

Candidates are required to attempt two questions from each section A and B and the entire section C.

Learning objectives: 1. To acquaint the students with conventional and alternative agricultural production practices and their effect on long-term sustainability and environmental quality.
2. To show how agriculture are attempting to minimize agricultural pollution and sustain food production adequate for the increasing population.

Theory

Section-A

1. Farming System-scope, importance, and concept, Types and systems of farming system and factors affecting types of farming, Farming system components and their maintenance,
2. Cropping system and pattern, multiple cropping system, Efficient cropping system and their evaluation, Allied enterprises and their importance,
3. Tools for determining production and efficiencies in cropping and farming system.

Section-B

4. Sustainable agriculture-problems and its impact on agriculture, indicators of sustainability, adaptation and mitigation, conservation agriculture strategies in agriculture, HEIA, LEIA and LEISA and its techniques for sustainability,
5. Integrated farming system-historical background, objectives and characteristics, components of IFS and its advantages,
6. Site specific development of IFS model for different agro-climatic zones, resource use efficiency and optimization techniques, Resource cycling and flow of energy in different farming system, farming system and environment,
7. Visit of IFS model in different agro-climatic zones of nearby states University/ institutes and farmers field.

Learning outcomes: 1. The student will have studied and analyzed sustainable **crop** production intensification will offer a range of productivity, socio-economic and environmental benefits to producers and to society.

2. The student will be able to explain in general the relationships among culture, economics, politics, science, and agricultural development.

Reference Books:

1. Subash Chand, Lal Singh & Paramjeet singh. 2012**.** Sustainable Agriculture Food Security & Climate change, Daya Publisher.
2. David norman & Malcolm Douglas. 2007**.** Farming System development and soil conservation, Daya Publishing House.
3. Singh R.P. 2011.Sustainable development of dryland agriculture in India, scientific Publishers.
4. S.C Ponda. 2006. Cropping & Farming System, Agrobios India.
5. Pirv Jacqht & R.K. Pachauri. 2012. towards Agricultural Change, The Energy and Resources Institutes.

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ECON-222: Agricultural Marketing, Trade and Prices

Credit: 3(2+1)

Max. Marks: 100 **Time: 3 Hours**
External Theory: 50 **Pass Percentage: 50 %**
Mid semester Exam: 20
Internal Assessment: 25
No. of Lectures: 30
Theory Credit: 2

Internal assessment includes – Class test, Mid-semester, Assignment and Attendance

INSTRUCTIONS FOR PAPER SETTER

Question paper should be set strictly according to the syllabus.

The language of questions should be straight & simple.

The question paper will consist of three sections A, B and C. Section A and B will have 4 questions from the respective sections of the syllabus and each will carry 10 marks.

Section C will consist of 10 short-answer type questions of 1 mark each which will cover the entire syllabus uniformly and will carry 10 marks in all.

INSTRUCTIONS FOR CANDIDATES

Candidates are required to attempt two questions from each section A and B and the entire section C.

Learning objectives: 1. Students acquaint about analyse the business environment in order to identify business opportunities.

2. Consider the legal and financial conditions for starting a business venture and different entrepreneurial strategies.

Section-A

1. **Agricultural Marketing:** Concepts and definitions of market, marketing, agricultural marketing, market structure, marketing mix and market segmentation, classification and characteristics of agricultural markets;
2. Demand, supply and producer’s surplus of agri-commodities: nature and determinants of demand and supply of farm products, producer’s surplus – meaning and its types, marketable and marketed surplus, factors affecting marketable surplus of agri-commodities;
3. **Product life cycle (PLC) and competitive strategies**: Meaning and stages in PLC; characteristics of PLC; strategies in different stages of PLC; Market promotion – advertising, personal selling, sales promotion and publicity – their meaning and merits & demerits;
4. **Marketing process and functions:** Marketing process-concentration, dispersion and equalization; exchange functions – buying and selling; physical functions – storage, transport and processing; facilitating functions – packaging, branding, grading, quality control and labelling (Agmark); Market functionaries and marketing channels: Types and importance of agencies involved in agricultural marketing; Meaning and Definition of marketing channel.

Section-B

5. **Integration, efficiency, costs and price spread**: Meaning, definition and types of market integration; marketing efficiency; marketing costs, margins and price spread;
6. Factors affecting cost of marketing; reasons for higher marketing costs of farm commodities; ways of reducing marketing costs; Role of Govt. in agricultural marketing: Public sector institutions- CWC, SWC, FCI, CACP & DMI – their objectives and functions; cooperative marketing in India;
7. **Risk in marketing**: Types of risk in marketing; speculation & hedging; Agricultural prices and policy: Meaning and functions of price; administered prices; need for agricultural price policy;
8. **Trade**: Concept of International Trade and its need, Difference Between GATT and WTO; Agreement on Agriculture (AOA) and its implications on Indian agriculture; IPR: concept and Meaning

Learning outcomes: 1. Students will learn about efficient marketing system ensures higher levels of income for the farmers and the malpractices adopted by them in the marketing of farm products.
2. The marketing system is essential for the success of the development programmes which are designed to uplift the population.
3. Students can setup an efficient marketing system helps the farmers in planning their production in accordance with the needs of the economy.

Practical

Practical: 25 **Pass Marks: 50 %**
Credit: 1 **No. of Lectures: 15**

INSTRUCTIONS FOR THE PRACTICAL

The Final practical paper shall be divided in three parts.
Part-I will contain a write up of 10 marks from the list of practical's pertaining to lab course.
Part-II will contain a practical to be performed in the examination of 10 Marks.
Part-III will contain Practical Notebook Evaluation and Viva Voce which will having 2.5 Marks each.

Topics:

1. Plotting and study of demand and supply curves and calculation of elasticities;
2. Study of relationship between market arrivals and prices of some selected commodities;
3. Computation of marketable and marketed surplus of important commodities;
4. Study of price behaviour over time for some selected commodities; Construction of index numbers;
5. Visit to a local market to study various marketing functions performed by different agencies, identification of marketing channels for selected commodity,
6. Collection of data regarding marketing costs, margins and price spread and presentation of report in the class;
7. Visit to market institutions – NAFED, SWC, CWC, cooperative marketing society, etc. To study their organization and functioning.

Reference Books:

1. Agricultural Economics: Principles & Policy, Ritson Christopher.

2. Agricultural Economics & Agribusiness: Gail L. Cramer, Jensen C.W & Southgate D. Douglas.
3. Agricultural Economics & Rural Development: B.P Tyagi, Jai Prakash Nath& Company, Meerut.

Elective courses (Choose any one)

ABM-221: Agri-business Management

Credit: 3(2+1)

Max. Marks: 100 **Time: 3 Hours**
External Theory: 50 **Pass Percentage: 50 %**
Mid semester Exam: 20
Internal Assessment: 25
No. of Lectures: 30
Theory Credit: 2

INSTRUCTIONS FOR PAPER SETTER

Question paper should be set strictly according to the syllabus.

The language of questions should be straight & simple.

The question paper will consist of three sections A, B and C. Section A and B will have four questions from the respective sections of the syllabus and each will carry 10 marks.

Section C will consist of 10 short-answer type questions of 1 mark each which will cover the entire syllabus uniformly and will carry 10 marks in all.

INSTRUCTIONS FOR CANDIDATES

Candidates are required to attempt two questions from each section A and B and the entire section C.

Learning objectives: 1. The students will learn about agriculture related market, agro-based industries and components of business.

Theory

Section-A

1. Transformation of agriculture into agribusiness, various stakeholders and components of agribusiness systems. Importance of agribusiness in the Indian economy and New Agricultural Policy.
2. Distinctive features of Agribusiness Management: Importance and needs of agro-based industries,
3. Classification of industries and types of agro-based industries. Institutional arrangement, procedures to set up agro based industries.
4. Constraints in establishing agro-based industries. Agri-value chain: Understanding primary and support activities and their linkages. Business environment: PEST & SWOT analysis.

Section-B

5. Management functions: Roles & activities, Organization culture. Planning, meaning, definition, types of plans. Purpose or mission, goals or objectives, Strategies, polices procedures, rules, programs and budget.
6. Components of a business plan, Steps in planning and implementation. Organization staffing, directing and motivation. Ordering, leading, supervision, communications, control.

7. Capital Management and Financial management of Agribusiness. Financial statements and their importance. Marketing Management: Segmentation, targeting & positioning. Marketing mix and marketing strategies.
8. Consumer behaviour analysis, Product Life Cycle (PLC). Sales & Distribution Management. Pricing policy, various pricing methods. Project Management definition, project cycle, identification, formulation, appraisal, implementation, monitoring and evaluation. Project Appraisal and evaluation techniques.

Practical

Practical: 25	**Pass Marks: 50 %**
Credit: 1	**No. of Lectures: 15**

INSTRUCTIONS FOR THE PRACTICAL

The Final practical paper shall be divided in three parts.
Part-I will contain a write up of 10 marks from the list of practical's pertaining to lab course.
Part-II will contain a practical to be performed in the examination of 10 Marks.
Part-III will contain Practical Notebook Evaluation and Viva Voce which will having 2.5 Marks each.

Topics:

1. Study of agri-input markets: Seed, fertilizers, pesticides.
2. Study of output markets: grains, fruits, vegetables, flowers.
3. Study of product markets, retails trade commodity trading, and value added products.
4. Study of financing institutions- Cooperative, Commercial banks, RRBs, Agribusiness Finance Limited, NABARD.
5. Preparations of projects and Feasibility reports for agribusiness entrepreneur.
6. Appraisal/evaluation techniques of identifying viable project- Non-discounting techniques.
7. Case study of agro-based industries.
8. Trend and growth rate of prices of agricultural commodities.
9. Net present worth technique for selection of viable project.
10. Internal rate of return.

Learning outcome: 1. Study about agri-input markets, agri-business finance, NABARD, Preparations of projects and Feasibility reports for agribusiness entrepreneur.

Reference Books:

1. John B Penson, C. Parr Rosson & Richard T.Woodward. 2019. Introduction to Agricultural Economics, Pearson Education.
2. Dr. C.B Singh & Dr. P.K Singh. 2011. Agricultural Economics, Lakshmi Publisher.

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AGRON-224: Weed Management

Credit: 3(2+1)

Max. Marks: 100	**Time: 3 Hours**
External Theory: 50	**Pass Percentage: 50 %**
Mid semester Exam: 20	**External Theory: 25**
Internal Assessment: 25	**Mid semester Exam: 10**
No. of Lectures: 30	
Theory Credit: 2	

INSTRUCTIONS FOR PAPER SETTER

Question paper should be set strictly according to the syllabus.

The language of questions should be straight & simple.

The question paper will consist of three sections A, B and C. Section A and B will have four questions from the respective sections of the syllabus and each will carry 10 marks.

Section C will consist of 10 short-answer type questions of 1 mark each which will cover the entire syllabus uniformly and will carry 10 marks in all.

INSTRUCTIONS FOR CANDIDATES

Candidates are required to attempt two questions from each section A and B and the entire section C.

Learning objective – 1. To work out effective and economic weed management Modules for field, horticultural crops and in different aquatic situation

2. To study biology and control of problem weeds including aquatic and parasitic weeds

3. Test the available tools/implement of weed management under various agro-ecosystem.

Theory

Section-A

1. Introduction to weeds, characteristics of weeds their harmful and beneficial effect son ecosystem. Classification, reproduction and dissemination of weeds.
2. Herbicide classification, concept of adjuvant, surfactant, herbicide formulation and their use. Introduction to mode of action of herbicides and selectivity.

Section-B

3. Allelopathy and its application for weed management. Bio-herbicides and their application in agriculture. Concept of herbicide mixture and utility in agriculture.
4. Herbicide compatibility with agro-chemicals and their application. Integration of herbicides with non-chemical methods of weed management. Herbicide Resistance and its management.

Practical

Practical: 25	**Pass Marks: 50 %**
Credit: 1	**No. of Lectures: 15**

INSTRUCTIONS FOR THE PRACTICAL

The Final practical paper shall be divided in three parts.

Part-I will contain a write up of 10 marks from the list of practical’s pertaining to lab course.

Part-II will contain a practical to be performed in the examination of 10 Marks.

Part-III will contain Practical Notebook Evaluation and Viva Voce which will having 2.5 Marks each.

Topics:

1. Techniques of weed preservation.

2. Weed identification and their losses study.
3. Biology of important weeds.
4. Study of herbicide formulations and mixture of herbicide.
5. Herbicide and agro- chemicals study.
6. Shift of weed flora study in long term experiments.
7. Study of methods of herbicide application, spraying equipments.
8. Calculations of herbicide doses and weed control efficiency and weed index.

Learning Outcomes: 1. To know about the different kinds of weed and their management.
2. To give knowledge about different kinds of herbicides & bio-herbicide their use.

Reference Books:

1. Gupta O.P. 2011. Weed management principle and practices, Agrobios (India).
2. Walia U.S. 2014. Weed management, Kalyani Publishers.
3. Sudhir Pradhan. 2018. Weed management modern approch, Biotech Books.

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FST-221: Food Safety and Standards

Credit: 3(2+1)

Max. Marks: 100	**Time: 3 Hours**
External Theory: 50	**Pass Percentage: 50 %**
Mid semester Exam: 20	**External Theory: 25**
Internal Assessment: 25	**Mid semester Exam: 10**
No. of Lectures: 30	
Theory Credit: 2	

INSTRUCTIONS FOR PAPER SETTER

Question paper should be set strictly according to the syllabus.
The language of questions should be straight & simple.
The question paper will consist of three sections A, B and C. Section A and B will have four questions from the respective sections of the syllabus and each will carry 10 marks.
Section C will consist of 10 short-answer type questions of 1 mark each which will cover the entire syllabus uniformly and will carry 10 marks in all.

INSTRUCTIONS FOR CANDIDATES

Candidates are required to attempt two questions from each section A and B and the entire section C.

Learning Objectives: 1. The students will learn about food safety, standards and laws in development and utilization of food.
2. Students will learn different categories of food hazards, hygiene and other measurements for various food products.

Theory

Section-A

1. Food Safety – Definition, Importance, Scope and Factors affecting Food Safety. Hazards and Risks, Types of hazards - Biological, Chemical, Physical hazards.
2. Management of hazards - Need. Control of parameters. Temperature control. Food storage. Product design. Hygiene and Sanitation in Food Service Establishments- Introduction.
3. Sources of contamination and their control. Waste Disposal. Pest and Rodent Control. Personnel Hygiene. Food Safety Measures. Food Safety Management Tools- Basic concepts. PRPs, GHPs, GMPs, SSOPs etc. HACCP. ISO series.
4. TQM-concept and need for quality, components of TQM, Kaizen. Risk Analysis. Accreditation and Auditing, Water Analysis, Surface Sanitation and Personal Hygiene.

Section-B

5. Food laws and Standards- Indian Food Regulatory Regime, FSSA. Global Scenario CAC. Other laws and standards related to food.
6. Recent concerns- New and Emerging Pathogens. Packaging, Product labeling and Nutritional labeling.
7. Genetically modified foods\ transgenics. Organic foods. Newer approaches to food safety. Recent Outbreaks. Indian and International Standards for food products.

Practical

Practical: 25	**Pass Marks: 50 %**

Credit: 1 **No. of Lectures: 15**

INSTRUCTIONS FOR THE PRACTICAL

The Final practical paper shall be divided in three parts.

Part-I will contain a write up of 10 marks from the list of practical's pertaining to lab course.

Part-II will contain a practical to be performed in the examination of 10 Marks.

Part-III will contain Practical Notebook Evaluation and Viva Voce which will having 2.5 Marks each.

Topics:

1. Water quality analysis physico-chemical and microbiological.
2. Preparation of different types of media.
3. Microbiological Examination of different food samples.
4. Assessment of surface sanitation by swab/rinse method.
5. Assessment of personal hygiene.
6. Biochemical tests for identification of bacteria.
7. Scheme for the detection of food borne pathogens.
8. Preparation of plans for Implementation of FSMS - HACCP, ISO: 22000.

Learning outcomes: 1. To study about the food safety, quality and various required factors on food.

2. Discuss the important pathogen and spoilage microorganism in foods.

3. Students will learn the basic principles and practices of cleaning and sanitation in food preparation operation.

Reference Books:

1. Vidhi Jain & Jain AK. 2015. Food Safety & Standards Act, Rules & Regulations, Akalank Publications.

2. Lawmann's. 2017. Food Safety & Standards Act 2006, Kamal Publishers.

OUTLINES OF TESTS, SYLLABI AND COURSES

FOR

B. Voc. Food Processing Part II

(Semester III & IV) for

2020-21, 2021-22 & 2022-23 Sessions

Sri Guru Teg Bahadur Khalsa College
Sri Anandpur Sahib
An Autonomous College
NAAC Accredited 'A'Grade
College with Potential for Excellence Status by UGC
E-mail: sgtb321@gmail.com; Website:www.sgtbcollege.org.in

SYLLABUS
BACHELOR OF VOCATION (FOOD PROCESSING)
OUTLINE OF PAPERS AND TESTS OF
B. Voc. FOOD PROCESSING PART –II (Semester III)
FOR
Session : 2020-21, 2021-22 & 2022-23

CODE	SUBJECTS	L	T	P	TOTAL CREDITS * *one credit =15 hrs./1 lecture of 1 hr.	External Marks	Internal Marks	Practical Marks	TOTAL MARKS
B.VFP-311	Communication Skills-I	3	1	0	4	75	25		100
B.VFP-312	Documentation in food processing	4	0	0	4	75	25		100
B.VFP-313	Basics of food packaging	3	0	0	3	75	25		100
B.VFP 314	Introduction to Grain Milling and Machineries	3	0	0	3	75	25		100
B.VFP 315	Food products Packaging Technology	3	0	0	3	75	25		100
B.VFP-316	Practical paper IX pertaining to B.VFP-312			3	3			45	45
B.VFP-317	Practical paper X pertaining to B.VFP-313			3	3			45	45
B.VFP-318	Practical Paper XI pertaining to B.VFP-314			3	3			45	45
B.VFP-319	Practical Paper XII : pertaining to B.VFP-315			3	3			45	45
B.VFP-320	Industrial Visit			1	1				20
Total credit					30				
Total General Education Component					12				700
QP-FIC/Q1001 (SPECIFIC JOB ROLE)	**Chief Miller Level-6/or any other qualification pack of level 6** (Level 6 is of two semesters therefore evaluation shall be done after IV semester)				18	Evaluation “ll be done at the end of IV Semester by FICSI Result “ll be communicated to the university by college			

SYLLABUS
BACHELOR OF VOCATION (FOOD PROCESSING)
OUTLINE OF PAPERS AND TESTS OF
B. Voc. FOOD PROCESSING PART –II (Semester IV)
FOR
Session : 2020-21, 2021-22 & 2022-23

CODE	SUBJECTS	L	T	P	TOTAL CREDITS * *one credit =15 hrs./1 lecture of 1 hr.	External Marks	Internal Marks	Practical Marks	TOTAL MARKS
B.VFP-411	Holistic Development II: Physical Training	3	1	0	4	75	25		100
B.VFP-412	Food Plant Design and Layout	4	0	0	4	75	25		100
B.VFP-413	Food Spoilage and Control	3	0	0	3	75	25		100
B.VFP-414	Quality Control and Regulations	3	0	0	3	75	25		100
B.VFP-415	Egg, Poultry, Meat and Fish Processing Technology	3	0	0	3	75	25		100
B.VFP 416	Practical Paper XIII pertaining to B.VFP-411			3	3			45	45
B.VFP-417	Practical Paper XIV pertaining to B.VFP-413			3	3			45	45
B.VFP-418	Practical Paper XV pertaining to B.VFP-414			3	3			45	45
B.VFP-419	Practical Paper XVI: pertaining to B.VFP-415			3	3			45	45
B.VFP-420	Industrial Visit			1	1				20
Total credits					30				
Total General Education Component					12				700
QP-FIC/Q1001 (SPECIFIC JOB ROLE)	**Chief Miller/Food microbiologist/ Quality Assurance Manger/ Level-6/or any other qualification pack of level 6**				18	Evaluation “ll be done by FICSI Result “ll be communicated to the university by college			

PAPER CODE: B.VFP-311
COMMUNICATION SKILLS-I

Max. Marks: 100	**Timing: 3hrs.**
External Theory: 75	**Pass Marks: 35%**
Internal Assessment: 25	**Total lectures: 60**
Credit: 4	

Course Objective: The syllabus for English Communication Skills has been designed to develop the communicative competence of the students. The content is selected to cater the futuristic professional needs of the students which will help them to create a niche in the global market.

Texts Prescribed:
Literary Skills: Flights of Fancy (Poems 1-8) – Bakhshish Singh (editor)

Section –A (Literary)
Attempt Any Two

1. One essay type question based on main ideas/summary of poems from "FLIGHTS OF FANCY" in about 250 words. (15 marks)
2. Short answer questions. Five to be attempted out of the given eight questions in about 50-60 words each.(5 x 3=15 marks)
3. Explain two stanzas with reference to the context. (7.5 x 2 = 15 marks)

Section- B (Writing Skills)
Attempt Any Two

4. Letter writing (personal)(15 marks)
5. Developing one short story on the basis of hints provided.(15 marks)
6. Writing two short passages on the given topics (Current Economic, Political and Sports Affairs). (15 marks)

Section- C
Attempt All

7. This section will cover the entire syllabus. All ten very short questions to be attempted in one sentence each.(10 x1.5 = 15 marks)

PAPER CODE: B.VFP-312
DOCUMENTATION IN FOOD PROCESSING

Max. Marks: 100	**Timing: 3hrs.**
External Theory: 75	**Pass Marks: 35%**
Internal Assessment: 25	**Total lectures: 60**
Credit: 4	

Course Objective: The course will help in better understanding the importance of documentation in food processing industries. Students will also gain the information about applications of computer and programs needed to inspect raw materials in different food industries.

INSTRUCTIONS FOR THE PAPER SETTER & CANDIDATE: Question paper shall be divided into 3 parts. Each question will carry equal marks from section A & B. Four questions shall be set from each section. Candidate will attempt two questions from each section of 15 marks. Section C of question paper shall carry ten questions of 1.5 marks each.

Section-A

1**. Introduction-** Documentation in food industry, documentation and inspection of raw material in food industry. Methods of documentation for raw material to finished product.

2. **Application of Computer-** Familiarization with the application of computer in some common food industries: milk plant & fruits vegetable plants, starting from the receiving of raw material up to the storage & dispatch of finished product. Statistical analysis in food industry- application of mean, median and standard deviation in food industry.

Section-B

3. ERP- Introduction and implementation of ERP, application of ERP in food industry, Essential guidelines of ERP in food processing industries.

4.**Documentation-** Documentation of finished product detail- name of the product, batch number, time of packing, date of manufacture, date of expiry, other label detail, primary ,secondary and tertiary packing material for finished product, storage conditions.

REFERENCES

1. K.T.Patel and N.P Chotai (2011), Documentation and record: Harmonized GMP requirement, v(3).
2. Inka Heidi Vilpola (2008), A Method for improving ERP implementation success by the principle and process of user centred design, p: 47-76.
3. TufanKoc (2007), The impact of ISO 9000 quality management system on manufacturing, Vol.186(1):207-213.
4. P.J Lovett,A Ingram, C.N Bancrot (2000), Knowledge-based engineering for SMEs- a methodology,Vol.107(1):384-389.

PAPER CODE: B.VFP-313
BASICS OF FOOD PACKAGING

Max. Marks: 100 **Timing: 3hrs.**
External Theory: 75 **Pass Marks: 35%**
Internal Assessment: 25 **Total lectures: 45**
Credit: 3

Course Objectives: Students will learn about the basics of food packaging and designing of packages for various foods and evaluation of their shelf life. They will understand the utilization of different packaging methods using different packaging materials.

INSTRUCTIONS FOR THE PAPER SETTER & CANDIDATE: Question paper shall be divided into 3 parts. Each question will carry equal marks from section A & B. Four questions shall be set from each section. Candidate will attempt two questions from each section of 15 marks. Section C of question paper shall carry ten questions of 1.5 marks each.

Section-A

1. **Introduction**- Definition, Food Protection, functions of package, Role of packaging in extending shelf life of foods. Design of packages for various foods. Types, features, advantages & disadvantages of different packaging materials.

2. **Paper and plastic packaging materials**- Paper and paper boards. Types of Paper and paper board, regenerated cellulose film. Food packages bags, pouches, carton boxes. Plastic packaging materials: Polyethylene, Cellophane, PVC, PET, EVA, Polypropylene, Polystyrene. Laminations and Edible packaging.

Section-B

3. **Glass and metal packaging materials-** Types of Glass. Glass containers manufacture -Glass bottle and glass jar. Types of Metal, Types of Metallic Cans: Three piece cans and two piece cans. Tin cans, Aluminum foils and Aluminum cans. Lacquering & Enamellings and their uses.

4. **Special packaging methods**- Vacuum and gas packaging, modified and controlled atmosphere packaging, shrink package, retort pouches, biodegradable packages. Inert gas packaging.

REFERENCES

1. Board E, Hand Book Of Food Packaging Technology (2008), Engineers India Research Institute.
2. Robertson G.L, (2016), Food Packaging: Principles and Practice, 3rd edition, CRC Press, India.
3. John P.J, (2010), Handbook on Food Packaging, Daya Publishing House, New Delhi.
4. Paine F.A, (1981) "Fundamentals of packaging", The Institute of Packaging.

PAPER CODE: B.VFP-314
INTRODUCTION TO GRAIN MILLING & MACHINERIES

Max. Marks: 100 **Timing: 3hrs.**
External Theory: 75 **Pass Marks: 35%**
Internal Assessment: 25 **Total lectures: 45**
Credit: 3

Course Objectives: Students will gain information about the general principles and working of modern and improved milling machinery. Students will learn about traditional and latest pretreatment methods applied to cereals and pulses. They will also be familiarized with the evaluation various properties and adulteration of different flours.

INSTRUCTIONS FOR THE PAPER SETTER & CANDIDATE: Question paper shall be divided into 3 parts. Each question will carry equal marks from section A & B. Four questions shall be set from each section. Candidate will attempt two questions from each section of 15 marks. Section C of question paper shall carry ten questions of 1.5 mark each.

SECTION-A

1. **Milling of Wheat**: Structure of wheat. Milling preconditioning, cleaning, washing and drying, operation flow charts of domestic and commercial attachakies, mini flour mills and roller flour mills. Modern flour mill. General Principles and machine operations – break system, reduction system, sifting, purification, flour bagging, storage and flour treatment

2. **Maize Milling**: Structure of corn. Types of maize. Wet and dry milling of corn. Methods of cleaning, grading, milling. Products of wet and dry milling of corn. Adulteration in flour.

SECTION-B

3. **Dal milling**: Pre-milling treatments of pulses. Principle of dal milling. Pulses suitable for milling. Operation flow charts of pulse milling. Traditional and modern pulse milling methods. Working and principle of dal mill. Adulteration in pulse.

4. **Grain milling machinery**: Hammer mill, groundnut decorticator hand operated, mini dal mill, mini rice mill, mini oil expeller, grain cleaner, mini grain mill, wheat flour mill, micro pulverizer and destoner

REFERENCES:

1. Potter N.N. (2006), Food Science, 5th edition, SBS Publishers, New Delhi.
2. Kent N. L. & Evers A. D. (1994), Technology of Cereals, 4th edition, Elsevier Science Ltd.
3. Maiz S.A (1996), The Chemistry and Technology of Cereals as Food and Feed, CBS Publishers, New Delhi.

PAPER CODE: B.VFP-315
FOOD PRODUCTS PACKAGING TECHNOLOGY

Max. Marks: 100	**Timing: 3hrs.**
External Theory: 75	**Pass Marks: 35%**
Internal Assessment: 25	**Total lectures: 45**
Credit: 3	

Course Objectives: The students will learn to identify different categories of packaging material and packaging requirements for various food products. Students will learn about the role of Food Safety Standards and Regulations in developments and utilization of food packaging materials.

INSTRUCTIONS FOR THE PAPER SETTER & CANDIDATE: Question paper shall be divided into 3 parts. Each question will carry equal marks from section A & B. Four questions shall be set from each section. Candidate will attempt two questions from each section of 15 marks. Section C of question paper shall carry ten questions of 1.5 marks each.

SECTION-A

1. **Types of Packaging Material:** Types and categories of packaging material. Types of packaging material used for packing various food products. Packaging requirements and their selection for raw and processed foods : Meat, Fish, Poultry, Eggs, Milk and Milk products, Fruits and Vegetables, Cereal grains and Baked food products.

2. **Forms of packaging**: Box, bottle, tetra, pouch, shrink, vacuum, gas, CAP, MAP, aseptic packaging etc. Selection of packaging material and design, Evaluation of quality and safety of packaging materials – different testing procedures. Brief Introduction to WVTR, GTR, bursting strength, tensile strength, tearing strength, drop test, puncture test, impact test.

SECTION-B

3. **Packaging Machinery:** Bottling, can former, form fill and seal machines, bags – their manufacturing and closing, vacuum packs unit, shrink pack unit, tetra pack unit , Package labeling – functions and regulations,

4. **Newer packaging technologies:** CAP/MAP packaging, aseptic processing and packaging, irradiated packaging, retort pouch, microwaveable packaging, packaging standards and legislation in food packaging materials, knowledge on Food Safety Standards and Regulations (as per FSSAI), recent developments in food packaging materials.

REFERENCES

1. Singh P, Wani,A.A & Langowski, H.C, (2017) Food Packaging Materials: Testing & Quality Assurance) CRC Press, India.
2. Potter, N.N (2006), Food Science, CBS Publishers 5th Ed, SBS Publishers, New Delhi.
3. Sethi M (2001), Food Science, CBS Publishers, New Delhi.
4. Robertson G.L, (2016), Food Packaging: Principles and Practice, 3rd edition, CRC Press, India.

PAPER CODE: B.VFP-316

Practical paper IX pertaining to B.VFP-312

Max. Marks: 45 **Duration of the Paper: 3hrs**
Pass Marks: 35% **Total lectures: 45**
Credits: 3

INSTRUCTIONS FOR THE PAPER SETTERS /CANDIDATES: The Final practical paper will consist of three sections A, B and C. Section A will contain write up (10 Marks) from the list of practical pertaining to lab course. Section B will contain practical to perform in examination (25 Marks). Section C will contain practical note Book Evaluation and Viva Voce (10 Marks).

Practicals

1. Problem solving using spread sheet and word.
2. Use of statistical package for analysis of data.
3. Application of ERP demonstrated with suitable food product.
4. Familiarization with software related to food industry.
5. Maintain periodic record book of the laboratory work.
6. Study of equipment manuals.
7. Documentation of any food product along with relevant labeling.
8. Preparation of detailed process flow sheet of dairy processing industry.
9. Preparation of detailed process flow sheet of fruits vegetable processing industry.
10. Visit to industries and Knowledge of computer application in food industry.

PAPER CODE: B.VFP-317

Practical paper IX pertaining to B.VFP-313

Max. Marks: 45 **Duration of the Paper: 3hrs**
Pass Marks: 35% **Total lectures: 45**
Credits: 3

INSTRUCTIONS FOR THE PAPER SETTERS /CANDIDATES: The Final practical paper will consist of three sections A, B and C. Section A will contain write up (10 Marks) from the list of practical pertaining to lab course. Section B will contain practical to perform in examination (25 Marks). Section C will contain practical note Book Evaluation and Viva Voce (10 Marks).

Practicals

1. Identification of different types of packaging and packaging materials
2. To determine grease resistance of packaging materials.
3. Determination of water vapour transmission rate of various packaging materials.
4. To find out the porosity of tin plate.
5. Measurement of thickness of packaging materials
6. Determination of drop test of food package
7. To estimate the basis weight of given packaging material.
8. External and internal examination of canned food products.
9. To find out the uniformity and amount of wax on wax paper.
10. To see the chemical resistance of packaging material.
11. Shelf life studies of packaging foods.
12. Visit to various industries, dealing with food packaging materials like paper, board, glass and metal.
13. To collect different types plastic packaging material and study their properties.

PAPER CODE: B.VFP-318

Practical paper IX pertaining to B.VFP-314

Max. Marks: 45 **Duration of the Paper: 3hrs**
Pass Marks: 35% **Total lectures: 45**
Credits: 3

INSTRUCTIONS FOR THE PAPER SETTERS /CANDIDATES The Final practical paper will consist of three sections A, B and C. Section A will contain write up (10 Marks) from the list of practical pertaining to lab course. Section B will contain practical to perform in examination (25 Marks). Section C will contain practical note Book Evaluation and Viva Voce (10 Marks).

Practicals

1. To calculate different grades of flour on the basis of milling.
2. Determination of Gluten content in wheat/corn flour sample.
3. To determine water absorption capacity of wheat flour/maida
4. Determination of adulterant ($NaHCO_3$) in wheat flour/maida
5. Determination of alcoholic acidity of the sample of wheat flour/maida.
6. Visit to a working modern roller flour mill and FCI godowns.
7. Determination of wet and dry gluten of a given flour sample
8. Visit to working rice mill, collection of samples at various steps of milling and analysis for efficiency of cleaning, shelling, paddy separator and degree of polish
9. Traditional and improved pretreatments and its effect on dehusking of some legumes
10. Estimation of moisture content of different flour using hot air oven method
11. Determination of ash content of flour.
12. Determination of Bulk Density and True Density of cereal grains
13. Physical characterization of different cereal grains.

PAPER CODE: B.VFP-319

Practical paper IX pertaining to B.VFP-315

Max. Marks: 45 **Duration of the Paper: 3hrs**

Pass Marks: 35% **Total lectures: 45**

Credits: 3

INSTRUCTIONS FOR THE PAPER SETTERS /CANDIDATES: The Final practical paper will consist of three sections A, B and C. Section A will contain write up (10 Marks) from the list of practical pertaining to lab course. Section B will contain practical to perform in examination (25 Marks). Section C will contain practical note Book Evaluation and Viva Voce (10 Marks).

Practicals

1. Identification of different types of packaging and packaging materials .
2. To perform different destructive and non- destructive test for glass containers.

1. Determination of water vapor transmission rate.
2. Determination of drop test of food package.
3. Visit to food packaging industries.
4. To demonstrate vacuum and shrink packaging.
5. Demonstrate the intelligent packaging.
6. Measurement of thickness of packaging materials.
7. Determination of wax weight of wax paper.
8. To perform grease-resistance test in plastic pouches.
9. Demonstration of can-seaming operation.
10. Show videos of latest trends in packaging consulting websites.

PAPER CODE: B.VFP-411
HOLISTIC DEVELOPMENT-II PHYSICAL TRAINING

Max. Marks: 100	**Timing: 3hrs.**
External Theory: 75	**Pass Marks: 35%**
Internal Assessment: 25	**Total lectures: 60**
Credit: 4	

INSTRUCTIONS FOR THE PAPER SETTER & CANDIDATE: Question paper shall be divided into 3 parts. Each question will carry equal marks from section A & B. Four questions shall be set from each section. Candidate will attempt two questions from each section of 15 marks. Section C of question paper shall carry ten questions of 1.5 marks each.

SECTION -A

1. **Sports relationship:** Role and importance of sports and economy, sports and politics.

2. **Sports performance:** Causes and remedial measures of India's poor performance in Sports.

3. Sports injuries: - Causes symptoms, first aid, treatment and prevention of (Sprain, Strain, contusion, dislocation & fracture).

4. First Aid:-Meaning, principles and qualities of first aider. First aid for dislocation, burns, electric shock, drowning and heat stroke**.**

SECTION -B

5. Sports Psychology: -Meaning andImportance in Physical education and sports and competition. Psychological factors affecting physical performance.

6. Anxiety and Aggression: Meaning and remedial measure of anxiety and aggression in sports.

7. **Badminton:** History, layout, General rules and regulation, officials, Major tournaments and Arjuna awardees.

8. **Discuss Throw:**Rules and regulations, Layout and Technique.

9. **High Jump**: Rules and regulations, Layout and Technique.

REFERENCES

1. Kang G.S. Deol N.S, 2008, An introduction to Health and Physical Education 21st century Patiala.
2. Blair,jones,and Simpson; 1962, Educational Phychology,The Macmillan Co.,New York,
3. Lindgren.H.E., 1962, Educational Phychology in the class Room, New Delhi, Johnwiley & sons,
4. Whiting HTA; 1972, Reading in sports Phycholgy, Henry Kimpton Publihser, London.
5. Dhaliwal,A.S. Vidhayak Manovigyan, Patiala.Punjabi University.
6. Puni,A.T. 1980, Sports Psychology: An abridged translation by G.S.Sandhu, NIS Patiala.
7. Suin,R.M, 1982., Psychology in Sports,Mehtods and applications,surjit publications ,new delhi.
8. Ajmer Singh and Jagtar Singh, 2004, Gill; Essentail of Physical education and Olympic movement Kalyani Publishers, Ludhiana.
9. Swami Siranander: 1978, The Science of Paranayama,published by the Divine life society P.O. Shivananda Nagar. Distt. Tehri Garhgwal, U.P. Himalayas Ind.
10. Yogendra, 1975, Facts about, Kuvalaya Dhama, Lonavala Bombay.

11. Bucher Olsen and Willgoose; 1976, The Foundation of Health, Prentice Hall inc. Englewood Fliffs, New Jersey.
12. Turner Sellery and Smith, 1961, School Healthand HealthEducation.The C.V. Mos by Company St.Loius.
13. Ajmer Singh and Jagtar Gill, 2004, Essentialof Physical Education and Olympic Movement. Kalyani Publihsers, Ludhiana.
14. G.S. Kang:- Anatomy, physilgoy and Helath Education, Published by Publication Bureau, Punjabi University, Patiala.

PAPER CODE: B.VFP-412
FOOD PLANT DESIGN AND LAYOUT

Max. Marks: 100 **Timing: 3hrs.**
External Theory: 75 **Pass Marks: 35%**
Internal Assessment: 25 **Total lectures: 60**
Credit: 4

INSTRUCTIONS FOR THE PAPER SETTER & CANDIDATE: Question paper shall be divided into 3 parts. Each question will carry equal marks from section A & B. Four questions shall be set from each section. Candidate will attempt two questions from each section of 15 marks. Section C of question paper shall carry ten questions of 1.5 mark each.

Course Objective: To acquaint the students with the plant layout operation which is required by all industries to check their comparative factors as equipment position raw material handling and end product delivery.

Section- A

Introduction: Plant design concepts – situations and considerations, differences in design of food processing and non-food processing plants. General plant design procedure, Introduction to feasibility study and analysis.

Food Industries Layout: Bakery industry, fruit & Vegetable processing Industry, Dairy Industry, Grain milling Industries; Process flow diagrams of the various food processing indutries. Food plant size. Food Processing Unit Operations.

Section- B

Plant location: Location selection decision process, Factors involved in the plant location decision. Site selection. Food Plant Utilities: Process Water, Steam, Electricity, Plant Effluents. Process schedule.

Plant layout: Importance and objectives of good plant layout. Flow Patterns, Basic Types of plant layouts- Product or line layout, Process or functional layout, Cellular or group layout and Fixed Position Layout, Process schedule, Maintenance of Food Plant Building

Reference Books

1. Christopher G. J. Baker (2013), Handbook of Food Factory Design, Springer, New York.
2. Awan J. A. (2010), Food Plant Layout and Sanitation, Unitech Communications, London.
3. Lopez-Gomez A. & Barbosa-Canovas G.V.(2005), Food Plant Design, CRC Press, India.

PAPER CODE: B.VFP-413
FOOD SPOILAGE AND CONTROL

Max. Marks: 100	**Timing: 3hrs.**
External Theory: 75	**Pass Marks: 35%**
Internal Assessment: 25	**Total lectures: 45**
Credit: 3	

Course Objective: Students will gain information about about food adulteration and spoilage of food by various physical, chemical and microbiological agents. Students will also learn about various techniques to isolate and identify microorganisms from food samples.

INSTRUCTIONS FOR THE PAPER SETTER & CANDIDATE: Question paper shall be divided into 3 parts. Each question will carry equal marks from section A & B. Four questions shall be set from each section. Candidate will attempt two questions from each section of 15 marks. Section C of question paper shall carry ten questions of 1.5 marks each.

SECTION-A

1. Microscope and Microscopy: Principles and types of different microscopes, staining and staining techniques; Control of microorganisms, Control of enzymes & other factors.

2. Food Preservation: Principles and methods of food preservations (Physical; Drying, Freezing, Irradiation & Chemicals; Nitrites, Nitrates, Sulphites, Sulphates and Antibiotics); Food adulteration, methods of evaluation of food adulterants

SECTION- B

3. Food Contamination and Spoilage: Major Causes of food spoilage (Physical, Chemical and Microbiological) Spoilage of fruits and vegetables, meat and meat products, fish, eggs, milk and milk products and canned foods.

4. Food borne Diseases: Bacterial food borne diseases Staphylococcal Intoxication (*Staphylococcus aureus*), Salmonellosis (*Salmonella),* Listeriosis *(Listeria monocytogenes),* Botulism *(Clostridium botulinum),* Gastroenteritis (*Enterohemorrhagic E. coli, Clostridium perfringens* & *Bacillus cereus*), Non bacterial Food borne diseases Mycotoxicosis (Mycotoxin) and Aflatoxicosis (Aflatoxin).

REFERENCES

1. Prescott. L.M. Harley J.P. and L. Kreig D.A. (2017), Microbiology, WCB Publishers.
2. James M.J, (2005) Modern Food Microbiology, CBS Publishers, New Delhi.
3. Pelczar, M.J, Chan, E.C.S & Krieg, N.R., (2001) Microbiology, Tata-McGrawHill Pub, India.
4. Stanier, R.Y. Adelberg, E.A. and Ingraham, J.L. (1999), General Microbiology, IV edn Mac Millan Press.

PAPER CODE: B.VFP-414
QUALITY CONTROL & REGULATIONS

Max. Marks: 100 **Timing: 3hrs.**
External Theory: 75 **Pass Marks: 35%**
Internal Assessment: 25 **Total lectures: 45**
Credit: 3

Course Objective: Students will have knowledge about role and importance of different food regulatory authorities in India. Students will understand the role of labeling in different food products, legal issues involved in labeling, and guidelines to be followed in a food processing industry and laboratory.

INSTRUCTIONS FOR THE PAPER SETTER & CANDIDATE Question paper shall be divided into 3 parts. Each question will carry equal marks from section A & B. Four questions shall be set from each section. Candidate will attempt two questions from each section of 15 marks. Section C of question paper shall carry ten questions of 1.5 marks each.

SECTION-A

1. **Basic Lab Practices**: Good laboratory practices, good hygienic process and good manufacturing practices. Safety practices in the production areas.

2. **Concept of HACCP & ISO**: HACCP- Definitions, Principle, Hazard, Hazard assessment and CCPs. Applicationn of HACCP Plan. Principle, elements and features of ISO 22000, ISO 14000, ISO 9000 and FDA.

SECTION-B

3**. Quality Control:** Definition and importance of Quality control, Principles of Quality Control, Quality attributes of Food – Nutritional quality, Microbial, Sensory. Quality assurance in Food Services System.

4. **Regulatory Authorities**: Role of regulatory authorities in India. FSSA, FSSR, FSSAI, MOFPI, BIS, AGMARK. Labeling regulation of irradiated products and organic foods. Bio-safety guidelines for research, environmental aspects of GMOs, handling and disposal of laboratory organisms.

REFERENCES

1. Nijhawan R. (2019), Food Safety And Standards Act & Rules & Regulation, 20th Edition, ILBCO India.
2. Mathur P. (2018), Food Safety and Quality Control, The Orient Blackswan, Telangana.
3. Prabhakar K. (2016), A Practical Guide to Food Laws and Regulations, Bloomsbury India.
4. Mukherjee, (2006), Total Quality Management, Prentice Hall India Learning Private Limited, India.

PAPER CODE: B.VFP-415
EGG, POULTRY, MEAT AND FISH PROCESSING TECHNOLOGY

Max. Marks: 100	**Timing: 3hrs**
External Theory:75	**Pass Marks: 35%**
Internal Assessments: 25	**Total lectures: 45**
Credit: 3	

Course Objective: Students will learn about structure, composition, nutritive value of egg, poultry, meat, fish. Students will be familiarized with the industrial processing an preservation techniques of egg, poultry, meat, fish products. They will also understand the importance of hygiene and food safety regulations in meat processing units.

INSTRUCTIONS FOR PAPER SETTER & CANDIDATE: Question paper shall be divided into 3 parts. Each question will carry equal marks from section A& B. Four questions shall be set from each section. Candidate will attempt two questions from each section of 15 marks. Section C of question paper shall carry ten questions of 1.5 marks each.

SECTION-A

Egg: Structure, composition and nutritive value of poultry eggs. Functional properties of eggs, internal quality of eggs, external quality of egg, grading of eggs- FSSAI standards, preservation of eggs, Eggs spoilage, Spray dried and frozen egg products.

Poultry: Classification, composition and nutritional value of poultry meat, Poultry dressing and slaughter, grading and packaging of poultry meat. Cooking methods of meat products. Sanitary & hygienic requirements slaughter house.

SECTION-B

Meat: Nutritive value of meat. Whole sale and retail cuts. Meat tenderization methods. Canning of meat and meat products, sausages, curing and smoking of meat. FSSAI regulations on fresh, chilled and frozen meat. HACCP implementation in meat processing industries.

Fish: Fish structure and composition. Spoilage of fish; Methods of Preservation of fish: Canning, Freezing, Drying, Salting. fish protein concentrates, fish meal and by products of fish processing industry

REFERENCES:

1. Sharma B.D., (2011). Outlines of Meat Science and Technology. Jaypee Brothers Medical Publishers, New Delhi.
2. Mead M., (2004) Poultry Meat Processing and Quality. Woodhead Publicating, India.
3. Stadelman W.J & Cotterill O.J., (2002), Egg Science and Technology.4th Ed.CBS Publishers, New Delhi.
4. Sharma B.D., (1999), Meat and Meat Products Technology: Including Poultry Products Technology. Jaypee Bros. Medical Publishers, New Delhi.

PAPER CODE: B.VFP-416
Practical paper IX pertaining to B.VFP-411

Max. Marks: 45 **Duration of the Paper: 3hrs**
Pass Marks: 35% **Total lectures: 45**
Credits: 3

Evaluation will be based on skill test, performance and Viva-voce.

Practicals

BADMINTON, DISCUSS THROW and HIGH JUMP
Contents to be covered during the practical sessions:

1 Measurement of the field and preparation of the field.

2 Equipments and Materials of the game/ Event.

3 Fundamental skill and lead up game.

4 Techniques.

5 Rules and Regulations of the game/ Event.

6 Officiating:

(i) Duties of officials.

(ii) Knowledge of score sheet.

(iii) Signals of officiating

PAPER CODE: B.VFP-417

Practical paper IX pertaining to B.VFP-413

Max. Marks: 45 **Duration of the Paper: 3hrs**
Pass Marks: 35% **Total lectures: 45**
Credits: 3

INSTRUCTIONS FOR THE PAPER SETTERS /CANDIDATES: The Final practical paper will consist of three sections A, B and C. Section A will contain write up (10 Marks) from the list of practical pertaining to lab course. Section B will contain practical to perform in examination (25 Marks). Section C will contain practical note Book Evaluation and Viva Voce (10 Marks).

Practicals

1. Laboratory orientation and familiarization with Laminar air flow, analytical balance, oven, incubator, vautoclave, laboratory shaker.
2. Demonstration of compound microscope.
3. To perform simple, negative, grams staining techniques.
4. Isolation of microorganism from fresh food samples.
5. Isolation of microorganisms from spoiled food samples.
6. To perform spread plate technique.
7. To perform pour plate method.
8. To perform streak plate technique.
9. Isolation of fungus from spoiled food sample and identification by lactophenol cotton blue staining.
10. To perform drying /Freezing of given food material.
11. To analyze adulterants in given food material.

PAPER CODE: B.VFP-418

Practical paper IX pertaining to B.VFP-414

Max. Marks: 45 **Duration of the Paper: 3hrs**
Pass Marks: 35% **Total lectures: 45**
Credits: 3

INSTRUCTIONS FOR THE PAPER SETTERS /CANDIDATES: The Final practical paper will consist of three sections A, B and C. Section A will contain write up (10 Marks) from the list of practical pertaining to lab course. Section B will contain practical to perform in examination (25 Marks). Section C will contain practical note Book Evaluation and Viva Voce (10 Marks).

Practicals

1. A brief about ISO 22000 certified Indian companies.
2. To study the concept of HACCP.
3. To study the essential elements of GMP.
4. Demonstrationof biosafety guidelines to be followed while using a biological safety cabin or laminar air flow.
5. To study the safety practices in production area.
6. Study of FSSAI-2006.
7. Risk assessment in your laboratory and report maintenance.
8. Collection of news atricles, advertisments and notices publisged by FSSAI during the course period.
9. Demonstration of lab fumigation under GLP practices.

PAPER CODE: B.VFP-419

Practical paper IX pertaining to B.VFP-415

Max. Marks: 45 **Duration of the Paper: 3hrs**
Pass Marks: 35% **Total lectures: 45**
Credits: 3

INSTRUCTIONS FOR THE PAPER SETTERS /CANDIDATES: The Final practical paper will consist of three sections A, B and C. Section A will contain write up (10 Marks) from the list of practical pertaining to lab course. Section B will contain practical to perform in examination (25 Marks). Section C will contain practical note Book Evaluation and Viva Voce (10 Marks).

Practicals

1. Study of meat cuts.
2. Evaluation of external and internal quality of eggs.
3. Evaluation of freshness quality of egg based on sink/float test
4. Perform candling of eggs.
5. Determination of egg components.
6. Preparation of egg products-boiled, scrambled and omelette.
7. Perform grading of eggs on the basis of weight .
8. Study of meat tenderization methods.
9. Evaluation of eggs for quality parameters (market eggs,branded eggs).
10. Determine the whipping capacity of whole egg, egg white and egg yolk.
11. Visit to meat/ poultry processing plants.

BSc. Medical

Section: Botany

BOTANY PAPER for B.Sc (Medical) – SEMESTER I

Paper Code and Title: BSc (BOT)-106B (Paper B): Archegoniate

Theory: 50 (External: 35; Internal: 15) **Time: 3 hrs**
Passing Marks: 35% (Ext.: 12; Int.: 05)

COURSE OBJECTIVES:

The Course aims to acquaint students with the important features of Archegoniate, their different Groups and the Adaptations that take place in aquatic plants during Transition to Land Habit. Students will learn about the Evolution of Stelar System and Seed Habit, General Characteristics, Economic Importance and Alternation of Generation of Bryophytes, Pteridophytes and Gymnosperms along with the Types of Fossils and the Process of their Formation.

LEARNING OUTCOMES:

On Completion of the Course, Students are able to:

- Understand the Morphological Diversity, Anatomy, Life Cycle and Economic Importance of Bryophytes, Pteridophytes and Gymnosperms.
- Identify the Bryophytes, Pteridophytes and Gymnosperms on the basis of their Morphological Structure and Anatomy.
- Explain the Types of Fossils and Geological Time Scale.

Question Paper Format (Rules and Regulations)

The Question Paper will consist of three Sections A, B and C. Section A and B will have four Questions; the students are required to attempt any two Questions from each Section, and each Question will carry 5 Marks. Section C is Compulsory and will consist of 10 Short Answer Questions of 1.5 Marks each from Entire Syllabus.

SECTION - A

1) **Archegoniate:** Unifying features of Archegoniate, Transition to Land Habit, Alternation of Generations, Heterospory and Seed Habit.
2) **Bryophytes:** Adaptations to Land Habit, General Characteristics, Origin of Bryophytes, Classification of Bryophytes (as per ICBN), Vegetative and Sexual Reproduction in Bryophytes, Morphology, Anatomy and Reproduction of - *Marchantia*, *Anthoceros* and *Funaria* (excluding Developmental Stages), Ecology and Economic Importance of Bryophytes with Special Reference to *Sphagnum*.

SECTION – B

3) **Pteridophytes:** Adaptive Features of Pteridophytes for Land Habit, General Characteristics, Classification (Taylor and Taylor, 1993), Morphology, Anatomy and Reproduction of *Psilotum*, *Selaginella*, *Equisetum*, *Marsilea* and *Pteris* (excluding Developmental Stages), Stelar Evolution in Pteridophytes, Ecological and Economic Importance of Pteridophytes.
4) **Gymnosperms:** Geological Time Scale, Types of Fossils and Process of Fossilization, General Description of Fossil Taxa- *Cooksonia*, *Rhynia* and *Calamites.*

   Distribution, General Characteristics, Classification (Stewart, 1983), Morphology, Anatomy and Reproduction of *Cycas*, *Pinus* and *Gnetum* (excluding Developmental Stages), Economic Importance of Gymnosperms.

Suggested Readings:

1) Bhattacharya, K., Ghosh, A.K., Hait, G. (2018). A Textbook of Botany, Vol- I, New Central Book Agency Pvt. Ltd, Kolkata.
2) Bhatnagar, S.P. and Moitra, A. (1996). Gymnosperms, New Age International (P) Ltd Publishers, New Delhi, India.
3) Rashid, A. (1998). An Introduction to Bryophyta: Diversity, Development and Differentiation. Vikas Publishing House, New Delhi.
4) Rashid, A. (1999). An Introduction to Pteridophyta: Diversity, Development and Differentiation. Vikas Publishing House, New Delhi.

5) Sambamurty, A.V.S.S. (2017). A Textbook of Bryophytes, Pteridophytes, Gymnosperms and Paleobotany, I.K International Pvt. Ltd., New Delhi.
6) Singh, V., Pande, P.C. and Jain, D.K. (2019).A Text Book of Botany: Diversity of Microbes and Cryptogams, Rastogi Publications, Meerut.
7) Sharma, O.P. and Shivani. (2014). Gymnosperms, Pragati Prakashan, 12th Edition, Meerut (UP), India.
8) Vashishta, P.C., Sinha, A.K. and Kumar, A. (2010). Pteridophyta, S. Chand and Company, New Delhi, India.
9) Vashishta, P.C. (1996). Bryophyta, S. Chand and Company, New Delhi, India.
10) Verma, S. (2013). Botany for Degree Students, S. Chand and Company, New Delhi, India.

BOTANY PRACTICALS OF SEMESTER I

1) Basics of Laboratory– Protocols, Instrumentation and Safety Rules.
2) Preparation of Solutions of different Concentration (15% NaCl, 15% Ethanol, 1 Normal NaOH and 2 Normal Sugar, 1 Molar NaOH and 2 Molar Sugar, 1 Molal NaOH and 1 Molal Sugar, 1 Molar HCl, 1Molar H_2SO_4, 10ppm NaOH, 10ppb NaOH).
3) Preparation of Preservatives for Plant Specimens.
4) Basics of Section Cutting and Staining (Single and Double) and Dehydration (Alcoholic Grades).
5) Preparation of Microscopic Drawings by using Camera Lucida and Micrometry Technique.
6) EMs/Models of viruses – T-Phage and TMV, Line drawing/Photograph of Lytic and Lysogenic Cycle.
7) Preparation of Media for the Culturing of Bacteria (Nutrient Broth and Nutrient Agar Medium) and Fungi (PDA Medium).
8) Gram Staining Technique of Bacteria.
9) Study of Vegetative and Reproductive structures of *Nostoc*, *Chlamydomonas* (electron micrographs), *Volvox*, *Oedogonium*, *Vaucheria*, *Ectocarpus*, *and Batrachospermum* through temporary preparations and permanent slides.
10) Study of Asexual and Sexual structures of Fungi *Rhizopus*, *Penicillium/Alternaria*, *Albugo*, *Puccinia* through permanent slides/tease mount/Herbarium Specimen.
11) Study of Specimens of button stage and full-grown mushroom *(Agaricus* sp.) and Sectioning of gills of *Agaricus* (through Permanent Slides).
12) Study of Growth forms of Lichens (Crustose, Foliose and Fruticose)
13) Study of the Structure of Ectomycorrhiza and Endomycorrhiza with the help of photographs.
14) Study of Morphology, Reproductive Structures and Anatomy of the Examples cited in Theory under Bryophyta *(Marchantia*, *Anthoceros* and *Funaria),* Pteridophyta (*Selaginella*, *Equisetum*, *Marsilea* and *Pteris*) and Gymnosperms (*Cycas*, *Pinus* and *Gnetum*) indicating their Systematic Position.

Practical Examination Format for Core Course - Biodiversity

S.No.	Practicals	Marks
1)	Identification of Spots A, B and C supporting two relevant Identifying Features (Virus, Bacteria, Lichen or Mycorrhiza).	06
2)	Preparation of Solution of Given Concentration from the Provided Salt/Compound	02
3)	Preparation of Media for the Growth of Microorganism either Bacteria/Fungi or Performance of Gram Staining Method.	08
4)	Study of Diseases Plant Material (D) or Preparation of a Temporary Mount of Material D, Identify it, and Make a Well Labelled Diagram along with two important Identifying Features.	04
5)	Write down the Morphological Notes on Material E, F, G and H along with well labelled Diagram and Systematic Position. (Related to Algae, Bryophytes, Pteridophytes and Gymnosperms).	12
6)	Identification, Section Cutting and Preparation of Permanent Slide of Material H (Pteridophytes or Gymnosperms)	08
7)	Practical Note Book	04
8)	*Viva-Voce*	06
	TOTAL MARKS	**50**

BOTANY PAPER for B.Sc (Medical) – SEMESTER II

Paper Code and Title: BSc(BOT)-206A (Paper A): Plant Ecology

Theory: 50 (External: 35; Internal: 15) **Time: 3 hrs**
Passing Marks: 35% (Ext.: 12; Int.: 05)

COURSE OBJECTIVES:

The Objective of the paper is to acquaint the students about the different Ecological Factors (Biotic and Abiotic), the Interactions between these Factors and the Laws governing these Interactions. The students are also aim to make well-verse with the Components and Characteristics of the Ecosystems, Biogeochemical Cycles, Quantitative and Qualitative Characters of Population and Community Ecology along with the Ecological Succession and different Biomes of World as well as India.

LEARNING OUTCOMES:

On Completion of this Course, Students are able to:

- Understand the effect of different Ecological Factors on the Growth of Plants and the Structure and Function of Ecosystem.
- Recognize the Plant Communities and Ecological Adaptations in Plants in response to varied Climatic Conditions.
- Acquaint Knowledge about the Characteristics of Population and Community Ecology.
- Apprehend the different Biomes of World as well as India.

Question Paper Format (Rules and Regulations)

The Question Paper will consist of three Sections A, B and C. Section A and B will have four Questions; the students are required to attempt any two Questions from each Section, and each Question will carry 5 Marks each. Section C is Compulsory and will consist of 10 Short Answer Questions of 1.5 Marks each from Entire Syllabus.

SECTION A

1) **Ecological Factors affecting Plants and their Adaptations:** Abiotic Factors: Soil (Soil Formation, Soil Composition, Soil Profile, Soil Texture and Soil Water), Water (States of Water in the Environment, Precipitation Types), Light and Temperature

(Variation, Optimal and Limiting Factors, Shelford’s law of Tolerance); Morphological, Physiological and Anatomical Adaptations in Hydrophytes, Xerophytes and Halophytes, Biotic Factors: Autotrophs, Heterotrophs and Decomposers, Biotic Interactions (Positive and Negative), Gause’s Principle of Competitive Exclusion.

2) **Ecosystem:** Structure and Function- Components of Ecosystem, Productivity, Energy Flow, Trophic Organization, Food Chain and Food Web, Ecological Pyramids, Ecological Efficiency, Ecological Energetics- Lindeman's Law of Trophic Efficiency, Ecological Successions- Mechanism and Types, Biogeochemical Cycles: Nitrogen, Carbon, Phosphorus and Sulphur.

SECTION B

3) **Population Ecology:** Autecology Concept: Habitat and Niche (Niche Overlap and Species Co-existence), Aspects of Niche (Spatial, Trophic and Hypervolume Niche), Character Displacement, Population Characteristics - Density, Growth Rates, Dispersion, Age Distribution, Natality, Mortality, Survivorship Curves, Population Growth (Biotic Potential and Environmental Resistance), Carrying Capacity, Growth Curves (Sigmoid and J-Shaped), Population Fluctuations, Population Interactions.

4) **Community Ecology:** Community Characteristics, Qualitative Characters: Phenology, Life Forms, Biological Spectrum, Stratification, Sociability, Fidelity and Dominance. Quantitative Analysis: Quadrat, Transect, Point Frame Method, Quantitative Parameters- Frequency, Abundance, Density, Cover, Basal Area, Leaf Area Index, IVI (Important Value Index), Ecotone and Edge Effect, Concept of Phytogeography: Biomes of the World, Forest Biomes of India, Concept of Agro-Ecosystem and Endemism.

Suggested Readings:

1) Ambash, R.S. and Ambasht, N.K. (2004). A Textbook of Plant Ecology. CBS Publishers and Distributors, New Delhi.
2) Kormondy, E. J. (1996). Concepts of Ecology, 4thEdition, Prentice Hall, U.S.A., Pearson.
3) Odum, E.P. and Gary, W.B. (2015). Fundamentals of Ecology, 14th Edition, Cengage Learning India Pvt. Ltd.
4) Pandey, B.P. (2018). Plant Ecology and Taxonomy (Botany for Degree Students). S. Chand and Company Ltd., New Delhi.
5) Saini, A. (2018). Ecology and Economic Botany. Trueman Book Company, Jalandhar.
6) Sharma, P.D. (2018). Ecology and Environment, 13th Edition, Rastogi Publications, Meerut, India.
7) Singh, M.P., Chaudhary, S.B. and Sahu, H.B. (2005). A Text Book of Practical Botany, Part-II, Daya Publishers, New Delhi.

BOTANY PAPER for B.Sc (Medical) – SEMESTER III

Paper Code and Title: BSc(BOT)-306A (Paper A): Plant Anatomy

Theory: 50 (External: 35; Internal: 15) **Time: 3 hrs**
Passing Marks: 35% (Ext.: 12; Int.: 05)

COURSE OBJECTIVES:

This course has been designed to impart an insight into the Internal Structure of the Plant. The Students are taught about the Different types of Tissues and Tissue Systems, Modification of Epidermal Tissues, Arrangement of Tissues in Different Organs and Occurrence of Secondary Growth in Plants.

LEARNING OUTCOMES:

On completion of the Course, Students are able to:

- Identify and characterize various Tissue Systems.
- Understand the Structure of Dicot and Monocot Root, Stem and Leaf.
- Comprehend the Normal and Anomalous Secondary Growth in Plants.

Question Paper Format (Rules and Regulations)

The Question Paper will consist of three Sections A, B and C. Section A and B will have four Questions; the students are required to attempt any two Questions from each Section, and each Question will carry 5 Marks. Section C is Compulsory and will consist of 10 Short Answer Questions of 1.5 Marks each from Entire Syllabus.

SECTION A

1) **Meristematic Tissue:** Introduction of Tissue Systems, Types of Meristematic Tissues, Shoot and Root Apical Meristem and their Histological Organization.

2) **Permanent Tissues:** Simple Tissue: Parenchyma, Collenchyma, Sclerenchyma and Complex Tissue: Xylem and Phloem, Tissue Systems (Dermal, Ground and Vascular), Modification of Epidermal Tissue: Stomata, Guard Cells, Idioblast, Trichomes, Nectaries and Hydathodes.

SECTION B

3) **Organ System:** Structural and Anatomical details of Dicot and Monocot Root, Stem and Leaf. General account of Anatomical Adaptations in Xerophytes and Hydrophytes in Root, Stem and Leaves.

4) **Secondary Growth:** Vascular Cambium – Structure and Function, Seasonal Activity, Secondary Growth in Root and Stem, Anomalous Secondary Growth with Examples, Wood (Heartwood and Sapwood; Porous and Non-porous wood).

Suggested Readings:

1) Bhattacharya, K., Ghosh, A.K. and Hait, G. (2018). A Textbook of Botany, Volume II, New Central Book Agency Pvt. Ltd, Kolkata.
2) Esau, K. (2006). Anatomy of Seed Plants. 2nd Edition. John Wiley and Sons, New York.
3) Fahn, A. (1974). Plant Anatomy. 2nd Edition. Pergamon Press, Oxford.
4) Mauseth, J.D. (1988). Plant Anatomy. The Benjamin/Cummings Publisher, USA.
5) Pandey, B.P. (2001). Plant Anatomy. S. Chand Publications, New Delhi.

BOTANY PAPER for B.Sc (Medical) – SEMESTER III

Paper Code and Title: BSc(BOT)-306B(Paper B): Plant Embryology

Theory: 50 (External: 35; Internal: 15) **Time: 3 hrs**
Passing Marks: 35% (Ext.: 12; Int.: 05)

COURSE OBJECTIVES:

The Objective of the Paper is to acquaint the students about the Structure and Development of Flower, Role of Pollination in the Fertilization, Development of Embryo, Formation of Fruits and Process of their Dispersal. The students will also learn about the Natural and Artificial Methods of Vegetative Reproduction.

LEARNING OUTCOMES:

On completion of the Course, Students are able to understand the:

- Structure and Development in Microsporangium and Megasporangium.
- Process of Microsporogenesis and Megasporogenesis.
- Fertilization, Endosperm Types and their Development and Embryogeny.
- Process of Fruit Formation and its Dispersal.

Question Paper Format (Rules and Regulations)

The Question Paper will consist of three Sections A, B and C. Section A and B will have four Questions; the students are required to attempt any two Questions from each Section, and each Question will carry 5 Marks. Section C is Compulsory and will consist of 10 Short Answer Questions of 1.5 Marks each from Entire Syllabus.

SECTION A

1) **Structural Organization of Flower:** Structure and Development of a Flower, Types of Inflorescence, Types of Ovules, Embryo Sacs and its Types, Organization and Ultra structure of Mature Embryo Sac.

2) **Pollination and Fertilization:** Self Incompatibility, Pollination Types, Pollen–Pistil Interaction, Double Fertilization, Endosperm Types, Structure and Functions,Embryogeny: Dicot and Monocot Embryo, Embryo-Endosperm Relationship.

SECTION B

3) **Seed and Fruit:** Seed: Structure, Development, Dormancy and Dispersal. Fruit and its Development, Types of Fruits and their Dispersal.

4) **Vegetative Reproduction**: Natural and Artificial Methods of Vegetative Propagation. A General Account of Apomixis and Polyembryony.

Suggested Readings:

1) Bhattacharya, K., Ghosh, A.K. and Hait, G. (2018). A Textbook of Botany, VolumeII, New Central Book Agency Pvt. Ltd., Kolkata.
2) Bhojwani, S.S., Bhatnagar, S.P. and Dantu, P.K. (2015). Embryology of Angiosperms. 6thEdition. Vikas Publication House Pvt. Ltd., New Delhi.
3) Steeves, T.A. and Sussex, I.M. (1989). Patterns in Plant Development. 2nd Edition. Cambridge University Press, Cambridge.

BOTANY PRACTICALS OF SEMESTER III

1) Study of Meristems through Permanent Slides and Photographs.
2) Tissues (Parenchyma, Collenchyma and Sclerenchyma); Macerated xylary elements, Phloem (Permanent slides, Photographs)
3) Stem: Dicot: *Helianthus*; *Tagetes*;Monocot: *Zea mays; Triticumaestivum*(only Permanent slides).
4) Root: Dicot: *Helianthus*; *Tagetes*;Monocot: *Zea mays*; *Triticumaestivum*(only Permanent slides).
5) Leaf: Dicot and Monocot (only Permanent slides).
6) Study of Anomalous Secondary Growth in *Boerhavia*, *Nyctanthes*, *Bougainvillea*, *Mirabilis*.
7) Adaptive Anatomy: Xerophyte (*Nerium*leaf); Hydrophyte (*Hydrilla*stem).
8) Examination of Flowers for their Pollination Mechanism (*Salvia, Calotropis, Ficus*, *Triticum*).
9) Structure of Anther and Pollen grains (Whole Mounts).
10) Types of Ovules and Embryo Sacs (Permanent Slides).
11) Study of Stomata from Epidermal Peel.
12) Pollination Types and Seed Dispersal Mechanisms (including Appendages, Aril and Caruncle) (Photographs and Specimens).
13) Study of Vegetative Reproduction through Leaf Cuttings in *Bryophyllum*; Stem Cuttings in Rose, *Bougainvillea*.
14) Calculation of Percent Germination in Pollens through TriphenylTetrazolium Chloride Test.

15) Study of Seed Viability through Direct Seed Germination Test or TriphenylTetrazolium Chloride Test.
16) Study of Placentation, Fruit and Seed Types.

Practical Examination Format for Core Course -Plant Anatomy and Embryology

	Practical Paper	**Marks**
1)	Study of Anatomical Details of Root/Stem/Leaves in Dicots and Monocots including Study of Anomalous Secondary Growth.	08
2)	Maceration/Stomatal Study.	04
3)	Study of Pollen Viability/Seed Viability.	06
4)	Flower Study in relation to Pollination/Study of Inflorescenceand Fruit Types.	06
5)	Study of Polyembryony/ Placentation /Vegetative Propagation.	06
6)	Identification of Four Spots/Slides with two Diagnostic Features each	08
7)	Permanent Slides (Minimum upto 5).	03
8)	Practical Note Book.	04
9)	*Viva-Voce*	05
	TOTAL MARKS	**50**

M.Sc. Botany

M.Sc. (Botany) – Part I (SEMESTER I)

Session: 2020-21, 2021-2022			**Semester-I**
Paper Code	M-BOT-T-1.1		
Name of Course	Phycology and Bryology		
	Theory	**Practical**	**Internal**
Maximum Marks	70	30	30
Pass Percentage	35%	35%	35%
Credits	4	1.5	-

Objective of the paper is to acquaint the students about the Principles and Systems of Algal Classification, different Characteristic Features of Algae, Life Cycles and Interrelationships of important groups of Algae as well as Economic importance of Algae. The students are also well versed about the Origin, Classification, General Characteristics and Alternation of Generations of Hepaticopsida, Anthocerotopsida and Bryopsida.

Question Paper Format (Rules and Regulations)

The Question paper will consist of three sections A, B and C. Section A and B will have four questions each from their respective units, the students are required to attempt any two questions from each section, and each question will carry 10 marks each (10×4). Section C is Compulsory and will consist of 10 Short answer questions covering the entire Syllabus with 3 Marks each (3×10).

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from section A and B and the entire section C which is compulsory.

SECTION-A

1) **Classification and General Characteristics of Algae:** General Characteristics, Important systems of classification, Habitat, Thallus Organization, Nutrition, Algal Pigments and their comparative account, Food Reserves, Cell wall Composition, Flagellation, Chloroplasts, Reproduction, Life Cycle Patterns.
2) **Cyanophyta, Chlorophyta, Charophyta and Xanthophyta: Cyanophyta:** Cell Structure, Thallus organization, Heterocyst and Akinete development and their role; Reproduction; Paddy soil cyanophytes and their role; **Chlorophyta, Charophyta and**

Xanthophyta: Salient Features, Comparative account of Range of Thallus Organization, Methods of Reproduction, Life Cycles and Alternation of Generation, Interrelationship between Chlorophyta, Charophyta and Xanthophyta.

3) **Bacillariophyta, Cryptophyta, Phaeophyta and Rhodophyta:** Salient Features, Range of Thallus Organization, Methods of Reproduction, Life Cycles and Alternation of Generation of Bacillariophyta, Cryptophyta, Phaeophyta and Rhodophyta.

4) **Economic, Ecological and Biotechnological Importance of Algae:** Algae as Experimental Systems, CO_2 Fixers, Source of Colloidal Polysaccharides (Agar, Carragenin and Alginate), Biofuels, Biofertilizers; Role of Algae in Bioremediation, Pharmaceuticals and Nutraceuticals; Biotechnological Potential of Symbiotic Algae; Genetic Modification of Algae and its Potential.

SECTION-B

5) **Classification and General Characteristics of Bryophytes:** Origin, General Characteristics, Classification, Habitat, Morphology, Gametophytes and Sporophytes and Alternation of Generation, Evolution of Gametophytic and Sporophytic Generations, Origin and Fate of Archesporium in Bryophytes, Factors affecting Sexuality in Bryophytes, Economic and Ecological Importance of Bryophytes.

6) **Hepaticopsida:** General Characters, Classification, Morphology, Anatomy, Life Cycle Pattern and Affinities of Marchantiales, Sphaerocarpales, Metzeriales, Jungermanniales and Calobryales.

7) **Anthocerotopsida:** General Characters, Classification, Morphology, Anatomy, Life Cycle Pattern and Affinities of Anthocerotales.

8) **Bryopsida:** General Characters, Classification, Morphology, Anatomy, Life Cycle Pattern and Affinities of Andreaidae, Sphagnidae, Tetraphidae, Polytrichidae, Buxbaumidae, Bryidae and Archidiidae.

RECOMMENDED READINGS:

1. Glime, J.M. and Saxena, D. 1991. Uses of Bryophytes. Today and Tomorrow's Printers and Publication, New Delhi.
2. Kumar, H.D. 1998. Introductory Phycology. East West Press Ltd., New Dehli.
3. Lee, R.E. 2016. Phycology. Cambridge University Press, UK.
4. Morris, I. 1986. An Introduction to the Algae. Cambridge University Press, UK
5. Round, F.E. 1986. The Biology of Algae. Cambridge University Press, Cambridge.
6. Sahoo, D. and Sechbach J. 2015. The Algae World. Springer, Netherland.
7. Schofiled, W.D. 1985. Introduction to Bryology. MacMillan, New York.
8. Van den Hoek, C., Mann, D.J. and John, M.H. 1995. Algae: An Introduction to Phycology. Cambridge University Press.

M.Sc. (Botany) – Part I (SEMESTER I)

Session: 2020-21, 2021-2022			**Semester-I**
Paper Code	M-BOT-T-1.2		
Name of Course	Mycology		
	Theory	**Practical**	**Internal**
Maximum Marks	70	30	30
Pass Percentage	35%	35%	35%
Credits	4	1.5	-

Objective of the paper is to acquaint the students about the Nomenclature, Phylogeny, Genetics, Structure, Reproduction, Diversity and Economic Importance of Different Groups of Fungi and Fungi like Organisms.

Question Paper Format (Rules and Regulations)

The Question paper will consist of three sections A, B and C. Section A and B will have four questions each from their respective units, the students are required to attempt any two questions from each section, and each question will carry 10 marks each (10×4). Section C is Compulsory and will consist of 10 Short answer questions covering the entire Syllabus with 3 Marks each (3×10).

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from section A and B and the entire section C which is compulsory.

SECTION-A

1) A General Account of Fungi, Fungal Structure and Ultrastructure of Cell Wall, Growth and Differentiation, Fungal Nutrition.
2) Fungal Nomenclature, Classification and Phylogeny, Impact of Molecular Systematics on Fungal Classification.
3) Fungal Genetics: Structure and Organization of Fungal Genome, Mitochondrial Genes, Non-sexual Variation – Haploidy, Heterokaryosis and Parasexuality, Sexual Variation – Homothallism and Heterothallism, Sex Hormones.
4) Fungi like Organisms: General account of Kingdom Chromista with particular reference to Oomycota, Hyphochytridiomycota and Labyrinthulomycota; Kingdom Protozoa with particular reference to Plasmodiophoromycota, Dictyosteliomycota, Acrasiomycota and Myxomycota and Life Cycle Pattern in Fungi like Organisms.

SECION-B

5) A General Account of Chytridiomycota, Zygomycota, Ascomycota and Basidiomycota. Life Cycle Pattern in True Fungi.

6) General Characters of Mitosporic Fungi and Classification.
7) Range of Variations and Evolution of Fructification in Fungi, Variations in Asexual Reproduction in Fungi, Origin and Evolution of Sex in Fungi including Hormonal Control.
8) Economic Importance: Fungi for Food, Enzymes and Pharmaceuticals, as Symbionts (Lichens and Mycorrhiza), as Biological Control Agents; Mushroom: Cultivation - a General Account.

RECOMMENDED READINGS:

1. Agrios, G.N. 2005. Plant Pathology, Academic Press, New York.
2. Alexopoulos, C.J., Mims, C.W. and Blackwell, M. 1996. Introductory Mycology, John Wiley and Sons, New York.
3. Alexopoulos, C.J., Mims, C.W. and Blackwell, M. 2007. Introductory Mycology, 4th Edition, John Wiley and Sons, New York.
4. Aneja, K.R. and Mehrotra, R.S. 2015. An Introduction to Mycology, New Age International Publishers, New Delhi.
5. Deacon, J.W. 2007. Modern Mycology, 3rd Edition, Blackwell Science Ltd., U.K.
6. Heald, F.D. 2016. Manual of Plant Diseases, Volume 1 & 2, Biotech Books, New Delhi.
7. Sumbali, G. 2010. The Fungi, 2nd Edition, Narosa Publishing House, New Delhi.
8. Webster, J. and Webes, R. 2007. Introduction to Fungi, 3rd Edition. Cambridge University Press, Cambridge.

M.Sc. (Botany) – Part I (SEMESTER I)

Session: 2020-21, 2021-2022			**Semester-I**
Paper Code	M-BOT-T-1.3		
Name of Course	Cell and Molecular Biology		
	Theory	**Practical**	**Internal**
Maximum Marks	70	30	30
Pass Percentage	35%	35%	35%
Credits	4	1.5	-

Objective of the paper is to give knowledge to the students about the ultra structure of Prokaryotic and Eukaryotic Cell, Cell Organelles and Cytoskeleton. The students will also learn about the Structure of Nucleic Acids, Mechanism of Replication of Genetic Material, Transcription and Translation in Prokaryotes and Eukaryotes.

Question Paper Format (Rules and Regulations)

The Question paper will consist of three sections A, B and C. Section A and B will have four questions each from their respective units, the students are required to attempt any two questions from each section, and each question will carry 10 marks each (10×4). Section C is Compulsory and will consist of 10 Short answer questions covering the entire Syllabus with 3 Marks each (3×10).

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from section A and B and the entire section C which is compulsory.

SECTION-A

1) Basic Properties of Cell, Classes of Cells, Cell Structure, Structural Organization and Function of Cell wall, Plasma Membrane and its Composition, Transport across Cell Membranes, Extracellular Matrix and Cell Interactions.
2) Ultrastructure and Function of Cell Organelles: Endoplasmic Reticulum, Golgi Apparatus, Lysosomes, Vacuoles, Ribosomes, Peroxisomes. Nucleus (Nuclear Envelope, Nuclear Pore Complex and Nucleolus).
3) Ultrastructure, Functions, Biogenesis and Semiautonomous Nature of Mitochondria and Chloroplast. Structure and Organization of Microtubules, Intermediate Filaments and Microfilaments and their Role in the Cell Mobility and Cell Division.
4) Mechanism of Cell Cycle Control: Cyclins, Cyclin Dependent Kinases (CDKs), Maturation Promoting Factor (MPF) and Genes involved in Cell Cycle Control, Mechanism of Programmed Cell Death.

SECTION-B

5) Nucleic Acids as Genetic Material: Nomenclature, Composition and Structure, Three Dimensional Structure of DNA (Prokaryotes, Eukaryotes and Viral), Types of DNA (A-, B- , Z-DNA), Organization of DNA in Viral, Prokaryotic and Eukaryotic Chromosomes, C- value Paradox, Cot curve and its Significance, Chromatin and its Organization (Nucleosome Model), Structure and Functions of Different Types of RNA.
6) Replication in Prokaryotes and Eukaryotes: Replication Machinery including DNA Polymerases, DNA Topoisomerase, DNA Ligase and other Components; Replication of DNA in Prokaryotes, RNA Viruses and Eukaryotes.
7) Transcription in Prokaryotes and Eukaryotes: Transcription Factors and Machinery, Formation of Initiation Complex, Transcription activators and Repressors, RNA Polymerases, Elongation and Termination, RNA Processing (Introns and Exons, RNA Modifications through Intron Removal), Spliceosome Machinery, Splicing Pathways, Alternative Splicing, RNA Editing (Exon Shuffling, Polyadenylation and Capping) and mRNA Transport.
8) Translation in Prokaryotes and Eukaryotes: Structure of Ribosomes, Initiation, Elongation and Termination of Polypeptide Chain, Translational Proofreading, Post-Translational Processing of Polypeptide Chain; Inhibitor of Protein Synthesis, Regulation of Translation: Role of Cell Signaling Pathways (Phosphoinositide 3-kinase (PI3K)/AKT and the Mitogen- Activated Protein Kinase (MAPK)) and microRNA (miRNA).

RECOMMENDED READINGS:

1. Alberts, B., Johnson, A., Lewis, J., Morgan, D., Raff, M., Roberts, K., Walter, P. 2015. Molecular Biology of the Cell, 6th Edition. Garland Science. Taylor & Francis Group. New York, US.
2. Cooper G.M. and Hausman, R.E. 2009. The Cell: A Molecular Approach, 5th Edition, Sinauer Associates, MA, USA.
3. Craig, N.L., Cohen-Fix O., Green R., Greider C., Storz G., Wolberger C. 2014. Molecular Biology, Principles of Genome Function, 2nd Edition. Oxford University Press. U.K.
4. De Robertis, E.D.P. and De Robertis, E.M.F. 2006. Cell and Molecular Biology, 8th Edition, Lippincott Williams and Wilkins, Philadelphia.
5. Hardin, J., Bertoni, G. and Kleinsmith, L.J. 2012. Becker’s World of the Cell, 8th Edition, Benjamin Cummings, NY, USA.
6. Hyde, D. R. 2016. Genetics and Molecular Biology. McGraw Hill Education (India) Pvt. Ltd. New Delhi.
7. Karp, G. 2014. Cell and Molecular Biology: Concepts and Experiments, 8th Edition, John Wiley and Sons Inc., USA.
8. Klug, W.S., Cummings, M.R. Spenser, C.A. and Palladino, M.A. 2012. Concepts of Genetics, 10th Edition, Pearson Education Inc., USA.

9. Lodish, H., Berk, A. Kaiser, C.A., Bretscher, A. Ploegh, H., Amon, A. and Martin, K.C. 2016. Molecular Cell Biology, 8th Edition, W.H. Freeman and Company, New York, USA.
10. Nelson, D.L. and Cox, M.M. 2015. Lehninger's Principles of Biochemistry, 4th Edition, W. H. Freeman and Company, New York
11. Russell, P.J. 2016. iGenetics- A Molecular Approach. Pearson India Education Services, Pvt. Ltd., Noida, India.
12. Watson, J.D., Baker, T.A., Bell, S.P., Gann, A. Levine, M. and Losick, R. 2019. Molecular Biology of the Gene, 7th Edition, Pearson India Education Pvt. Ltd. Noida, India.

M.Sc. (Botany) – Part I (SEMESTER II)

Session: 2020-21, 2021-2022			**Semester-II**
Paper Code	M-BOT-T-2.1		
Name of Course	Pteridophytes and Gymnosperms		
	Theory	**Practical**	**Internal**
Maximum Marks	70	30	30
Pass Percentage	35%	35%	35%
Credits	4	1.5	-

Objective of the paper is to give knowledge the students about the Origin, Classification, Evolution of Gametophyte and Sporophyte of Liverworts, Hornworts and Mosses, Fossil Pteridophytes, Structure, Reproduction and Comparative Account of different groups of Fern and Fern allies. The student will also learn about Fossil Gymnosperms, Origin and Evolution of Gymnosperms, cone and seed habit, structure and reproduction of different groups of Gymnosperms.

Question Paper Format (Rules and Regulations)

The Question paper will consist of three sections A, B and C. Section A and B will have four questions each from their respective units, the students are required to attempt any two questions from each section, and each question will carry 10 marks each (10×4). Section C is Compulsory and will consist of 10 Short answer questions covering the entire Syllabus with 3 Marks each (3×10).

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from section A and B and the entire section C which is compulsory.

SECTION-A

1) **Pteridophytes:** General Characters, Classification, Apogamy, Apospory, Heterospory, Seed Habit, Evolution of Stelar system and Economic Importance and distribution of Pteridophytes in India.
2) **Psilotopsida:** A Comparative account of Morphology, Fructification, Gametophytes, Evolutionary Tendencies and Inter-Relationships.
3) **Lycopsida and Sphenopsida:** A Comparative account of Morphology, Spore Producing Organs, Gametophytes, Evolutionary Tendencies and Inter-relationships.
4) **Pteropsida:** A Study of Plant Organization, Anatomy, Spore Producing Organs, Gametophytic Generations and Inter-relationships, Evolution of Sorus and Sporangium in Eusporangiate and Leptosporangiate Ferns.

SECTION-B

5) **Gymnosperms:** Characteristic Features, Origin and Evolution, Classification, Variation and Evolution of Cone in Gymnosperms,

Structure and Evolution of Gametophyte and Seed in Gymnosperms, Polyembryony in Gymnosperms, Economic Importance and Distribution of Gymnosperms in India.

6) General Characters and Evolutionary Significance of Progymnosperms, Pteridosperms, Cycadeoideales and Cordaitales.
7) **Comparative Account of Gymnosperms:** Comparative Account of Morphology, Anatomy and Reproduction in Cycadales, Ginkgoales, Pentoxylales, Coniferales, Taxales, Ephedrales, Gnetales and Welwitschiales.
8) **Paleobotany:** Geological Time Scale, Fossils: Process of Fossilization, Types of Fossils, and Role of Paleobotany in Taxonomy.

RECOMMENDED READINGS:

1. Kubitzki, K. (Ed.) 1990. The Families and Genera of Vascular Plants. Vol. I Pteridophytes and Gymnosperms, Springer-Verlag, Berlin, New York.
2. Rashid, A. 1999. An Introduction to Pteridophyta. Vikas Publication House Pvt. Ltd., New Delhi.
3. Sporne, K.R. 1991. The Morphology of Pteridophytes. M/s Publishing Pvt. Ltd., Bombay.
4. Bhatanagar, S.P. and Moitra, A. 1996. Gymnosperms. New Age International Pvt. Ltd., New Delhi.
5. Sahni, K.C. 1990. Gymnosperms of India and Adjacent Countries. BSMPS, DehraDun.
6. Stewart, W.N. and Rathwell, G.W. 1993. Paleobotany and the Evolution of Plants. Cambridge, University Press, London.

M.Sc. (Botany) – Part I (SEMESTER II)

Session: 2020-21, 2021-2022			**Semester-II**
Paper Code	M-BOT-T-2.3		
Name of Course	Plant Physiology		
	Theory	**Practical**	**Internal**
Maximum Marks	70	30	30
Pass Percentage	35%	35%	35%
Credits	4	1.5	-

Objective of the paper is to acquaint the students about the various Physiological Processes occurring in the Plant Cells. The students will learn about Plant- Water Relations, Uptake and Transport of Water by Plants, Signal Perception and Transduction, Role of Plant Growth Regulators, various aspects of Stress Physiology, Significance of Photobiology, Mechanism of Flowering Process, Programmed Cell Death, Aging and Senescence.

Question Paper Format (Rules and Regulations)

The Question paper will consist of three sections A, B and C. Section A and B will have four questions each from their respective units, the students are required to attempt any two questions from each section, and each question will carry 10 marks each (10×4). Section C is Compulsory and will consist of 10 Short answer questions covering the entire Syllabus with 3 Marks each (3×10).

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from section A and B and the entire section C which is compulsory.

SECTION-A

1) **Plant Water Relations**: Water Potential and its Significance in Soil-Plant Atmosphere Continuum; Mechanism of Water Absorption and Transport; Water Transport Processes and Water Transport in Xylem.
2) **Membrane Transport and Translocation of Solutes**: Root-Microbe Interactions in Facilitating Nutrient Uptake, Comparison of Xylem and Phloem Transport, Phloem Loading and Unloading, Passive and Active Solute Transport, Membrane Transport Proteins with Particular reference to Role of Carriers, Channels and Proton Pumps in Solute accumulation and Transport.
3) **Transpiration**: Driving Force for Water Loss and its Regulation, Mechanism of Water Loss and Energy Relations, Recent Advances in Stomatal Physiology governing Water Loss from the Leaf, Water Use Efficiency.
4) **Stress Physiology**: Concept of Stress, Types of Stresses & Stressors (Water deficit and Drought, Salinity, Metal Toxicity, Heat and Freezing,), and Oxidative stress. Plant Responses to Abiotic and Biotic Stresses, Stress Constraints, Stress Detection, Stress induced Gene Expression, Mechanism of Biotic and Abiotic Stress Tolerance.

SECTION-B

5) **Signal Transduction**: Receptors and G-Proteins, Phospholipid Signaling, Role of Cyclic Nucleotides, Calcium-Calmodulin Cascade, Diversity in Protein Kinases and Phosphatases, Specific Signaling Mechanisms in Bacteria and Plants (Two- Component Sensor Regulator Systems); Sucrose - Sensing Mechanism.
6) **Sensory Photobiology**: Phytochromes and Cryptochromes and their Photochemical and Biological Properties, Photophysiology of Light-Induced Responses, Cellular Localization, Molecular Mechanism of Action of Photomorphogenetic Receptors, Signaling and Gene Expression.
7) **Plant Growth Regulators and Elicitors**: Physiological Effects and Mechanism of Action of Auxins, Gibbrellins, Cytokinins, Ethylene, Abscisic Acid, Brassinosteroids, Polyamines, Jasmonic Acid and Salicylic Acid, Hormone Receptors.
8) **Flowering Process and Senescence**: Photoperiodism and its Significance, Endogenous Clock and its Regulation, Floral Induction and Development - Genetic and Molecular Analysis, ABC Model of Flowering, Vernalization, Programmed Cell Death, Aging and Senescence.

RECOMMENDED READINGS:

1. Bala, M., Gupta, S., Gupta, N.K. and Sangha, M.K. 2013. Practicals in Plant Physiology and Biochemistry, Scientific Publishers (India), Jodhpur.
2. Bhattacharya, K., Ghosh, A.K. and Hait, G. 2018. A Textbook of Botany, Volume III, New Central Book Agency Pvt. Ltd, Kolkata.
3. Hopkins, W.G. and Huner, N.P. 2009. Introduction to Plant Physiology, 4th Edition, John Wiley and Sons, USA.
4. Salisbury, F.B. and Ross, C.W. 2005. Plant Physiology, 4th Edition, Eastern Press, Pvt. Ltd. Bangalore.
5. Srivastava, L.M. 2002. Plant Growth and Development: Hormones and Environment, Academic Press, Oxford, UK.
6. Stiles, W. 2016. Principles of Plant Physiology, Discovery Publishing House, New Delhi.
7. Taiz, L. and Zeiger, E. 2010. Plant Physiology, 5th Edition, Sinauer Associates Inc., USA.
8. Yadav, P., Kumar S., & Jain V. 2016. Recent Advances in Plant Stress Physiology, Daya Publishing House, New Delhi.

M.Sc. (Botany) – Part I (SEMESTER II)

Session: 2020-21, 2021-2022			**Semester-II**
Paper Code	M-BOT-T-2.4		
Name of Course	Plant Biochemistry and Metabolism		
	Theory	**Practical**	**Internal**
Maximum Marks	70	30	30
Pass Percentage	35%	35%	35%
Credits	4	1.5	-

Objective of the paper is to acquaint the student about the various Metabolic Pathways occurring in the Plants. Students will learn about the Energy Flow, Photosynthetic and Respiratory Processes, Nitrogen, Lipid, Protein and Sulphur Metabolism and Secondary Metabolites.

Question Paper Format (Rules and Regulations)

The Question paper will consist of three sections A, B and C. Section A and B will have four questions each from their respective units, the students are required to attempt any two questions from each section, and each question will carry 10 marks each (10×4). Section C is Compulsory and will consist of 10 Short answer questions covering the entire Syllabus with 3 Marks each (3×10).

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from section A and B and the entire section C which is compulsory.

SECTION-A

1) **Energy Flow:** Energy Forms, Principles of Thermodynamics in Biology, The Concept of Enthalpy, Entropy, Free Energy and Chemical Potential; Energy Transfer and Energy Conservation, Redox Reactions; Biological Energy Transducers, Structure and Function of ATP, Coupled Reactions.
2) **Macromolecules:** Classification, Structure and Function of Proteins, Carbohydrates (Polysaccharides, Mucopolysaccharides, Mucoproteins and Glycoproteins) and Lipids.
3) **Enzymes:** General Aspects, Regulatory and Active Sites, Regulation of Enzyme Activity, Michaelis - Menten Equation and its Significance; Lineweaver– Burk Plot, Kinetics of Enzymatic Catalysis, Allosteric Mechanism: Negative and Positive Cooperativity; Activators and Inhibitors, Isozymes, Ribozymes and Abzymes.
4) **Secondary Metabolites:** Different Classes of Secondary Metabolites, Functions, Biosynthesis of Terpenes, Phenols and Nitrogenous Compounds.

SECTION-B

5) **Photochemistry and Photosynthesis:** Photosynthetic Pigments and Light Harvesting Complexes, Photo-Oxidation of Water, Mechanism of Electron and Proton Transport; Carbon Assimilation - The Calvin Cycle, Photorespiration and its Significance, C_4 Cycle, CAM Pathway, Biosynthesis of Starch and Sucrose.
6) **Respiration:** Glycolysis, the TCA Cycle, Electron Transport Chain and ATP Synthesis, Pentose Phosphate Pathway, Glycolate Cycle, Alternative Oxidase Systems, Gluconeogenesis, Interconversion of Hexoses and Pentoses. Importance of Respiration in different Biosynthetic Processes, Coordinated Control of Metabolism.
7) **Nitrogen Metabolism:** Biological Nitrogen Fixation, Nodule Formation and Nod Factors, Mechanism of Nitrate Uptake and Reduction, Ammonium Assimilation; Nitrogen Transformation during Plant Development.
8) **Lipid and Sulphur Metabolism:** Structure and Function of Lipids, Fatty Acid Biosynthesis, Synthesis of Membrane Lipids, Structural Lipids and Storage Lipids and Their Catabolism, Conversion of Fats on Germinating Fatty Seeds. Sulphate Uptake, Transport and Assimilation.

RECOMMENDED READINGS:

1. Bala, M., Gupta, S., Gupta, N.K. and Sangha, M.K. (2013). Practicals in Plant Physiology and Biochemistry, Scientific Publishers (India), Jodhpur.
2. Berg J. M., Tymoczko J. L., Gatto Jr., J., Gregory, Jr., Stryer, L. 2015. Biochemistry, W. H. Freeman and Company, New York.
3. Bhattacharya, K., Ghosh, A.K. and Hait, G. (2018). A Textbook of Botany, Volume III, New Central Book Agency Pvt. Ltd, Kolkata.
4. Buchanan, B.B, Gruissem, W. and Jones, R.L. 2007. Biochemistry and Molecular Biology of Plants, (2nd Edition), Ik International Pvt. Ltd., New Delhi.
5. Hopkins, W.G. and Huner, N.P. 2009. Introduction to Plant Physiology, 4th Edition. John Wiley and Sons, USA.
6. Nelson, D. L. and Cox M.M. 2013. Lehninger Principles of Biochemistry, 6th Edition. W.H. Freeman and Company, New York.
7. Salisbury, F.B. and Ross, C.W. 2005. Plant Physiology, 4th Edition. Eastern Press, Pvt. Ltd. Bangalore.
8. Stiles, W. 2016. Principles of Plant Physiology, Discovery Publishing House, New Delhi.
9. Taiz, L. and Zeiger, E. 2010. Plant Physiology, 5th Edition. Sinauer Associates Inc., USA.

SEMESTER V
DISCIPLINE SPECIFIC ELECTIVE COURSE I
DSE (ZOO) 507A
ANIMAL BIOTECHNOLOGY

Total Credits: 2	Total Marks: 50		Pass Percentage: 35%	Pass Marks: 17	
	Theory 35	Internal Assessment 15		Theory 12	Internal Assessment 5

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections: A, B & C. Section A & B will have four questions in each section from the respective sections of the syllabus and will carry 5 marks each. Section C will consist of 5 short-answer type questions will cover the entire syllabus uniformly and each will carry 3 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions from each section A & B of the question paper and the entire section C.

LEARNING OBJECTIVES

The course is designed to explain

- Definitions, Activities and scope of Animal biotechnology

LEARNING OUTCOMES

Students will be able to describe the structure of virus, animal genes and genomes. Be able to describe how genes are expressed and what regulatory mechanisms contribute to control of gene expression. Be able to describe basic principles and techniques in genetic manipulation and genetic engineering. Students can better understand viruses, their diseases, vaccines and preventions.

SECTION A

Unit 1: Introduction

Concept and scope of biotechnology

Unit 2: Genetically Modified Organisms

Introduction to the methods for Production of cloned and transgenic animals: Nuclear Transplantation, Retroviral Method, DNA microinjection

Applications of transgenic animals.

SECTION B

Unit3: Brief Account of Molecular Techniques in Gene manipulation

Cloning vectors: Plasmids, Cosmids, Phagmids, Lambda Bacteriophage, BAC, YAC, MAC and Expression vectors (characteristics), Restriction enzymes

Transformation techniques: Calcium chloride method and electroporation.

Unit 4: Brief Account of cDNA technology

Construction of genomic and cDNA libraries and screening by colony and plaque hybridization; Southern, Northern and Western blotting;

DNA sequencing: Sanger method, Polymerase Chain Reaction, DNA Finger Printing and DNA micro array

SUGGESTED READINGS

- Brown, T.A. (1998). *Molecular Biology Labfax II: Gene Cloning and DNA Analysis*. II Edition, Academic Press, California, USA.
- Glick, B.R. and Pasternak, J.J. (2009). *Molecular Biotechnology - Principles and Applications of Recombinant DNA*. IV Edition, ASM press, Washington, USA.
- Griffiths, A.J.F., J.H. Miller, Suzuki, D.T., Lewontin, R.C. and Gelbart, W.M. (2009). *An Introduction to Genetic Analysis*. IX Edition. Freeman and Co., N.Y., USA.
- Snustad, D.P. and Simmons, M.J. (2009). *Principles of Genetics.* V Edition, John Wiley and Sons Inc.
- Watson, J.D., Myers, R.M., Caudy, A. and Witkowski, J.K. (2007). *Recombinant DNA Genes and Genomes- A Short Course*. III Edition, Freeman and Co., N.Y., USA.

SEMESTER V
DISCIPLINE SPECIFIC ELECTIVE COURSE I
DSE (ZOO) 507 B
REPRODUCTIVE BIOLOGY

Total Credits: 2	Total Marks: 50		Pass Percentage: 35%	Pass Marks: 17	
	Theory 35	Internal Assessment 15		Theory 12	Internal Assessment 5

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections: A, B & C. Section A & B will have four questions in each section from the respective sections of the syllabus and will carry 5 marks each. Section C will consist of 5 short-answer type questions will cover the entire syllabus uniformly and each will carry 3 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions from each section A & B of the question paper and the entire section C.

LEARNING OBJECTIVES

The major objective of this course is to provide students with a sound coverage of reproductive biology. This is achieved by first covering fundamentals of the structure and function of the male and female reproductive tracts, gametogenesis, fertilization, early embryogenesis, fetal development and preparation for birth, and maternal adaptations to pregnancy

LEARNING OUTCOMES

At the completion of this unit students should be able to: Scientific principles and general biology. Describe the reproductive system of animals. Describe how medical treatment of perinatal loss has changed over time and the reasons behind the changes.

SECTION A

Unit 1: Functional anatomy of male reproduction

Outline and histological of male reproductive system in human; Epididymal function and sperm maturation; Accessory glands functions; Sperm transportation in male tract

Unit 2: Functional anatomy of female reproduction

Outline and histological of female reproductive system in human; Ovary: folliculogenesis, ovulation, corpus luteum formation and regression; Reproductive cycles in human and their regulation, implantation; Hormonal regulation of gestation, pregnancy diagnosis, foeto – maternal relationship; Mechanism of parturition; Lactation.

SECTION B

Unit 3: Reproductive Health

Reproductive Health- Problems and strategies, Population Stabilization and birth control methods, Infertility in male and female: causes, diagnosis and management

Unit 4: Assisted Reproductive Technology

In vitro and *in vivo* fertilization;

Different techniques of assisted reproductive technology viz; Sperm banks, frozen embryos, ET, EFT, IUT, ZIFT, GIFT, ICSI, AI, IUI.

SUGGESTED READINGS

- Austin, C.R. and Short, R.V. reproduction in Mammals. Cambridge University Press.
- Degroot, L.J. and Jameson, J.L. (eds). Endocrinology. W.B. Saunders and Company.
- Knobil, E. et al. (eds). The Physiology of Reproduction. Raven Press Ltd.
- Hatcher, R.A. et al. The Essentials of Contraceptive Technology. Population Information Programme.

SEMESTER V
ZOOLOGY LAB V
DSE (ZOO) 507 P
ANIMAL BIOTECHNOLOGY AND REPRODUCTIVE BIOLOGY

Total Credits:	Total Marks:	Pass Percentage:	Pass Marks:
2	50	35%	17

1. To study following techniques through photographs
a) Southern Blotting
b) Northern Blotting
c) Western Blotting
d) DNA Sequencing (Sanger's Method)
e) PCR
f) DNA fingerprinting
2. Project report on animal cell culture
3. Visit of animal house: set up and maintenance of animal house, breeding techniques, care of normal and experimental animals.
4. Examination of histological sections from photomicrographs/ permanent slides of rat/human: testis, epididymis and accessory glands of male reproductive systems; Sections of ovary, fallopian tube, uterus (proliferative and secretory stages), cervix and vagina.
5. Study of modern contraceptive devices

SEMESTER V
SKILL ENHANCEMENT COURSE III
SEC (ZOO) III
MEDICAL DIAGNOSTICS

Total Credits: 2	Total Marks: 50		Pass Percentage: 35%	Pass Marks: 17	
	Theory 35	Internal Assessment 15		Theory 12	Internal Assessment 5

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections: A, B & C. Section A & B will have four questions in each section from the respective sections of the syllabus and will carry 5 marks each. Section C will consist of 5 short- answer type questions will cover the entire syllabus uniformly and each will carry 3 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions from each section A & B of the question paper and the entire section C.

LEARNING OBJECTIVES

This paper imparts the required skills for the detection of diseases, operation and application of various advance techniques.

LEARNING OUTCOMES

After the exposure of the current paper students would find themselves equipped with a full package of skill development in order to work in an advance diagnostic setting.

SECTION A

Unit 1: Introduction to Medical Diagnostics and its Importance

Unit 2: Diagnostics Methods Used for Analysis of Blood

Blood composition, Preparation of blood smear and Differential Leucocyte Count (DLC) using Leishman's stain, Platelet count using haemocytometer, Erythrocyte Sedimentary Rate (ESR), Packed Cell Volume (PCV)

Unit 3: Diagnostic Methods Used for Urine Analysis

Urine Analysis: Physical characteristics; Abnormal constituents

SECTION B

Unit 4:Non-infectious Diseases

Causes, types, symptoms, complications, diagnosis and prevention of Diabetes (Type I and Type II), Hypertension (Primary and secondary), Testing of blood glucose using Glucometer/Kit

Unit 5: Infectious Diseases

Causes, types, symptoms, diagnosis and prevention of Tuberculosis and Hepatitis

Unit 6: Tumours

Types (Benign/Malignant), Detection and metastasis; Medical imaging: X-Ray of Bone fracture, PET, MRI and CT scan (using photographs)

SUGGESTED READINGS

- Park, K. (2007), Preventive and Social Medicine, B.B. Publishers
- Godkar P.B. and Godkar D.P. Textbook of Medical Laboratory Technology, II Edition, Bhalani Publishing House
- Cheesbrough M., A Laboratory Manual for Rural Tropical Hospitals, A Basis for Training Course
- Guyton A.C. and Hall J.E. Textbook of Medical Physiology, Saunders Robbins and Cortan, Pathologic Basis of Disease, VIIIEdition, Saunders Prakash, G. (2012), Lab Manual on Blood Analysis and Medical Diagnostics, S. Chand and Co. Ltd.

SEMESTER VI
DISCIPLINE SPECIFIC ELECTIVE COURSE II
DSE (ZOO) 607 A
IMMUNOLOGY

Total Credits: 2	Total Marks: 50		Pass Percentage: 35%	Pass Marks: 17	
	Theory 35	Internal Assessment 15		Theory 12	Internal Assessment 5

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections: A, B & C. Section A & B will have four questions in each section from the respective sections of the syllabus and will carry 5 marks each. Section C will consist of 5 short-answer type questions will cover the entire syllabus uniformly and each will carry 3 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions from each section A & B of the question paper and the entire section C.

LEARNING OBJECTIVES

The course is designed to discuss normal functions of body components during immune responses, to explain adverse functions of these cellular and molecular components during abnormal circumstances.

LEARNING OUTCOMES

Students who successfully complete this course will be able to:

- Identify major components of the immune system at organ, cellular and molecular levels.
- Elucidate the relationship between major cellular and molecular components of immune system.
- Apply immunologic techniques to solve certain clinical and research problems.

SECTIONA

Unit 1: **Overview of the Immune System**

Introduction to basic concepts in immunology, components of immune system, principles of innate and adaptive immune system

Unit 2: **Cells and Organs of the Immune System**

Hematopoiesis, Cells of immune system and organs (primary and secondary lymphoid organs) of the immune system.

Unit 3: Antigens

Basic properties of antigens, B and T cell epitopes, haptens and adjuvants

SECTION B

Unit 4: **Antibodies**

Structure, classes and function of antibodies, monoclonal antibodies, antigen antibody interactions

Unit 5: **Working of the immune system**

Structure and functions of MHC, Antigen presentation method

Unit 6: **Immune system in health and disease**

Brief description of various types of hypersensitivities, Introduction to concepts of autoimmunity and immunodeficiency

SUGGESTED READINGS

- Kindt, T. J., Goldsby, R.A., Osborne, B. A. and Kuby, J (2006). Immunology, VI
- Edition. W.H. Freeman and Company.
- David, M., Jonathan, B., David, R. B. and Ivan R. (2006). Immunology, VII Edition,
- Mosby, Elsevier Publication.
- Abbas, K. Abul and Lechtman H. Andrew (2003.) Cellular and Molecular
- Immunology. V Edition. Saunders Publication.

SEMESTER VI
DISCIPLINE SPECIFIC ELECTIVE COURSE II
DSE (ZOO) 607 B
PARASITOLOGY

Total Credits: 2	Total Marks: 50		Pass Percentage: 35%	Pass Marks: 17	
	Theory 35	Internal Assessment 15		Theory 12	Internal Assessment 5

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections: A, B & C. Section A & B will have four questions in each section from the respective sections of the syllabus and will carry 5 marks each. Section C will consist of 5 short-answer type questions will cover the entire syllabus uniformly and each will carry 3 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions from each section A & B of the question paper and the entire section C.

LEARNING OBJECTIVES

The course is designed with objectives to clear the concepts of parasites, insects, dairy and poultry animals, fisheries and their use for the betterment of human race.

LEARNING OUTCOMES

Students who successfully complete this course will be able to:

- Explain basics of the parasitic life-mode in context of ecological and evolutionary forces.
- Identify major fish groups and local native species, and describe their key characteristics.
- Identify human impacts on cattle and poultry animals, and the ecosystems in which they live.
- Describe the importance of beneficial and pest insects to humans.

SECTION A

Unit 1: Introduction to Host-parasite Relationship

Host, Definitive host, Intermediate host, Parasitism, Symbiosis, Commensalism, Reservoir, Zoonosis

Unit 2: Epidemiology of Diseases

Transmission, Prevention and control of diseases: Tuberculosis, typhoid

Unit 3: Parasitic Protozoa

Life history and pathogenicity of *Plasmodium vivax* and *Trypanosoma gambiense*

SECTION B

Unit 4: Trematodes

Brief account of *Fasciola hepatica* and *schistosones*

Unit 5: Parasitic Helminthes

Life history and pathogenicity of *Ancylostoma duodenale* and *Wuchereria bancrofti*

Unit 6: Insects of Medical Importance

Medical importance and control of *Pediculus humanus corporis, Anopheles, Culex, Aedes, Xenopsylla cheopis*

SUGGESTED READINGS

- Park, K. (2007). *Preventive and Social Medicine*. XVI Edition. B.B Publishers.
- Arora, D. R and Arora, B. (2001). *Medical Parasitology*. II Edition. CBS Publications
- Atwal, A.S. (1986). *Agricultural Pests of India and South East Asia*, Kalyani Publishers.
- Hafez, E. S. E. (1962). *Reproduction in Farm Animals*. Lea & Fabiger Publisher
- Dunham R.A. (2004). *Aquaculture and Fisheries Biotechnology Genetic Approache*s. CABI publications, U.K.
- Pedigo, L.P. (2002). *Entomology and Pest Management*, Prentice Hall.

SEMESTER VI
ZOOLOGY LAB VI
DSE (ZOO) 607 P
IMMUNOLOGY AND PARASITOLOGY

Total Credits:	Total Marks:	Pass Percentage:	Pass Marks:
2	50	35%	17

1*. Demonstration of lymphoid organs
2. Histological study of spleen, thymus and lymph nodes through slides/ photographs
3. Preparation of stained blood film to study various types of blood cells.
4. ABO blood group determination.
5. Study of *Plasmodium vivax*, *Trypanosoma gambiense, Ancylostoma duodenale* and *Wuchereria bancrofti* and their life stages through permanent slides/photomicrographs or specimens.
6. Study of arthropod vectors associated with human diseases: *Pediculus*, *Culex*, *Anopheles*, *Aedes* and *Xenopsylla.*

(*Subject to UGC guidelines)

SEMESTER VI
SKILL ENHANCEMENT COURSE IV
SEC (ZOO) IV
RESEARCH METHODOLOGY

Total Credits: 2	Total Marks: 50		Pass Percentage: 35%	Pass Marks: 17	
	Theory 35	Internal Assessment 15		Theory 12	Internal Assessment 5

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections: A, B & C. Section A & B will have four questions in each section from the respective sections of the syllabus and will carry 5 marks each. Section C will consist of 5 short- answer type questions will cover the entire syllabus uniformly and each will carry 3 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions from each section A & B of the question paper and the entire section C.

LEARNING OBJECTIVES

Understanding of scientific method, concepts and steps in research, Understand the various techniques of Data Collection- Observation, Questionnaire, Interview Schedule; Case Study, Social Survey, Content Analysis, Describing various types of Sampling, Data Processing and Data Analysis

LEARNING OUTCOMES

Upon completing this course, each student will be able to:

- Demonstrate knowledge of research processes (reading, evaluating and developing)
- Identify, explain, compare, and prepare the key elements of a research proposal/report
- Describe sampling methods, measurement scales and instruments, and appropriate uses of each

SECTION A

Unit 1: Foundations of Research

Meaning, Objectives, Motivation: Research Methods *vs* Methodology

Types of Research: Analytical *vs* Descriptive, Quantitative *vs* Qualitative, Basic *vs* applied

Unit 2: Research Design

Need for research design: Features of good design, important concepts related to good design- Observation and Facts, Prediction and Explanation, Development of Models. Developing a research plan: Problem identification, Experimentation, Determining experimental and sample designs

SECTION B

Unit 3: Data Collection, Analysis and Report Writing

Observation and Collection of Data-Methods of data collection- Sampling Methods, Data Processing and Analysis Strategies, Technical Reports and Thesis writing, Preparation of Tables and Bibliography. Data Presentation using digital technology

Unit 4: Ethical Issues

Intellectual property Rights, Commercialization, Copy Right, Royalty, Patent law, Plagiarism, Citation, Acknowledgement.

SUGGESTED READINGS

- Anthony, M, Graziano, A.M. and Raulin, M.L. 2009. Research Methods: A Process of Inquiry, Allyn and Bacon.
- Walliman, N. 2011. Research Methods- The Basics. Taylor and Francis, London, New York.
- Wadhera, B.L. 2002. Law Relating to Patents, Trade Marks, Copyright Designs and Geographical Indications, Universal Law publishing.
- C. R. Kothari 2009. Research Methodology, New Age International.
- Coley, S.M. and Scheinberg, C.A. 1990. Proposal writing. Stage Publications.

MSC Zoology IInd Year
Session 2020-21

SEMESTER III
CORE COURSE X
MZO 211
ANIMAL BEHAVIOUR

Credits: 4	Time Allowed: 3 Hrs	Pass Percentage: 35%
Maximum Marks: 100	Theory: 70	Internal Assessment: 30
Pass Marks: 35	Theory : 25	Internal Assessment : 10

OBJECTIVES OF THE COURSE

To understand Animal behaviour and response of animals to different instincts. Various kinds of Animal adaptations

LEARNING OUTCOMES

Students who successfully complete this course will be able to:

- Explain the influence of natural selection on behavior.
- Describe and give examples of reproductive behaviors and mating strategies employed by animals.
- Explain corporative and competitive behavioural interactions.
- Define eusociality and explain the costs and benefits of this strategy.

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections: A, B and C. Section A and B will have four questions in each section from the respective sections of the syllabus and will carry 10 marks each. Section C will consist of 10 short-answer type questions will cover the entire syllabus uniformly and each will carry 3 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions from each section A and B of the question paper and the entire section C.

SECTION-A

1. **Animal Psychology-** Classification of behavioural patterns
    - Analysis of Behaviour (ethogram)
    - Innate Behaviour
2. **Behavioural Genetics**:
    - Genes and behaviour
    - Evolution of behaviour
    - Co-evolution
3. **Control of behaviour:**
    - Neural
    - Hormonal
4. **Communication :**
    - Chemical
    - Visual
    - Audio
    - Evolution of language (primates)

SECTION-B

5. **Social Behaviour**:
    - Aggregation

  - Schooling in fishes
  - Flocking in birds
  - Group selection, kin selection, altruism
  - Social organization in insects and primates.

6. **Reproductive Behaviour:**
   - Mating systems
   - Use of space and territoriality
   - Courtship
   - Sperm competition
   - Parental investment and Reproductive success
   - Parental Care
7. **Biological Rhythms:**
   - Circadian and circannual rhythms
   - Orientation and navigation
   - Migration of fishes and birds
8. **Learning and memory**
   - Insight learning
   - Association learning
   - Reasoning
   - Cognitive skills

SUGGESTED READINGS

- Alocock, J. Animal behaviour: An evolutionary approach, Sinauer Assoc., Sunderland, Mass. USA.
- Bradbury, J.W., and S.L. Verhrencamp. Principles of Animal Communication, Sinauer Assoc., Sunderland, Mass. USA.
- Clutton-Brock, T.H. The evolution of Parental care, Princeton Univ. Press, Princeton, NJ, USA.
- Eibl-Eibesfeldt, I. Ethology. The biology of behaviour, Holt, Rinechart and Winston, New York.
- Gould, J.L. The mechanisms and evolution of behaviour.
- Hauser, M. The evolution of communication, MIT Press, Cambridge, Mass. USA.
- Hinde, R.A. Animal behaviour: A synthesis of Ethology and comparative psychology. McGraw-Hill, New York.
- Krebs, J.R. and N.B. Davies, Behavioural ecology, Blackwell, Oxford, U.K.
- Wilson, E.O. Sociobiology: The new synthesis, Harvard Univ. Press, Cambridge, Mass. USA.
- Mathur Reena, Animal Behaviour (2005) Rastogi Publications.

SEMESTER III

CORE COURSE XI

MZO 212

GENERAL ENDOCRINOLOGY

Credits: 4	Time Allowed: 3 Hrs	Pass Percentage: 35%
Maximum Marks: 100	Theory: 70	Internal Assessment: 30
Pass Marks: 35	Theory : 25	Internal Assessment : 10

OBJECTIVES OF THE COURSE

To learn basic and advanced endocrine biochemistry, physiology and pathophysiology, which provide the basis for understanding endocrine diseases? To accumulate a critical mass of fundamental information and Lab approaches for the diagnosis, management and prevention of endocrine disorders

LEARNING OUTCOMES

The student will develop an understanding of the role of the endocrine system in maintaining homeostasis and health. The student will be better able to understand the integrative workings of the human body by studying this signaling system.

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections: A, B and C. Section A and B will have four questions in each section from the respective sections of the syllabus and will carry 10 marks each. Section C will consist of 10 short-answer type questions will cover the entire syllabus uniformly and each will carry 3 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions from each section A and B of the question paper and the entire section C.

SECTION-A

1. **Hormones and hormone Action:**
   - Classification of hormones
   - Storage and secretions of hormones
   - Mechanism of hormone action: Membrane bound receptors, Intracellular receptors, and Concepts of Second messengers in hormone action: cAMP, cGMP, calcium ions, phosphoinositides and protein kinase cascade, Control of hormone secretion, Measurement of hormones in blood by radioimmunoassay (RIA).
2. **Hypothalamus and pituitary gland:**
   - The pituitary gland and its relation to the hypothalamus
   - Control of pituitary secretion by hypothalamus
   - Physiological functions and regulation of growth hormone
   - Abnormalities of growth hormone secretion
   - Neurohypophyseal hormones: Chemical nature and physiological functions of antidiuretic hormone (Vasopressin) and oxytocin.
3. **Thyroid hormones:**
   - Biosynthesis and secretion of thyroid hormones.
   - Physiological functions of thyroid hormones
   - Regulation of thyroid hormones
   - Antithyroid substances
   - Abnormalities of thyroid hormones

SECTION- B

4. **Parathyroid hormones:**
    - Physiological anatomy of parathyroid glands
    - Effect of parathyroid hormone on calcium and phosphate metabolism
    - Regulation of parathyroid secretions
    - Calcitonin and its control on calcium ion concentration.
5. **Adrenocortical hormones:**
    - Functions of the glucocorticoids on metabolism
    - Regulation of cortisol secretion
    - Catecholamine's: Biosynthesis and metabolism of epinephrine and norepinephrine.
    - Physiological effects of catecholamine's
6. **Pancreas and its hormones:**
    - Insulin and its metabolic effects
    - Glucagon and its effect on glucose metabolism.

SUGGESTED READINGS

- E.J.W. Barrington: General and comparative Endocrinology, oxford, clarendox press.
- Guyton, AG and Hall J.E: Text book of Medical Physiology 11th Ed, Saunders publications. 2006.
- William F. Ganong: Review of medical physiology, international 21st edition M C Graw Hill companies. 2003.
- P.J. Bentley: Comparative vertebrate Endocrinology, Cambridge University Press, 1976.
- R.H. Williams: Text Book of Endocrinology, W, B. Saunders.
- Gobermanetal: Comparative Endocrinology, John Wiley and sons.
- Francis. S. Greenspan and David G. Gardner: Basic and clinical endocrinology, 7th edition MC graw Hill Co. 2003.
- Norman Lavin: Manual of Endocrinology and Metabolism, Linncott Williams and Williams.

SEMESTER III

CORE COURSE XII

MZO 213

INSTRUMENTATION AND BIOSTATISTICS

Credits: 4	Time Allowed: 3 Hrs	Pass Percentage: 35%
Maximum Marks: 100	Theory: 70	Internal Assessment: 30
Pass Marks: 35	Theory : 25	Internal Assessment : 10

OBJECTIVES OF THE COURSE

Students gain knowledge about various tools and techniques used in biological systems and give them insight about their use in research. Biostatistics teaches them to use the best data analysis methods. Students gain knowledge about statistical methods like measures of central tendencies, Probability. Learns about hypothesis testing and inferential statistics and the problem-solving methods.

LEARNING OUTCOMES

Students who successfully complete this course will be able to:

- Choose an appropriate sampling scheme and/or experimental design for a given biological question.
- Select and apply the appropriate analytical methods to biological data.
- Demonstrate the necessary skills for biological data management, analysis and graphical presentation.
- Evaluate critically the primary instrumental requirements observation and experimental biology.

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections: A, B and C. Section A and B will have four questions in each section from the respective sections of the syllabus and will carry 10 marks each. Section C will consist of 10 short-answer type questions will cover the entire syllabus uniformly and each will carry 3 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions from each section A and B of the question paper and the entire section C.

SECTION A

1. **Methods in field biology:**
    - Methods of estimating population density of animals,
    - Ranging patterns through direct, indirect and remote observations,
    - Sampling methods in the study of behaviour, habitat characterization: ground and remote sensing methods.
2. **Radiolabeling techniques:**
    - Detection and measurement of different types of radioisotopes normally used in biology,
    - Incorporation of radioisotopes in biological tissues and cells,
    - Molecular imaging of radioactive material,
    - Safety guidelines.
3. **Microscopic techniques:**
    - Visualization of cells and subcellular components by light microscopy,
    - Resolving powers of different microscopes,
    - Microscopy of living cells,
    - Scanning and transmission microscopes,

- Different fixation and staining techniques for EM, freeze-etch and freeze-fracture methods for EM, Image processing methods in microscopy.

SECTION B

4. **Electrophysiological methods:**
   - Single neuron recording,
   - Patch-clamp recording,
   - ECG, Brain activity recording, Lesion and stimulation of brain,
   - Pharmacological testing,
   - Positron emission tomography (PET), Magnetic resonance imaging (MRI), Functional MRI (fMRI), computerized axial tomography (CAT).
5. **Biophysical Method:**
   - Molecular analysis using UV/visible, fluorescence, circular dichroism, NMR and ESR spectroscopy
   - Molecular structure determination using X-ray diffraction and NMR,
   - Molecular analysis using light scattering, different types of mass spectrometry and surface plasma resonance methods.
6. **Statistical Methods:**
   - Measures of central tendency and dispersal;
   - Probability distributions (Binomial, Poisson and normal);
   - Sampling distribution;
   - Difference between parametric and non-parametric statistics;
   - Confidence Interval; Errors; Levels of significance; Regression and Correlation; t test; Analysis of variance; $\chi 2$ test;
   - Basic introduction to Multivariate statistics, etc.

SUGGESTED READINGS

- Lehninger, A. Nelson, Dand Cox 2003. Principles of Biochemistry. CBS Publishers, New Delhi.
- Wilson, K and walker John 2005. Principles and Techniques of Biochemistry. Cambridge University Press.
- Stefen 2005. Basic Techniques in Molecular Biology. Springer Publishers.
- Ranjit Kumar 2002. Research Methodology; A step by step Guide for beginner's sage publishers.
- Karp, Gerald 2002. Cell and Molecular Biology, Concepts and Experiments John Willey and Sons. U.K.
- Gupta, PK 2005. Cell and Molecular Biology. Rastogi Publications. Meerut.
- Singh, BD 2003. Biotechnology. Kalyani Publishers. New Delhi.
- Pavia, D.L., Lampmann, N.G.M and Kris, G.S. 2001 introduction to spectroscopy, 3rd edn. Harcourt, New York.
- Gupta, S.C., and Kapoor, V.K, 2001 fundamentals of Applied Statistics. Sultan Chand K Sons, 3rd edn, Jan 2001.
- PSS Sundar Rao and J Richard, Introduction to Biostatistics and Research Methods. PHI Learning Publishers.

SEMESTER III
CORE COURSE XIII
MZO214
CELL SIGNALLING

Credits: 4	Time Allowed: 3 Hrs	Pass Percentage: 35%
Maximum Marks: 100	Theory: 70	Internal Assessment: 30
Pass Marks: 35	Theory : 25	Internal Assessment : 10

OBJECTIVES OF THE COURSE

To understand how membrane-bound and nuclear receptors signal. To get deeper knowledge about the functioning and regulation of kinases, GPCRs, nuclear hormone receptors and cytokine receptors. To gain knowledge on the role of cell signaling in development and progression of animals.

LEARNING OUTCOMES

After studying this course, students should be able to:

- Define and understand the terms like Cell signalling, G Protein coupled receptors, Enzyme linked receptors, ERK and TKA receptors.
- Understand the basic principles of signal transduction mechanisms, in particular the concepts of response specificity, signal amplitude and duration, signal integration and intracellular location
- Give examples of different types of extracellular signals and receptors, and explain their functional significance
- Describe the mechanisms by which different receptors may be activated by their respective ligands
- Describe and give examples of the structure and properties of the major components of signal transduction pathways.

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections: A, B and C. Section A and B will have four questions in each section from the respective sections of the syllabus and will carry 10 marks each. Section C will consist of 10 short-answer type questions will cover the entire syllabus uniformly and each will carry 3 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions from each section A and B of the question paper and the entire section C.

SECTION A

1. **Cell Signalling introduction**
    - Types of Signalling
    - Types of receptors
    - Ion channel linked receptors
    - Acetylcholine Cation channel
2. **G Protein coupled receptors**
    - G protein, Stimulatory G Protein
    - GPCR and G Protein mechanism
    - Receptors of GPCR, Ligands of GPCR,
    - Regulation of GPCR
3. **Signalling through G Protein coupled receptors**
    - C AMP Pathway
    - IP3 DAG Pathway

  - Calcium calmodulin complex
  - GPCR in vision

SECTION B

4. **Enzyme linked Receptors**
   - Receptor tyrosine Kinase
   - Ligands of RTK
   - Mode of action of RTK
5. **ERK Extra cellular signal regulated kinase**
   - Ras-MAP Kinase pathway
   - IP3/DAG pathway
   - PI-3 Pathway/AKT
   - mTOR and insulin signaling
6. **Tyrosine Kinase Associated Receptors**
   - JAK-STAT Pathways
   - Receptor serine/threonine kinases
   - TGF-β Pathways
   - Product of pathway
   - Histidine Kinase associated receptor

SUGESTED READINGS

- Bruce Alberts, Alexander Johnson, Martin Raff, Julian Lewis, Keith Roberts, Peter Walter, Dennis Bray, James D. Watson 1983 Molecular Biology of the Cell, W.W. Norton and Co.
- Godsby, R.A. et al, 2000: Kuby Immunology W.H. Freeman and Co.
- Karp, Gerald 2002. Cell and Molecular Biology, Concepts and Experiments John Willey and Sons. U.K.
- Gilbert, S. F. (2010). Developmental Biology, IX Edition, Sinauer Associates, Inc., Publishers, Sunderland, Massachusetts, USA
- Snustad, D.P., Simmons, M.J. (2009). Principles of Genetics. V Edition. John Wiley and Sons Inc
- Klug, W.S., Cummings, M.R., Spencer, C.A. (2012). Concepts of Genetics. X Edition. Benjamin Cummings
- I.J brand Kramer, III Edition, Cell Signaling

SEMESTER III
CORE COURSE XIV
MZO 215
MICROBIOLOGY

Credits: 4	Time Allowed: 3 Hrs	Pass Percentage: 35%
Maximum Marks: 100	Theory: 70	Internal Assessment: 30
Pass Marks: 35	Theory : 25	Internal Assessment : 10

OBJECTIVES OF THE COURSE

This course is designed to explain the importance of microbial diversity. It describes role of different microorganisms to human.

LEARNING OUTCOMES

Students who successfully complete this course will be able to:

- Describe disease-causing microorganisms and microbial agents at organismal, cellular and/or molecular levels.
- Relate normal cellular and molecular structures to their functions.
- Explain cellular processes and mechanisms that lead to physiological functions and pathological state.

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections: A, B and C. Section A and B will have four questions in each section from the respective sections of the syllabus and will carry 10 marks each. Section C will consist of 10 short-answer type questions will cover the entire syllabus uniformly and each will carry 3 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions from each section A and B of the question paper and the entire section C.

SECTION A

1. **General Microbiology**
    - Characterization, Classification and Identification of micro-organisms.
    - Morphology and fine structure of bacteria
    - Reproduction in bacteria
2. **The Viruses**
    - Viruses: Animal and Bacterial Viruses
    - The viroids
    - The prions
3. **General Characteristics of**
    - Protozoa
    - Algae
    - Fungi
4. **Microbial Genetics**
    - Bacterial recombination
    - Transformation
    - Conjugation
    - Transduction

SECTION –B

5. **Environmental Microbiology**
    - Microbial flora of soil and their role in Nitrogen and Carbon transformation.
    - Aquatic micro-organisms and their importance.
6. **Food and Industrial microbiology**

- Microbial spoilage and Preservation of food
- Fermented foods: Yoghurt, Bulgarian Milk, Acidophilus Milk, Kumiss, Kefir, Soy, Tempeh, Tofu
- SCP, Probiotics, Prebiotics

7. **Micro-organisms and Human health**
    - Microbial agents of diseases
    - Bacteria,
    - Viruses
    - Protozoa.
8. **Control of microorganism by**
    - Physical agents
    - Chemical agents

SUGGESTED READINGS

- General Microbiology by R.V. Stainer, J.L. Ingraham, M.L. Wheelis and P.R. Painter, Mac Millan, Hong Kong, 1992.
- General Microbiology by H.G. Schegel, Cambridge University, Press, U.K. 1995
- Microbiology by Pelczar, M.J., Chan, C.S. and Krieg, D.R. McGraw-Hill offices, New York, 2000
- Microbiology: Principles and Applications by Greager, J.G., Black, J.G. and Davision, V.E., Prentice Hall, New Jersey, 1990.
- Principles of Microbiology by R.M. Atlas, Mosby, St. Louis, 1995.
- Microbiology, A Human Perspective by E.W. Nester, C.E. Roberts, M.T. Nester, WCB Phis, London, 1995.

SEMESTER III
PRACTICAL VII
MZO216
Pertaining to theory papers MZO211 andMZO212

Credits: 2	Maximum Marks:50
Pass Percentage: 35%	Pass Marks: 18

MZO 211

1. To study the behaviour of rat by using the "Skinners Boxes"
2. Habituation/Sensitization in mosquito larvae.
3. To study the Grooming behaviour of Cockroach.
4. To study the behaviour of Earthworm.
5. Simulating the dilution, confusion and odd prey effects.
6. To study the rolling behaviour of pill bugs.
7. To assess the importance of a visual stimulus (background colour/brightness) and olfactory stimulus (background food/odorant) on an individual's decision to position itself relative to it.

MZO 212

1. To study the permanent slides of some endocrine glands by microtome: Thyroid, Pancreas, Thymus, Spleen, Adrenal gland, Testis and Ovary.
2. To study the Process of spermatogenesis, process of oogenesis, Corpus luteum, Structure of sperm, Parathyroid gland, Sickle cell anaemia, Mammary gland and Calcified and decalcified bone.
3. To demonstrate the abnormalities of growth hormone: Dwarfism, Gigantism and Acromegaly.
4. To demonstrate the abnormalities related to Thyroid Gland: Hyperthyroidism Exophalmos, Goitre and Grave's disease; Hypothyroidism Myxoedema, Cretinism.
5. To demonstrate the abnormalities of Adrenal Gland: Cushing Syndrome.

SEMESTER III
PRACTICAL VIII
MZO217
Pertaining to theory papers MZO213 andMZO214

Credits: 2	Maximum Marks:50
Pass Percentage: 35%	Pass Marks: 18

MZO213

1. To study the principle, working and applications of Compound microscope.
2. To study the principle, working and applications of Stereo zoom microscope.
3. To study the principle, working and applications of Phase contrast microscope.
4. To study the principle, working and applications of Fluorescent microscope.
5. To study the principle, working and applications of Spectrophotometer.
6. To prepare the chromatograph for different inks/oils by paper chromatography.

MZO214

1. Study of cell organelles from electron micrographs.
2. Preparation of temporary stained slides of mitosis .
3. Abnormalities of mitotic/meiotic divisions (through micrographs/karyotypes).
4. Demonstration of animal cell culture.
5. Study of DNA damage by micronucleation/Comet Assay.

SEMESTER III
PRACTICAL IX
MZO218
Pertaining to theory paper MZO 215

Credits: 1	Maximum Marks:25
Pass Percentage: 35%	Pass Marks: 09

MZO 215

1. Sterilization of glassware used in microbiology laboratory and preparation of nutrient broth and nutrient agar.
2. Preparation of nutrient agar plates and swabbing to obtain colonies
3. Study of morphology, texture, colour, margin of bacterial colonies.
4. Differential staining of given culture to identify gram positive and gram negative bacteria.
5. Perform hanging drop mount method to examine the motility of bacteria.
6. Determine the quality of given milk sample by using methylene blue test.
7. Perform stormy clot fermentation test to detect the presence of anaerobic bacteria in given milk sample.
8. Demonstration of Catalase activity for H2O2 production in the given bacterial colony.
9. Determine the growth curve of given bacterial colony.

SEMESTER IV
CORE COURSE XV
MZO 221
ZOOGEOGRAPHY, WILDLIFE AND ITS MANAGEMENT

Credits: 4	Time Allowed: 3 Hrs	Pass Percentage: 35%
Maximum Marks: 100	Theory: 70	Internal Assessment: 30
Pass Marks: 35	Theory : 25	Internal Assessment : 10

OBJECTIVES OF THE COURSE

To understand distribution of fauna in different realms interaction, Theories of Evolution, Knowledge of eras and evolution of species. The course is an introduction to wildlife management at the state, national and international level and some of the tools used by wildlife managers In addition to providing a sound scientific and theoretical background on wildlife sciences and management, tutorial activities and a field trip will provide the students with a hands-on experience and Lab skills and tools used by wildlife managers.

LEARNING OUTCOMES

On completion of the course, students are able to:

- Understand the Origin and development of animals, process of evolution, concepts of Universe, Geological time scale, theories of life cycles, Zoogeographical realm.
- Students can Demonstrate knowledge of the main components of wildlife management and be able to give examples..

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections: A, B and C. Section A and B will have four questions in each section from the respective sections of the syllabus and will carry 10 marks each. Section C will consist of 10 short-answer type questions will cover the entire syllabus uniformly and each will carry 3 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions from each section A and B of the question paper and the entire section C.

SECTION-A

1 **Zoogeography:**
  - Zoogeographical realms
  - Origin of major group of animals
  - Principles, types and theories of distribution of animals

2 **Island theory and conservation:**
  - Habitats as Islands
  - Island biogeography theory
  - Speciation and Island conditions

3 **Population and Environment:**
  - Complexity of interactions between population and environment
  - Reaction of organism to environmental complexity
  - Sub-specific and trans-specific aspects of evolution

4. **Introduction to wild life.**
5. **Wild life management Principles:**
   - Food
   - Cover
   - Predators
   - Diseases.

SECTION-B

6. **Important wild animals of India (mammals and birds)**
7. **Factors important in wild life management:**
   - Water
   - Soil
   - Exotic animals
8. **Wild life protection Act:**
   - Hunting of wild animals.
   - Sanctuaries and National parks
   - Central Zoo Authority
   - Trade in wild animals
9. **Conservation biology**
   - Conflict between man and wild life.
   - Wild life conservation projects of India (Project Tiger, Rhino, Snow Leopard, Lion etc.)
   - The success Stories of wildlife projects.
   - Modern practices in wild life conservation.
   - Wildlife foundations, Boards and Committees of India.

SUGGESTED READINGS

- Whittaker, R.J.1998. Island Biogeography: Ecology, Evolution and conservation Oxford University Press, New York.
- Seevers, Charles Systematics, Evolution and Zoogeography Chicago Natural History Museum, Chicago.
- MacArthur, Robert H. and Wilson, Edward O.1967 The theory of Island Biogeography Princeton University Press, Princeton and Oxford.
- Futuyma, D.J. 2005. Evolution. Sinauer Associates Inc., USA .
- Dobzhansky, T, Ayala, F.J., Stebbins, G. Ledyard and Valentine, James W. 1975. Evolution. Surjeet Publications, Delhi, India.
- Teage R.D., 1967: A manual of wild life conservation. Natraj Publishers, Dehradun
- Giles R.H., 1980: Wild life management techniques. Wildlife Society, Washington.
- Dasmann, R.F., 1982: wildlife Biology, Wiley Easton Publishers.
- Sharia, V.B., 1985: Wildlife in India NatrajPublihsers, Dehradun.
- Teage R.D., 1989: A manual of Wildlife conservation.

SEMESTER IV
CORE COURSE XVI
MZO 222
HISTOLOGY AND HISTOCHEMISTRY

Credits: 4	Time Allowed: 3 Hrs	Pass Percentage: 35%
Maximum Marks: 100	Theory: 70	Internal Assessment: 30
Pass Marks: 35	Theory : 25	Internal Assessment : 10

OBJECTIVES OF THE COURSE

To describe the methods of studying cells and tissues, the specific characteristic of cell components in relation to the functions of each component, the scientific basis of tissue preparation. Histochemistry combines the techniques of biochemistry and histology in the study of the chemical constitution of cells and tissues.

LEARNING OUTCOMES

On completion of the course, students are able to:

- Understand the terms Histology and Histochemistry.
- Correlate between histological structure and function of any cell or tissue.
- Handle the histological glass slides and examine them using the maximum microscopic facilities.
- Identify various types of stains and micro techniques.

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections: A, B and C. Section A and B will have four questions in each section from the respective sections of the syllabus and will carry 10 marks each. Section C will consist of 10 short-answer type questions will cover the entire syllabus uniformly and each will carry 3 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions from each section A and B of the question paper and the entire section C.

SECTION –A

1. Scope and importance of Histology and Histochemistry
2. General principles for the preparation of Tissue for Histological studies.
3. Principle for the preparation of tissues for Histochemical localization of various Substrates and Enzymes
4. Fixation – Principle, Aims and Objectives of fixatives. Chemical action of fixatives on cells and tissue components
5. The Theory of Staining and its importance
6. Histochemical classification of Carbohydrates and Principle for the Identification of Carbohydrates (Periodic acid/Shift method (PAS)
7. Histochemical localization of Muco polysaccharides by KMNO4/AB and PAS method.
8. Histochemical classification of Lipids. Principle for the demonstration of Lipids in various animal tissues (Copper pthyalocyanin method and Sudan Blank- B method)

SECTION B

9. Histochemical classification of Proteins
10. Principles and mechanism for the Identification of Total Proteins and Glycoproteins (Bromophenol Blue and Congo red method)

11. Principle and mechanism for the identification of Amyloids.
12. Histochemical localization of Nucleic Acids, DNA and RNA (Fulgen reaction and Pyrorin – y method).
13. Cryostat and Importance of Enzyme histochemistry.
14. Localization of enzymes in tissues, Alkaline and Acid phosphates.
15. Application of Histochemical methods for the detection of various types of Carcinoma and Immunofloroscent techniques.

SUGGESTED READINGS

- Histochemistry Theoretical and Applied, A. G. E. Pearse, (1999), Churchil Livingstone, London and New York.
- Progress in Medical Laboratory Techniques, J.D. Bancroft, (1990) Butterworth Press, London.
- Histochemistry Theory and Practice, Barka, T and Anderson, P.J (1989) Hoeber New York.
- Histochemistry in Focus,A source book of Technics and Research needs (2007), K.Shyamasundari and K.Hanmantha Rao,MJP Puplishers,Chennai.
- Cytochemistry, Danielli,J.F. (1999), Wiley and Sons, New York, Chapman and Hall, London.
- Histochemical Techniqes, Cassilmann,W.G.B (1988), Methuen, London
- Enjyme Histochemistry and its Applications in the study of Neoplasms, Burstone, M.S. (1978), Academic Press, New York.
- An introduction to Functional Histology, Bourne, G.H. (1988), Churchil, London.

SEMESTER IV
CORE COURSE XVII
MZO 223
BIO-TECHNIQUES

Credits: 4	Time Allowed: 3 Hrs	Pass Percentage: 35%
Maximum Marks: 100	Theory: 70	Internal Assessment: 30
Pass Marks: 35	Theory : 25	Internal Assessment : 10

OBJECTIVES OF THE COURSE

Understanding of basic concepts of instrumentation, to gain skills in techniques of chromatography, electrophoresis, spectroscopy and radioisotopes, to gain skills in histological, immunological and electrophysiological techniques.

LEARNING OUTCOMES

Students can learn the basic principles of analyses and detection systems involved in molecular biology techniques, chromatographic, principles of electrophoresis and immunochemical techniques and discuss how these techniques can be used in molecular medicine.

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections: A, B and C. Section A and B will have four questions in each section from the respective sections of the syllabus and will carry 10 marks each. Section C will consist of 10 short-answer type questions will cover the entire syllabus uniformly and each will carry 3 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions from each section A and B of the question paper and the entire section C.

SECTION A

1. **Molecular Biology and Recombinant DNA methods:**
   - Different separation methods, Isolation and purification of RNA, DNA (genomic and plasmid) and proteins.
   - Analysis of RNA, DNA and proteins by one and two dimensional gel electrophoresis,
   - Molecular cloning of DNA or RNA fragments in bacterial and eukaryotic systems.
2. **Expression of recombinant proteins using bacterial, animal and plant vectors:**
   - Generation of genomic and cDNA libraries in plasmid, phage, cosmid, BAC and YAC vectors.
   - In vitro mutagenesis and deletion techniques,
   - Genes knock out in bacterial and eukaryotic organisms.

SECTION B

3. **Protein sequencing methods, detection of post translation modification of proteins:**
   - DNA sequencing methods, strategies for genome sequencing.
   - Methods for analysis of gene expression at RNA and protein level,
   - Large scale expression, such as micro array based techniques,
   - Isolation, separation and analysis of carbohydrate and lipid molecules,
   - RFLP, RAPD and AFLP techniques
4. **Histochemical and Immunotechniques:**
   - Antibody generation,
   - Detection of molecules using ELISA, RIA, western blot, immuno- precipitation, flowcytometry and immuno-fluorescence microscopy,
   - Detection of molecules in living cells, in situ localization by techniques such as FISH and GISH.

SUGGESTED READINGS

- Wilson, K and walker John 2005. Principles and Techniques of Biochemistry. Cambridge University Press.
- Stefen 2005. Basic Techniques in Molecular Biology. Springer Publishers.
- Karp, Gerald 2002. Cell and Molecular Biology, Concepts and Experiments John Willey and Sons. U.K.
- Gupta, PK 2005. Cell and Molecular Biology. Rastogi Publications. Meerut.
- Singh, BD 2003. Biotechnology. Kalyani Publishers. New Delhi.
- An Introduction to Molecular Biotechnology (2nd) TX Wiley-Blackwell Michael Wink 1/23/2012. ISBN: 9783527326372
- Seidman and Moore, Basic Laboratory Methods for Biotechnology: Textbook and Laboratory Reference, 2nd edition. 2009. Prentice Hall. ISBN: 0321570146

SEMESTER IV
CORE COURSE XVIII
MZO 224
FISH AND FISHERIES

Credits: 4	Time Allowed: 3 Hrs	Pass Percentage: 35%
Maximum Marks: 100	Theory: 70	Internal Assessment: 30
Pass Marks: 35	Theory : 25	Internal Assessment : 10

OBJECTIVES OF THE COURSE

Course provides the students comprehensive understanding about aquatic ecosystem and various economical important fishes. It helps in Understanding of embryogenesis - Early development and post embryonic development. Understanding of fish habits and habitats and their functional anatomy.

LEARNING OUTCOMES

Students gain knowledge in the areas of responses characterization and classification of fishes. Students gain knowledge of integumentary system - basic structure of skin, dermal and epidermal pigments, fins, and scales. The students will be well equipped to become very competent in research or teaching fields

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections: A, B and C. Section A and B will have four questions in each section from the respective sections of the syllabus and will carry 10 marks each. Section C will consist of 10 short-answer type questions will cover the entire syllabus uniformly and each will carry 3 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions from each section A and B of the question paper and the entire section C.

SECTION A

1. **Classification of Pisces**
   - Brief introduction to Teleostei and Elasmobranchs
2. **Scales**
   - Types, structure and functions
3. **Coloration**
   - Chromatophores, pigments and biological significance of coloration in fish
4. Bioluminescence in fish and its significance. Electric organs, their structure and use in fish
5. **Respiratory organs**
   - Structure, modification and function of gills, Air breathing accessory organs, Swim bladder
6. Lateral line organs, Ultimobranchial glands, Corpuscles of stannius

SECTION B

7. Fisheries of India; Brief study of Marine, fresh water, estuarine and cold water fishery
8. Physico- Chemical and Biological Factors in Fish Culture
9. Construction and maintenance of Fish Farms
10. **Fishing methods**
   - Marine fishing crafts and Gears
   - Inland fishing crafts and Gears
   - Unconventional fishing methods
   - Fertilization and management of fishery pond (spawning, hatcheries, reusing, stocking)
   - Transport, mortality of fish fry

- Composite culture and cage culture

11. **Biochemical composition of fish**
    - Nutritional value of fish
    - Poisoning toxicity and allergies from fish as food
12. **Principle and importance of fish preservation**
    - Traditional and advanced methods of fish preservation: sun–drying, salting, pickling, smoking, chilling, frying and canning etc.
    - Fish products like oil, fish sauce, fish glue etc.

SUGGESTED READINGS

- Jhingran, V.G. 1978, Fish and Fisheries of India, Hindustan Publishing House (India), New Delhi, India.
- Talwar, P.K., Jhingran, A.G. 1991, Inland Fishes of India, Vols I and II,. Oxford and IBH, New Delhi, India.
- Karl, F. L., Win, C. 1969, Freshwater Fishery Biology, Brown Company Publication, Iowa.
- Moyel, P.B; J.J. Jr., Cech. 1988, Fishes: An introduction to ichthyology, Prentice Hall, Englewood, Ciffs, N.J.
- Nelson, J.S., 1976, Fish of the World, John Wiley and Sons, New York.
- Biswas, S.P. 2002, Fundamentals of Ichtyology, Narendra Publishing House, Delhi, India.
- Hoar, W.S; Randall, D.J. 1970, Fish Physiology, Vol. IV, Academic Press, New York.
- Jayaram, K.C., 1999, The fresh water fishes of the Indian origian region, Narendra Publishing House, Delhi, India.
- Tyagi, R; Shukla, A. 2002. Encyclopedia of Fish Series, Adaptations in Fishes, 1st Edition. Anmol Publication Pvt. Ltd., New Delhi, India.
- Miller, S.A., Harley, J.P. 2005, Zoology. 6th Edition, McGraw Hill Publications, New York.
- Weichert, C.K., 1965. Anatomy of the Chordates, 3rd Edition. McGraw Hill Publications, New York.

SEMESTER IV

ELECTIVE COURSE II

MZO 225 A

PARASITOLOGY

Credits: 4	Time Allowed: 3 Hrs	Pass Percentage: 35%
Maximum Marks: 100	Theory: 70	Internal Assessment: 30
Pass Marks: 35	Theory : 25	Internal Assessment : 10

OBJECTIVES OF THE COURSE

To learn and understand the scope of parasitology. To aware the students for various parasites and diseases which spreads in human with the help of study of host-parasite relationship. To aware the students about health. To understand the various disease causing vectors like Mosquitoes. Too aware about the typhoid, disease likes cholera.

LEARNING OUTCOMES

Students who successfully complete this course will be able to:

- Explain basics of the parasitic life-mode in context of ecological and evolutionary forces.
- Apply basic physiological, evolutionary and ecological concepts to parasitic relationships.
- Identify major parasitic groups, and describe their key characteristics.
- Describe the impact of parasitic infections on human health and history.
- Explain medical and public health aspects of human parasitic infections.

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections: A, B and C. Section A and B will have four questions in each section from the respective sections of the syllabus and will carry 10 marks each. Section C will consist of 10 short-answer type questions will cover the entire syllabus uniformly and each will carry 3 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions from each section A and B of the question paper and the entire section C.

SECTION-A

1. **Introduction to Parasitology**
    - Types of parasites
    - Types of host
    - Ecological aspects of parasite
    - Effects of parasites on hosts
    - Adaptation of host
2. **Host parasite interaction**
    - Host parasite relation
    - Mode of transmission
    - Source of infection,
    - Recognition and entry processes of different pathogens like bacteria, viruses into animal, determinants of virulence in bacteria
    - Spreading factors of bacterial infection
    - Evading host defense
    - Exotoxin and endotoxin
3. **Protozoa**
    - General organization and outline classification of parasitic protozoa
    - Epidemiology, morphology, life cycle, pathogenicity, and control of *Entamoeba histolytica, Balantidium coli, Giardia lamblia, Trichomonas, Leishmania, Trypanosoma, Plasmodium*

SECTION –B

4. **Trematoda**
    - General organization and outline classification of digenetic trematodes
    - Variation in Life cycle in Digenea
    - Ultrastructure of body wall of digenetic trematodes
    - Epidemiology, morphology, life cycle, pathogenicity, and control of *Fasciola hepatica*, *Fasciola buski* and *Schistosomes*.
5. **Cestoda**
    - General Organisation and outline classification of cestoda
    - Various larval forms and ultrastructure of the body wall of cestodes
    - Epidemiology, morphology, Life cycle, pathogenecity and control of *Diphyllobothrium latum, Taeniasolium, T. Saginata, Echinococcus granulosus, Hymenolepis diminuta, H. nana*
6. **Nematoda**
    - General organization, classification and life cycle patterns
    - Epidemiology, morphology, life cycle, pathogenicity and control of *Ascaris lumbricoides, Enterobius vermicularis, Ancylestooa duodenale, Necater americanus, Wuchereria bancriofti, Onchocerca volvulus* and *Dracunculus medinensis*.

SUGGESTED READINGS

- Burton J. Bogitsh and Thomas C. Cheng: Human Parasitology Acadenac Press.
- Belding D.L., Text Book of Parasitology III edition, ApplenterCentrueyCnoff, New York.
- Richard R. Kudo: Protozoology, CheackThomes Publication.
- Levine N.D., Nematode Parasites of deomestic animals.
- Chatterjee, K.D. 1995 : Parasitology Chatterjee Medical Publisher
- Marquardt, W.C. Demaree, R.S. and Gruieve, B. 2000, Parasitology and Vector Biology, Harcort A.P.
- Apurba Sankar Sastry and Sandhya Bhat K: Essentials of medical parasitology

SEMESTER IV
ELECTIVE COURSE II
MZO 225 B
ENTOMOLOGY

Credits: 4	Time Allowed: 3 Hrs	Pass Percentage: 35%
Maximum Marks: 100	Theory: 70	Internal Assessment: 30
Pass Marks: 35	Theory : 25	Internal Assessment : 10

OBJECTIVES OF THE COURSE

To give knowledge of insect identification, morphology, anatomy and physiology through body segments, internal organs and metabolic processes study.

LEARNING OUTCOMES

Students will learn a complete knowledge about basics of insect body, its morphology, its internal working and biochemical processes for further usage in any form in favour or against the insects.

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections: A, B and C. Section A and B will have four questions in each section from the respective sections of the syllabus and will carry 10 marks each. Section C will consist of 10 short-answer type questions will cover the entire syllabus uniformly and each will carry 3 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions from each section A and B of the question paper and the entire section C.

SECTION-A

1. **Brief evolutionary history of Insects**
    - Introduction to phylogeny of insects
    - Major Classification of Superclass Hexapoda.
    - **Insect Orders**
        - ✓ Distinguishing characters
        - ✓ General biology
        - ✓ Habits and habitats.
2. **General Body segmentation**
    - Morphology of facial sutures
    - Facial region.
3. **Structure and modifications of**
    - Antennae
    - mouth parts
    - wings
    - legs
4. **Thorax and Abdomen**
    - Topography of typical tergum, sternum and pleuron.
    - Pre-genital, genital and post genital appendages
    - Generalized structure of external genitalia.

SECTION –B

5. **Anatomy and Physiology of insect**
    - Digestive system
    - Excretory system
    - Circulatory system
    - Respiratory system,
    - Reproductive system
    - Nervous System

6. **Sense Organs**
    - Visual
    - Auditory
    - Tactile
7. **Glands**
    - Exocrine glands
    - Endocrine glands
8. **Thermodynamics**
    - Physiology of integument
    - Moulting
    - Growth
    - Metamorphosis
    - Diapause.

SUGGESTED READINGS

- Snodgrass. R.E. Principles of Insect Morphology, A.D. Imm's General Text-Book of Entomology.
- Chapman, R.F. 1984: The Insect Structure and Function, English University Press.
- Ross, Herbert H. Ross, Charles A. and Ross, June R.P. 1982: Text Book of Entomology, edn.4, John Wiley and Sons, New York.
- Mani, M.S. 1982: General Entomology, Edn.3 Oxford and IBH Publishing Co., New Delhi.
- Imms, A.D. Richard, O.W. and Davies, R.G. (Eds.) 1977: General Textbook Entomology, 10th Edn., Champman and Hall, London.
- D.B. Tembhare: Modern entomology, Himalayan publishing house.

SEMESTER IV
ELECTIVE COURSE II
MZO 225 C
RESEARCH PROJECT

Credits: 4		Pass Percentage: 35%
Maximum Marks: 100	Thesis: 70	Internal Assessment: 30
Pass Marks: 35	Thesis: 25	Internal Assessment : 10

OBJECTIVES OF THE COURSE

To well versed the students for higher education and research in the field of life sciences.

To provide quality education offering skill based programs and motivate the students for self-employment in applied branches of Zoology.

To inculcate the value based education and entrepreneurial skills among the students.

LEARNING OUTCOMES

Achieve excellence in education and scientific research in the field of Zoology.

- Develop and implement ways and means to ensure quality performance and outputs of the project.
- Optimal use of modern technology in education and scientific research.
- Implementation of advanced training to improve the skills of graduates in Zoology and related fields

SEMESTER VI
PRACTICAL X
MZO226
Pertaining to theory papers MZO221 and MZO222

Credits: 2	Maximum Marks:50
Pass Percentage: 35%	Pass Marks: 18

MZO221

1. To study the zoogeographic realms of the world.
2. Map studies:
   - India – Climatic Regions
   - India Rainfall and wind
   - India – Distributions of Animals
   - Distribution of endangered animal species in Himalayan region
   - Biodiversity Hotspots location in (a) World (b) India
   - Protected Areas of India such as National parks, Wildlife Sanctuaries, Biosphere Reserves.
3. To observe the behavior of one wild animal and to write a report on it.
4. To deliver a seminar on a topic related to wild life conservation.
5. To submit an assignment on a topic concerning wild life in India.
6. To prepare a report on the latest events concerning wild animals at the national and international level.
7. To visit a wild life National Park and to submit a report on it.

MZO222

1. Preparation of Reagents and Isolation of Animal Tissues for Histological and Histopathological Studies.
2. Preparation of Histological, Histopathological and Histochemical slides by using various Fixatives.
3. Identification of Carbohydrates and allied chemical substances (Total Carbohydrates, Glycogen, Acid Mucopolysaccharides, Alkaline Mucopolysaccharides, Neutral Mucopolysaccharides) in Animal Tissues.
4. Identification of Proteins and allied chemical substances (Total Proteins, Glyco Proteins, Tyrosine, Tryptophan) in Animal Tissues.
5. Identification of Lipid profile (Total Lipids and Phospho Lipids) in Animal Tissues
6. Identification of Nucleic Acids (DNA and RNA) in Animal Tissues
7. Screening of Cancer slides prepared by Immunoflorescent Study.
8. Demonstration of Enzyme Assay by Cryostat.

SEMESTER IV
PRACTICAL XI
MZO227
Pertaining to theory papers MZO223 and MZO224

Credits: 2	Maximum Marks:50
Pass Percentage: 35%	Pass Marks: 18

MZO223

1. Demonstration of :

   ELISA, Affinity chromatography, Gel electrophoresis, Polymerase Chain Reaction, Gel documentation and photography

2. To separate proteins using PAGE.
3. Study of different microscopic techniques using photographs/micrographs (freeze fracture, freeze etching, negative staining, positive staining, fluorescence and FISH).
4. Preparation of permanent slides (double staining)
5. DNA isolation - from Animal cell (goat liver), Human Blood (Fresh / Stored / Frozen), Plasmid and Microbes

MZO224

1. To identify, classify and study morphological characteristics of Chondrichthyes fishes.
2. To identify, classify and study morphological characteristics of Osteichthyes fishes
3. To prepare permanent slides of Placoid scales.
4. To prepare permanent slides of Ctenoid scales.
5. To prepare permanent slides of Cycloid scales.
6. To prepare permanent slides of Ganoid scales.
7. To prepare permanent slides of ampulla of lorenzini.
8. Visit to a fish farm and submission of report on it.

SEMESTER IV
PRACTICAL XII
MZO228
Pertaining to theory paper MZO 225 A or 225B OR 225 C

Credits: 1	Maximum Marks:25
Pass Percentage: 35%	Pass Marks: 09

MZO 225 A

1. Preparation of permanent mounts of mouth parts of major vector species.
2. Study of permanent slides related to vectors (Whole mounts and various structures).
3. Preparation of permanent slides of antennae, wings, legs and other. Morphological structures of insects having medical importance.
4. Study of immature stages of various species of mosquitoes (eggs, larvae and pupae)
5. Collection and preservation of ticks and mites of medical and veterinary importance.

MZO 225 B

1. Morphology of head region (Sutures, Structure, Tentorium etc.), thorax , abdomen and genital structures
2. Wing and its modifications
3. To study of following systems of *Ak* grasshopper
   - ➢ Digestive system.
   - ➢ Nervous system
   - ➢ Internal reproductive system
4. To prepare assignments on
   - ➢ Nerve conduction in insects.
   - ➢ Muscle contraction
5. Collection and preservation of insects of various orders.
6. Laboratory culture of important stored grain insects.

MZO 225 C

Viva of research project.

PG Department of Computer Science

Changes in Syllabi in 2020-21

1. **In M.Sc. (AI & DS) Sem-II, the syllabus of Section-B has been expanded in MSAIDS-121.**
2. **In M.Sc. (IT) Sem-III, the working hours have been reduced.**
3. **In M.Sc. (Chem) Sem-II, Python Language was introduced instead of C.**
4. **In M.Sc. (IT) Sem-IV, a minor project has introduced.**
5. **In M.Sc. (AI & DS) Sem-I, practical of Data Structures has combined with the practical of Python.**
6. **In B.Sc (Hons') (AI & DS) Course, The paper of Web Technology in Semester-III and paper of DBMS in Semester-IV has interchanged with each other.**
7. **In BCA & B.Voc. (SD) Courses, the paper of Adobe Photoshop and Corel Draw are replaced with any core computer subject. These papers may be included as workshops.**
8. **In BCA-II (Semester-IV), the practical of Networking is introduced with theory paper of Computer Networks.**
9. **In B.Sc. (Agri)-II (Sem-III), the concept of DOS in paper of Agri-Informatics is removed.**
10. **In B.Sc. (Hons') Maths-II (Sem-III), the syllabus contents have split up in two individual sections of theory and practical.**
11. **The syllabus of BA and B.Sc.-II (Sem-III) courses are same and the portion of Data Structures is removed from the syllabus.**
12. **The distribution of marks is changed from 75 to 70 and 25 to 30 of already approved syllabi of 1st year.**
13. **In B.Sc. (Hons') (AI & DS), the subject of Introduction to AI and DS from Sem-II is split into two different subjects i.e. Introduction to AI in Sem-I and Introduction to Data Science in Sem-II.**
14. **The credits for EVS has been increased from 2 to 4.**

(B.SC. PART-I COMPUTER APPLICATION)
SYLLABUS
FOR
COURSE: B.SC.

PART-I
(SEMESTER: I &II)
SESSION: 2020–2021
FACULTY OF SCIENCE

P.G. DEPARTMENT OF COMPUTER SCIENCE

SRI GURU TEG BAHADUR KHALSA COLLEGE

Sri Anandpur Sahib
An Autonomous College
Affiliated to Punjabi University, Patiala

B.Sc. Part-I(COMPUTER APPLICATION)
(Semester I)
BSC(COM)-108

Credits: 4
External Marks: 70 **Maximum Time: 3 Hrs.**
Minimum Pass Marks: 35% **Lectures to be delivered: 45-55**
Internal Assessment: 30

A) Instructions for paper-setter

The question paper will consist of three sections A, B & C. Sections A &B will have four questions from the respective sections of the syllabus and will carry 40% marks each. Section C will have 6-12 short answer type questions which will cover the entire syllabus uniformly and will carry 20% marks in all.

B) Instructions for candidates

1. Candidates are required to attempt two questions each from sections A & Bof the question paper and the entire section C.

SECTION A

Computer Fundamentals: Block diagram of a computer, characteristics of computers and generations of computers. Categories of Computers - Supercomputer, mainframe computer, network server, Workstation, Desktop computers, notebook computer, Tablet PC, handheld PC, smart phone.

Input Devices: Keyboard, Mouse, Joy tick, Track Ball, Touch Screen, Light Pen, Digitizer, Scanners, Speech Recognition Devices, Optical Recognition devices – OMR, OBR, OCR

Output Devices: Monitors, Impact Printers - Dot matrix, Character and Line printer, Non Impact Printers – DeskJet and Laser printers, Plotter.

Memories: Memory Hierarchy, Primary Memory – RAM, ROM, Cache memory. Secondary Storage Devices - Hard Disk, Compact Disk, DVD, Flash memory.

Software: Types of Software- System Software, Application Software, Firmware. Type of System Software: Operating Systems, Language Translators, Utility Programs, Communications Software. **Commonly Used Application Software**: Word Processor, Spreadsheet, Database, Education, Entertainment Software.

Computer Languages: Machine language, assembly language, high level language, 4GL.

SECTION B

Number System: Non-positional and positional number systems, Base conversion, Concept of

Bit and Byte, binary, decimal, hexadecimal, and octal systems, conversion from one system to the other. Binary Arithmetic: Addition, subtraction and multiplication, 1’s complement, 2’s complement, subtraction using 1’s complement and 2’s complement.

Computer Codes: weighted and non-weighted code, BCD, EBCDIC, ASCII, Unicode.

Computer Network: Network types, network topologies.

Internet Related Concepts: Internet, World Wide Web, Hypertext, Uniform Resource Locator, Web Browsers, IP Address, Domain Name, Internet Services Providers, Internet Security, Web Search Engine, Net Surfing, web portal, Wiki, Blog.

Advanced Trends in IT : Mobile Internet, GPS, 3G, 4G, Wi-Fi, Bluetooth, Cloud Technology, Virtual LAN Technology, Firewall, E-Commerce, M-Commerce, Nanotechnology, Virtual Reality, BPO and KPO, Online shopping, Social Media - YouTube, FaceBook, Linkedin, Twitter, Google+.

Applications of IT: IT in Business and Industry, IT in Education & training, IT in Science and Technology, IT and Entertainment, Current Trends in IT Application - AI, Virtual Reports, voice recognition, Robots, Multimedia Technology.

Reference Books:

1. Peter Nortorn, Introduction to Computers, Seventh Edition
2. V. Rajaraman, Fundamentals of Computers, PHI.
3. Larry E. Long and Nancy Long, Computers: Information Technology in Perspective, PHI.
4. N. Subramanian, Introduction to Computers, Tata McGraw-Hill.
5. D.H. Sanders, Computers Today, McGraw- Hill.

PAPER BSC-108 P
PRACTICAL BASED ON PAPER BSC-108

Credits: 2
Maximum Marks: 50 **Maximum Time: 3 Hrs.**
Minimum Pass Marks: 35% **Practical Units to be conducted:45-55Hrs**
External Evaluation: 50

The laboratory course will comprise of Activities related to Windows and exercise to what is learnt under Paper BSC-108 such as:

Windows

Activity 1: Windows (latest version)Installation and Software & Drivers installation.
Activity 2: Basic components of Window-Desktop, Icons, Taskbar, Status Bar, Wallpapers, Screen Saver
Activity 3: Start Menu: Accessories- Notepad, Calculator, Clock, Date and Time, Disk Defragmentation, Working with Control Panel.
Activity 4: Taskbar properties - Maximize Minimize, Restore, and Close.
Activity 5: Creating Files, Folders, Shortcuts, Moving folders (right click options)

Internet

Activity 1: Connecting through Wi-fi, Blue tooth and Hot Spot.
Activity 2: Web Surfing, searching contents through Search Engines.
Activity 3: Creating and maintaining Web Blogs and Web portals

Social Media

Activity 1: Creating account, linking accounts, setting profiles and preferences.
Activity 2: Posting messages, replying, forwarding, tagging contents.
Activity 3: Online shopping, comparing prices etc.
Activity 4: Creating and maintaining social profiles at Linkedin, FaceBook, Twitter etc.

The breakup of marks for the practical will be as under:

Lab Record	:	15 Marks
Viva Voce	:	10 Marks
Program Development And Execution	:	25 Marks

B.Sc. Part-I(COMPUTER APPLICATION)
(Semester II)
BSC-208
MS-OFFICE AUTOMATION TOOLS

Credits: 4

External Marks: 70 **Maximum Time: 3 Hrs.**

Minimum Pass Marks: 35% **Lectures to be delivered: 45-55**

Internal Assessment: 30

A) Instructions for paper-setter

The question paper will consist of three sections A, B & C. Sections A &B will have four questions from the respective sections of the syllabus and will carry 40% marks each. Section C will have 6-12 short answer type questions which will cover the entire syllabus uniformly and will carry 20% marks in all.

B) Instructions for candidates

1. Candidates are required to attempt two questions each from sections A & B of the question paper and the entire section C.

SECTION A

MS-OFFICE: Basic layout, components, Office Characteristics, Common Office Controls and shortcuts for Home, Insert, Page Layout, Mailing, Review and View

MS Word 2010: Introduction to Word Processing, Toolbars, Ruler, Menus, Keyboard Shortcut. Previewing documents, Printing documents, Formatting documents, Checking the grammar and spelling, Formatting via find and replace, Using the Thesaurus, using Auto Correct, word count, Hyphenating, Mail merge, mailing Labels Wizards and Templates, Handling Graphics, tables as Converting a word document into various formats.

MS PowerPoint 2010: Introduction, Elements of Power Point Package, Starting and exploring Power Point menus (Insert, Format, Tools, Slide Show, Window, Help options and all of their features, Options and sub options etc.), Creating, inserting, deleting and formatting slides, Formatting and enhancing text, Slides with graphs, Giving Animation to slides, Transfer of files between Power Point and other word processors and software packages.

SECTION B

MS-EXCEL 2010: Creating worksheet, entering data into worksheet, Entering data into worksheet, Entering, data, dates, alphanumeric, values, saving & quitting worksheet, Opening and moving and existing worksheet, Toolbars and Menus, keyboard shortcut. Working with single and multiple workbooks, working with formulation & cell referencing, formatting of worksheet.

MS-ACCESS 2010: Introduction to MS-ACCESS-2010 working with databases and tables, queries in Access. Introduction to forms, sorting and filtering, controls. Creating reports, Using Macro

Reference Books:

1. Rob Tindrow, Jim Boyce, Jeffrey R. Shapiro, Windows 10 Bible, Wiley.

PAPER: BSC-208 P

PRACTICAL BASED ON PAPER BSC-208

Credits: 2
Maximum Marks: 50 **Maximum Time: 3 Hrs.**
Minimum Pass Marks: 35% **Practical Units to be conducted:45-55 Hrs**
External Evaluation: 50

The laboratory course will comprise of Activities related to MS-OFFICE and exercise to what is learnt under Paper BSC-208 such as:

MS-Word

Activity 1:

- i. Create, open, save and close a document.
- ii. Typing, copying, moving and deleting data in word document.
- iii. Perform Save and Save as, Cut and Copy, Paste and Paste Special.

Activity 2:

Formatting of data in word Document:-

- i. Text formatting (font size, font style, font color, subscript, superscript, upper/lower case etc.)
- ii. Text Alignment and character spacing
- iii. Indention and line spacing
- iv. Border and shading
- v. Bullets and Numbering

Activity 3:

- i. Find and replace and data sorting in a document.
- ii. Protect your document.
- iii. Add chart in word document. Create different types of Charts in word.
- iv. Set a size, margin, orientation of page, Hyphenation, Columns and Line Numbers in MS-Word.

Activity 4:

- i. Set Page Color, Page Border, Themes, and Watermarks in MS-Word
- ii. Adding Tables, header/footers, pictures, page numbers and special symbols, Text Box in your word document.
- iii. Showing Ruler, Gridlines, Document Map, Thumbnails, Inserting Word Art, Drop Cap, Hyperlink, Equation etc. in word document

Activity 5:

- i. Arranging, splitting windows in MS-word
- ii. Perform Mail-merge in MS-word
- iii. Create and run Macros in MS-Word
- iv. Set the print properties of a word document

PowerPoint

Activity 1:

1. Create, open, save and close a Presentation
2. Typing, copying, moving and deleting data in presentation.
3. New Slide, understanding Slide Layout, adding and deleting slides.

Activity 2:

Formatting of data in slides:-

1. Text formatting (font size, font style, font color, subscript, superscript, upper/lower case etc.)
2. Text Alignment and character spacing
3. Indention and line spacing
4. Border and shading
5. Bullets and Numbering

Activity 3:

1. Set a size, margin, orientation of slides in PowerPoint.
2. Adding Tables, header/footers, pictures, page numbers and special symbols, Text Box etc. in your presentation

Activity 4:

1. Adding Animation and Transition Effects in Slides, Understanding Slide Show
2. Presentation Views, Understanding Formatting commands in PowerPoint

Activity 5:

1. Create and run Macros in PowerPoint
2. Arranging, splitting windows in MS-PowerPoint.

MS-Excel

Activity 1:

1. Create, open, save and close workbook?
2. Create a new worksheet, renaming and moving sheet.
3. Entering, copying, moving and deleting data in cells and worksheets.
4. Insert and delete cells, columns and rows in MS-Excel.

Activity 2:

1. Formatting of data in cells:-
2. Text formatting (font size, font style, font color, Cell border etc.)
3. Text Alignment
4. Text Orientation, Text Direction, Text Control.

Activity 3:

1. Find and replace data in a sheet
2. Perform data sorting and data filtering in MS-Excel
3. Protect your Worksheet and Workbook?

iv. Enter and perform some basic formulas in ms-excel.

Activity 4:

i. Perform some basic Functions in MS-Excel.
ii. Create a chart in MS-Excel.
iii. Create different types of Charts in excel.
iv. Set a size, margin, orientation of page in Ms-Excel.
v. The print properties of worksheet in MS-Excel.

Activity 5:

i. Hide and unhide row and column in MS-Excel
ii. Set column width and row height in MS-Excel.
iii. Adding text Box, header/footers, pictures and special symbols in your worksheet.
iv. Arranging, splitting and hiding windows in MS-Excel. And also freezing panes.
v. Create and run Macros in MS-Excel.

MS-Access 2010

Activity 1:

i. Creating with databases and tables
ii. Linking various Tables
iii. Queries in Access

Activity 2:

i. Creating forms
ii. Filling information in forms
iii. Saving forms

Activity 3:

i. Sorting data
ii. Filtering Data

Activity 4:

i. Creating reports,
ii. Using Macro

The breakup of marks for the practical will be as under:

Lab Record	:	15 Marks
Viva Voce	:	10 Marks
Practical Work	:	25 Marks

(P.G. DEPARTMENT OF COMPUTER SCIENCE)

OUTLINES OF TESTS,
SYLLABI AND COURSES OF READING

FOR

B.SC.(HONS.) IN ARTIFICIAL INTELLIGENCE AND DATA SCIENCE
(SEMESTER SYSTEM)
FIRST YEAR (Semester I & II)
(2020-21, 2021-22 and 2022-23 Sessions)

FACULTY OF COMPUTING SCIENCES

SRI GURU TEG BAHADUR KHALSA COLLEGE
Sri Anandpur Sahib
An Autonomous College
Affiliated to Punjabi University, Patiala

SYLLABI, OUTLINES OF PAPERS AND TESTS FOR
B.Sc.(Hons.) in ARTIFICIAL INTELLIGENCE AND DATA SCIENCE
First Year - First Semester Examinations
Sessions 2020-21, 2021-22 and 2022-23

CODE NO.	TITLE OF THE PAPER	Schedule of Teaching (Hrs/Week)			TOTAL HOURS	CREDITS	MARKS	
		L	T	P			Internal	External
BSCHAI-111	General English- I	4	0	0	4	4	30	70
BSP-101A, 101B	**Punjabi(Compulsory) or **Punjabi Compulsory(Mudla Gyan)	4	0	0	4	4	30	70
BSCHAI-113	Computer Fundamentals	5	1	0	6	6	30	70
BSCHAI-114	Problem Solving and Programming in C	4	0	0	4	4	30	70
BSCHAI-115	Introduction to Artificial Intelligence	5	1	0	6	6	30	70
BSCHAI-116	Open Elective –I*	4	0	0	4	4	30	70
BSCHAI-117	Software Lab – I	0	0	4	4	2	30	70
BSCHAI-118 (SAE-1.1)	Drug Abuse-Problem, Prevention & Management (Qualifying)	2	0	0	2	--	15	35
	Total	28	2	4	34	30	210	490

Open Elective –I* (Choose any one among below)

BSCHAI-116 (i) Better Spoken English
BSCHAI-116(ii) Stress Management
BSCHAI-116(iii) Introduction to Logic
BSCHAI-116(iv) Introduction to Sociology
BSCHAI-116(v) Brief introduction to Psychology
BSCHAI-116(vi)Developing Soft Skills and Personality
BSCHAI-116(vii) Ethics

Note:

1. The break up of marks for the practical will be as under:

i. Internal Assessment	30 Marks
ii. Viva Voce (External Evaluation)	30 Marks
iii. Lab Record Program Development and Execution(External Evaluation)	40 Marks

2. The breakup of marks for the internal assessment for theory Subjects will be as under:

Mid semester test – I	10 Marks
Mid semester test – II	10 Marks
Attendance	5 Marks
Assignment	5 Marks

****Only those students who have not studied Punjabi up to matriculation can opt for Punjab Compulsory (Mudla Gyan). The code for the paper is same.**

APPROVED

SYLLABI, OUTLINES OF PAPERS AND TESTS FOR

B.Sc. (Hons.) in ARTIFICIAL INTELLIGENCE AND DATA SCIENCE

First Year - Second Semester Examinations

Sessions 2020-21, 2021-22 and 2022-23

CODE NO.	TITLE OF THE PAPER	Schedule of Teaching (Hrs/Week)			TOTAL HOURS	CREDITS	MARKS	
		L	T	P			Internal	External
BSCHAI-121	Introduction to Data Science	5	1	0	6	6	30	70
BSCHAI-122	Object Oriented Programming Concepts using C++	4	0	0	4	4	30	70
BSCHAI-123	Data Structures	4	0	0	4	4	30	70
BSCHAI-124	Open Elective-II*	5	1	0	6	6	30	70
BSCHAI-125	Software Lab-II (Based on BSCHAI-122)	0	0	4	4	2	30	70
BSCHAI-126	Software Lab-III (Based on BSCHAI-123)	0	0	4	4	2	30	70
BSCHAI-127 **(SAE-1.2)**	Environmental and Road Safety Awareness	4	0	0	4	4	30	70
	Total	22	2	8	32	28	210	490

Open Elective –II* (Choose any one amongst below)
BSCHAI-124(i) Cyber Laws
BSCHAI-124(ii) Knowledge Management
BSCHAI-124(iii) Digital Marketing
BSCHAI-124(iv) Economics of Intellectual Property Rights
****BSCHAI-127 -** Qualifying Examination

Note:

1. The break up of marks for the practical will be as under:

i. Internal Assessment	30 Marks
ii. Viva Voce (External Evaluation)	20 Marks
iii. Lab Record Program Development and Execution(External Evaluation)	40 Marks

2. The breakup of marks for the internal assessment for theory Subjects will be as under:

Mid semester test – I	10 Marks
Mid semester test – II	10 Marks
Attendance	5 Marks
Assignment	5 Marks

B.Sc.(Hons.) in Artificial Intelligence & Data Science, Part- I(Sem-1 & 2)
Sessions 2020-21, 2021-22 and 2022-23

GENERAL ENGLISH-I

BSCHAI - 111

Time Allowed: 3 Hours	**Max. Marks: 100**
Number of Lecture:60	**Written Examination: 70**
Pass Percentage: 35%	**Internal Assessment: 30**
4 Credits: (4L)	

Text Prescribed Text (A Choice of Short Stories) Shakti Batra (1-5) Stories.

Testing

Unit-I

Q1. One Essay Type question with internal alternative based on character, summary, significance of the title. (10)

Q2. Short answer questions to be attempted five out of the given eight in about 50-60 words each. (10)

Unit-II Grammar

Prescribed Text: - Living English Structure, The Student Companion Edition, 1995.

Q1. Tenses and its uses- Present, Past, Future (Any Five) (10)

Q2. Conversion among various types of Sentences: Affirmative, Interrogative, Negative, Exclamations (Any Five) (5)

Unit-III

Vocabulary

Q3. (a)Change the Number (Attempt any Five out of Eight) (10)

(b)Change the Gender (Attempt any Five out of Eight) (10)

(c)One Word Substitute Words Pertaining to Marriage, Opposites. (5)

(Attempt any Five out of Eight)

Unit-IV

Q4. Letter Writing: Personal and Job Letters along with Resume. (10)

ਬੀ.ਐਸ.ਸੀ.(ਮੈਡੀਕਲ / ਨਾਨ ਮੈਡੀਕਲ) ,ਬੀ.ਸੀ.ਏ.,ਬੀ.ਐਸ.ਸੀ.ਆਰਟੀਫੀਸ਼ਲ ਇੰਟੈਲੀਜੈਂਸ ਐਂਡ ਡਾਟਾ ਸਾਇੰਸ,ਬੀ.ਵਾਕ ਸਾਫ਼ਟਵੇਅਰ ਡਿਵੈਲਪਮੈਂਟ ਅਤੇ ਬੀ.ਵਾਕ ਫੂਡ ਪ੍ਰੋਸੈਸਿੰਗ,

ਭਾਗ ਪਹਿਲਾ,ਸਮੈਸਟਰ ਪਹਿਲਾ

ਪੇਪਰ-ਪੰਜਾਬੀ ਲਾਜ਼ਮੀ,ਪੇਪਰ ਕੋਡ:**BSP-101A**

2020-21,2021-22 ਸੈਸ਼ਨ ਲਈ

ਕੁੱਲ ਅੰਕ :100 ਵਿਸ਼ੇ ਵਿਚੋਂ ਪਾਸ ਅੰਕ : 35
ਬਾਹਰੀ ਪਰੀਖਿਆ:70 ਅੰਕ ਬਾਹਰੀ ਪਰੀਖਿਆ ਵਿਚੋਂ ਪਾਸ ਅੰਕ: 25
ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ :30 ਅੰਕ ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਵਿਚੋਂ ਪਾਸ ਅੰਕ:10
ਸਮਾਂ:3 ਘੰਟੇ ਕ੍ਰੈਡਿਟ-04, ਕੁੱਲ ਲੈਕਚਰ:60

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼:

1.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਸਾਹਿਤ ਪੜ੍ਹਨ ਲਈ ਪ੍ਰੇਰਿਤ ਕਰਨਾ।
2.ਮਾਤ ਭਾਸ਼ਾ ਵਿੱਚ ਉਚੇਰੀ ਸਿੱਖਿਆ ਗ੍ਰਹਿਣ ਕਰਨ ਦੀ ਜਾਗ ਲਾਉਣਾ।
3.ਵਿਆਕਰਨਕ ਪੱਖਾਂ ਨਾਲ ਰਾਬਤਾ ਕਾਇਮ ਕਰਵਾਉਣਾ।
4.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਚਿੱਠੀ-ਪੱਤਰ ਲਿਖਣਾ ਸਿਖਾਉਣਾ।

ਪੇਪਰ ਸੈੱਟਰ ਅਤੇ ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਹਦਾਇਤਾਂ

1.ਭਾਗ-ੳ: ਵਿਚੋਂ ਨਿਬੰਧ ਦਾ ਵਿਸ਼ਾ-ਵਸਤੂ ਜਾਂ ਸਾਰ (ਤਿੰਨ ਵਿਚੋਂ ਇੱਕ)10 ਅੰਕ
2.ਭਾਗ-ੳ: ਵਿਚੋਂ ਪੁਸਤਕ ਵਿਚਲੇ ਵਿਚਾਰਾਂ ਸੰਬੰਧੀ ਪ੍ਰਸ਼ਨ (ਪੰਜ ਵਿਚੋਂ ਤਿੰਨ) 4+4+4=12 ਅੰਕ
3.ਭਾਗ-ਅ:1 ਵਿਚੋਂ ਚਿੱਠੀ-ਪੱਤਰ (ਤਿੰਨ ਵਿਚੋਂ ਇੱਕ) 08 ਅੰਕ
4.ਭਾਗ-ਅ:2 ਵਿਚੋਂ ਵਿਆਕਰਨ ਨਾਲ ਸੰਬੰਧਿਤ ਵਰਣਾਤਮਕ ਪ੍ਰਸ਼ਨ (ਦੋ ਵਿਚੋਂ ਇੱਕ) 10 ਅੰਕ
5. ਭਾਗ-ੲ ਵਿਚ ਨਿਬੰਧ ਅਤੇ ਵਿਆਕਰਨ ਵਿੱਚੋਂ ਕੁੱਲ 15(8+7) ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਲਾਜ਼ਮੀ ਪ੍ਰਸ਼ਨ।ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਜ਼ਰੂਰੀ ਹਨ । ਹਰੇਕ ਪ੍ਰਸ਼ਨ 2 ਅੰਕਾਂ ਦਾ ਹੋਵੇਗਾ ।

ਪਾਠਕ੍ਰਮ ਅਤੇ ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਦੀ ਰੂਪ-ਰੇਖਾ

ਭਾਗ-ੳ

ੳ -ਜੀਵਨ-ਵਿਹਾਰ (ਵਾਰਤਕ-ਸੰਗ੍ਰਹਿ),ਮੁੱਖ ਸੰਪਾ.ਡਾ.ਜਸਵੀਰ ਸਿੰਘ,ਸੰਪਾ.ਡਾ.ਅਵਤਾਰ ਸਿੰਘ , ਡਾ.ਗੁਰਪ੍ਰੀਤ ਕੌਰ,ਪ੍ਰੋ.ਸੁਖਵਿੰਦਰ ਸਿੰਘ,ਸ੍ਰੀ ਗੁਰੂ ਤੇਗ਼ ਬਹਾਦਰ ਖ਼ਾਲਸਾ ਕਾਲਜ, ਸ੍ਰੀ ਅਨੰਦਪੁਰ ਸਾਹਿਬ ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ

ਭਾਗ-ਅ

ਅ-1: ਦਫ਼ਤਰੀ ਚਿੱਠੀ- ਪੱਤਰ
ਅ-2: ਵਿਆਕਰਨ

- **(i)** ਭਾਸ਼ਾ ਦਾ ਟਕਸਾਲੀ ਰੂਪ
- **(ii)** ਭਾਸ਼ਾ ਅਤੇ ਉਪਭਾਸ਼ਾ ਦਾ ਅੰਤਰ
- **(iii)** ਪੂਰਬੀ ਪੰਜਾਬ ਦੀਆਂ ਉਪਭਾਸ਼ਾਵਾਂ ਦੇ ਪਛਾਣ- ਚਿੰਨ੍ਹ
- **(iv)** ਸ਼ਬਦ :ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਵਰਗੀਕਰਣ
- **(v)** ਵਧੇਤਰ

ਭਾਗ-ੲ

ਨਿਬੰਧ ਅਤੇ ਵਿਆਕਰਨ ਵਿਚੋਂ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਪ੍ਰਸ਼ਨ

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1. ਬੂਟਾ ਸਿੰਘ ਬਰਾੜ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਸ੍ਰੋਤ ਤੇ ਸਰੂਪ,ਵਾਰਿਸ਼ ਸ਼ਾਹ ਫਾਂਊਡੇਸ਼ਨ ਅੰਮ੍ਰਿਤਸਰ,2012
2. ਬੂਟਾ ਸਿੰਘ ਬਰਾੜ, ਪੰਜਾਬੀ ਵਿਆਕਰਨ ਸਿਧਾਂਤ ਅਤੇ ਵਿਹਾਰ,ਚੇਤਨਾ ਪ੍ਰਕਾਸ਼ਨ ,ਲੁਧਿਆਣਾ,2008
3. ਬਲਦੇਵ ਸਿੰਘ ਚੀਮਾ, ਪੰਜਾਬੀ ਵਿਆਕਰਨ ਤੇ ਭਾਸ਼ਾ ਵਿਗਿਆਨ,ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ ਦਾ ਵਿਸ਼ਾ ਕੋਸ਼,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ,2009
4. ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨਕ ਭਾਗ **I**,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991
5. ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨਕ ਭਾਗ **II**,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991
6. ਗਿਆਨੀ ਲਾਲ ਸਿੰਘ ਤੇ ਹਰਕੀਰਤ ਸਿੰਘ ,ਕਾਲਜ ਪੰਜਾਬੀ ਵਿਆਕਰਣ ,ਪੰਜਾਬ ਸਟੇਟ ਯੂਨੀ.ਟੈਕਸਟ ਬੁੱਕ ਬੋਰਡ,ਚੰਡੀਗੜ੍ਹ
7. ਸੰਤ ਸਿੰਘ ਸੇਖੋਂ,ਸਾਹਿਤਆਰਥ,ਲਾਹੌਰ ਬੁੱਕ ਸ਼ਾਪ,ਲੁਧਿਆਣਾ
8. ਬਲਵੀਰ ਸਿੰਘ ਦਿਲ, ਪੰਜਾਬੀ ਨਿਬੰਧ :ਸਰੂਪ, ਸਿਧਾਂਤ ਅਤੇ ਵਿਕਾਸ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ, ਪੰਜਾਬੀ,ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।
9. ਖੋਜ ਪੱਤ੍ਰਿਕਾ, ਨਿਬੰਧ ਅੰਕ–29,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ, ਪੰਜਾਬੀ,ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।

ਬੀ.ਐਸ.ਸੀ.(ਮੈਡੀਕਲ / ਨਾਨ ਮੈਡੀਕਲ) ,ਬੀ.ਸੀ.ਏ.,ਬੀ.ਐਸ.ਸੀ.ਆਰਟੀਫੀਸ਼ਲ ਇੰਟੈਲੀਜੈਂਸ ਐਂਡ ਡਾਟਾ ਸਾਇੰਸ,ਬੀ.ਵਾਕ ਸਾਫ਼ਟਵੇਅਰ ਡਿਵੈਲਪਮੈਂਟ ਅਤੇ ਬੀ.ਵਾਕ ਫੂਡ ਪ੍ਰੋਸੈਸਿੰਗ

ਭਾਗ ਪਹਿਲਾ(ਸਮੈਸਟਰ-ਪਹਿਲਾ)

ਪੇਪਰ-ਪੰਜਾਬੀ ਮੁੱਢਲਾ ਗਿਆਨ,ਪੇਪਰ ਕੋਡ:**BSP-101B**

2020-21,2021-22 ਸੈਸ਼ਨ ਲਈ

ਕੁੱਲ ਅੰਕ :100 ਵਿਸ਼ੇ ਵਿਚੋਂ ਪਾਸ ਹੋਣ ਲਈ ਅੰਕ : 35

ਬਾਹਰੀ ਪਰੀਖਿਆ:70 ਅੰਕ ਬਾਹਰੀ ਪਰੀਖਿਆ ਵਿਚੋਂ ਪਾਸ ਹੋਣ ਲਈ ਅੰਕ: 25

ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ :30 ਅੰਕ ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਵਿਚੋਂ ਪਾਸ ਹੋਣ ਲਈ ਅੰਕ:10

ਸਮਾਂ:3 ਘੰਟੇ ਕ੍ਰੈਡਿਟ-04, ਕੁੱਲ ਲੈਕਚਰ:60

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼:

1.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਸਾਹਿਤ ਪੜ੍ਹਨ ਲਈ ਪ੍ਰੇਰਿਤ ਕਰਨਾ।
2.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੀ ਜਾਣਕਾਰੀ ਦੇਣਾ।
3.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਪੰਜਾਬੀ ਪੜ੍ਹਨਾ ਅਤੇ ਲਿਖਣਾ ਸਿਖਾਉਣਾ।

ਪੇਪਰ ਸੈੱਟਰ ਅਤੇ ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਹਦਾਇਤਾਂ:

1.ਭਾਗ-ੳ: ਵਿਚੋਂ ਵੱਡੇ ਪ੍ਰਸ਼ਨ (ਦੋ ਵਿਚੋਂ ਇੱਕ)10 ਅੰਕ
2.ਭਾਗ-ੳ ਵਿਚੋਂ ਛੇ ਛੋਟੇ ਪ੍ਰਸ਼ਨ (ਛੇ ਵਿਚੋਂ ਤਿੰਨ) 5+5+5=15 ਅੰਕ
3.ਭਾਗ-ਅ ਵਿਚੋਂ ਵੱਡੇ ਪ੍ਰਸ਼ਨ (ਦੋ ਵਿਚੋਂ ਇੱਕ)10 ਅੰਕ
4.ਭਾਗ-ਅ ਵਿਚੋਂ ਛੇ ਛੋਟੇ ਪ੍ਰਸ਼ਨ (ਛੇ ਵਿਚੋਂ ਤਿੰਨ) 5+5+5=15 ਅੰਕ
5.ਭਾਗ-ੲ ਵਿਚ ਭਾਗ ੳ ਅਤੇ ਭਾਗ ਅ ਵਿਚੋ ਕੁੱਲ 10 ਆਬਜੈਕਟਿਵ ਪ੍ਰਸ਼ਨ।ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਲਾਜ਼ਮੀ ਹਨ । ਹਰੇਕ ਪ੍ਰਸ਼ਨ 2 ਅੰਕਾਂ ਦਾ ਹੋਵੇਗਾ ।
(10X2=20 ਅੰਕ)

ਪਾਠਕ੍ਰਮ ਅਤੇ ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਦੀ ਰੂਪ-ਰੇਖਾ

ਭਾਗ-ੳ

ੳ -1.ਵਿਰੋਧੀ ਸ਼ਬਦ,ਸਮਾਨਾਰਥਕ ਸ਼ਬਦ
2.ਲਿੰਗ,ਵਚਨ,ਕਾਲ ਅਤੇ ਪੁਰਖ
3.ਸ਼ਬਦ ਸ਼੍ਰੇਣੀਆਂ(ਨਾਂਵ,ਪੜਨਾਂਵ ਅਤੇ ਕਿਰਿਆ):ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਉਦਾਹਰਣਾਂ
4.ਵਿਸ਼ਰਾਮ ਚਿੰਨ੍ਹਾਂ ਦੀ ਵਰਤੋਂ

ਭਾਗ-ਅ

ਅ -ਲੇਖ ਰਚਨਾ(200 ਸ਼ਬਦਾਂ ਵਿੱਚ):ਮੇਰਾ ਅਧਿਆਪਕ,ਮੇਰਾ ਕਾਲਜ ਅਤੇ ਦੀਵਾਲੀ
2. ਚਿੱਠੀ ਪੱਤਰ:ਫ਼ੀਸ ਮੁਆਫ਼ੀ ਅਤੇ ਬਿਮਾਰੀ ਕਾਰਨ ਛੁੱਟੀ ਲੈਣ ਸੰਬੰਧੀ
3.ਦੇਸੀ ਅਤੇ ਅੰਗਰੇਜ਼ੀ ਮਹੀਨਿਆਂ ਦੇ ਨਾਂ
4. ਇੱਕ ਤੋਂ ਸੌ ਤੱਕ ਗਿਣਤੀ

ਭਾਗ-ੲ

ਭਾਗ ੳ ਅਤੇ ਅ ਵਿਚੋਂ ਆਬਜੈਕਟਿਵ ਪ੍ਰਸ਼ਨ

ਨੋਟ:ਵਿਦਿਆਰਥੀ ਗੁਰਮੁਖੀ ਸਿੱਖ ਰਹੇ ਹਨ।ਇਸ ਲਈ ਵਿਦਿਆਰਥੀਆਂ ਦੇ ਪੱਧਰ ਨੂੰ ਧਿਆਨ ਵਿੱਚ ਰੱਖਦੇ ਹੋਏ ਸਰਲ ਅਤੇ ਸਪੱਸ਼ਟ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣ।

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1.ਸਤਿਨਾਮ ਸਿੰਘ ਸੰਧੂ,ਆਓ ਪੰਜਾਬੀ ਸਿੱਖੀਏ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ,2009
2. ਸਤਿਨਾਮ ਸਿੰਘ ਸੰਧੂ,ਗੁਰਮੁਖੀ ਸਿੱਖੋ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ,2011
3.ਸੀਤਾ ਰਾਮ ਬਾਹਰੀ, ਪੰਜਾਬੀ ਸਿੱਖੀਏ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ,2002
4.ਪੰਜਾਬੀ ਗਿਆਨ ਸੀ.ਡੀ.(ਕੰਪਿਊਟਰ ਐਪਲੀਕੇਸ਼ਨ ਟੂ-ਲਰਨ ਐਂਡ ਟੀਚ ਪੰਜਾਬੀ), ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ
5. ਚਰਨ ਪੁਆਧੀ,ਆਓ ਪੰਜਾਬੀ ਸਿੱਖੀਏ,ਸੰਗਮ ਪਬਲੀਕੇਸ਼ਨ,ਪਟਿਆਲਾ

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Sessions 2020-21, 2021-22 and 2022-23

BSCHAI-113 Computer Fundamentals
6 CREDITS: 5H(L)+1H(T)

Time Allowed: 3 Hours	**Max. Marks: 100**
Number of Lecture per Week: 6	**External Marks: 70**
Pass Percentage: 35%	**Internal Assessment: 30**

Instructions for the Paper Setter

The question paper will consist of three sections: A, B & C. Sections A & B will have four questions each from the respective sections of the syllabus carrying 10.5 marks for each question. Section C will have 5-10 short-answer type questions carrying at total of 28 marks, which will cover the entire syllabus uniformly.

Instructions for the Candidates

Candidates are required to attempt two questions each from the sections A & B of the question paper and the entire section C.

SECTION A

What are computers? The evolution of computers, Computers generations, classifications of computers. Block Diagram: Input-output devices, Description of Computer Input Units, Other Input Methods, and Computer Output Units. Number Systems: Introduction, Classification of Number System, Types of Number System, Conversions from One Base to Another. Milestones in hardware and software Computer Memory: Memory Cell, Memory Organization, Read Only Memory, Serial Access Memory, Physical Devices Used to construct Memories, Magnetic Hard disk, floppy Disk drives, Compact Disk, Read Only Memory, Magnetic Tape Drives. Low level and high level languages, assemblers, compilers, interpreters, linkers. Internet: internet applications.

SECTION - B

MS-Word: Overview, creating, saving, opening, importing, exporting and inserting files, formatting pages, paragraphs and sections, indents and outdents, creating lists and numbering. Headings, styles, Fonts and font size Editing, positioning and viewing texts, Finding and replacing text, inserting page breaks, page numbers, bookmarks, symbols and dates. Using tabs and tables, header, footer and printing MS–PowerPoint: Presentation overview, entering information, Presentation creation, opening and saving presentation, inserting audio and video

Text Books:

1. Computer Fundamentals, P.K. Sinha.
2. Introduction to Computers, N. Subramanian.
3. MS–Office, BPB Publications.

Reference Books:

1. Peter Nortorn, Introduction to Computers, Seventh Edition.
2. V. Rajaraman, Fundamentals of Computers, PHI.
3. Larry E. Long and Nancy Long, Computers: Information Technology in Perspective, PHI.
4. N. Subramanian, Introduction to Computers, Tata McGraw-Hill.
5. D.H. Sanders, Computers Today, McGraw- Hill.

BSCHAI-114: Problem Solving and Programming in C
4 CREDITS: 4H(L)

Time Allowed: 3 Hours	**Max. Marks: 100**
Number of Lecture per Week: 4	**External Marks: 70**
Pass Percentage: 35%	**Internal Assessment: 30**

Instructions for the Paper Setter

The question paper will consist of three sections: A, B & C. Sections A & B will have four questions each from the respective sections of the syllabus carrying 10.5 marks for each question. Section C will have 5-10 short-answer type questions carrying at total of 28 marks, which will cover the entire syllabus uniformly.

Instructions for the Candidates

Candidates are required to attempt two questions each from the sections A & B of the question paper and the entire section C.

SECTION A

Programming Process: Problem Identification, Analysis, Algorithm, Flowchart, Coding, Compilation and debugging.

Basic structure of C program: History of C, Structure of a C program, Character set, Identifiers and keywords, constants, variables, data types.

Operators and expressions: Arithmetic, Unary, Logical, Relational operators, assignment operators, Conditional operators, Hierarchy and associativity of operations type conversion.

Control statements: Branching statements (if, if else, switch), loop statements (for, while and do-while), jump statements (break, continue, goto), nested control structures.

Functions: Library functions and user defined functions, definition and call, formal and actual arguments, local and global variables, methods of parameter passing to functions, recursion.

I/O functions: Formatted & unformatted console I/O functions.

SECTION - B

Storage Classes: Automatic, external, static and register variables.

Arrays:– One dimensional and two dimensional arrays Declaration, initialization, reading values into an array, displaying array contents, working with rows and columns.

Strings : Input/output of strings, string handling functions (strlen, strcpy, strcmp, strcat & strrev).

Structures and unions: using structures and unions, comparison of structure with arrays and union.

Pointers: Pointer data type, pointer declaration, initialization, accessing values using pointers, pointers and arrays.

Introduction to Files in C: opening and closing files. Basic I/O operation on files, Reading and writing Text Files, using fprintf(), fscanf(), getc(), putc(), fgets(), fputs() functions,

Text Book:

1 E. Balagurusamy, “Programming in C”, Tata McGraw Hill.

References:

1 Kernighan and Ritchie, “The C Programming Language”, PHI.
2 Byron Gotfried, “Programming in C”.
3 Kamathane, “Programming in C”, Oxford University Press.
4 Yashvant P Kanetkar, “Let us C”, Seventh Edition, BPB Publications, New Delhi.

BSCHAI-115: Introduction to Artificial Intelligence
6 CREDITS: 5H(L)+1H(T)

Time Allowed: 3 Hours	**Max. Marks: 100**
Number of Lecture per Week: 6	**External Marks: 70**
Pass Percentage: 35%	**Internal Assessment: 30**

Instructions for the Paper Setter

The question paper will consist of three sections: A, B & C. Sections A & B will have four questions each from the respective sections of the syllabus carrying 10.5 marks for each question. Section C will have 5-10 short-answer type questions carrying at total of 28 marks, which will cover the entire syllabus uniformly.

Instructions for the Candidates

Candidates are required to attempt two questions each from the sections A & B of the question paper and the entire section C.

SECTION A

Introduction: Introduction to Artificial Intelligence, Background and Applications, Intelligent agents: reactive, deliberative, goal-driven, utility-driven, and learning agents

Problem Solving: Defining problem as state space search, problem characteristics, Blind search, Heuristic search, hill climbing, Best-first, constraint satisfaction.

Logical Reasoning: Introduction to Prepositional Logic: Syntax, Semantics, Inference methods in Prepositional Logic. Introduction to Predicate Logic: Syntax, Semantics of Predicate Logic, Clausal form, Resolution, Unification, Inference Mechanisms.

SECTION B

Knowledge: Introduction and Importance of Knowledge, Knowledge based systems, Knowledge Representation: Approaches to Knowledge representation, Issues in Knowledge representation, Knowledge representation using rules. Semantic Nets, Frames, Conceptual Dependencies, Scripts, CYC, Knowledge Organization and Manipulation.

Expert System: Introduction, Rule-Based Architectures, Nonproduction system architectures, Expert System Shells, Knowledge acquisition and Validation.

Learning: Introduction, Role of Learning, Types of Learning, General Learning Model, Performance Measures

Communication: Communication among agents, natural language processing, formal grammar, parsing, grammar

Text Book:

1. DAN.W. Patterson, Introduction to A.I and Expert Systems – PHI, 2007.
2. Russell & Norvig, Artificial Intelligence-A Modern Approach, LPE, Pearson Prentice Hall, 2nd edition, 2005.
3. Rich & Knight, Artificial Intelligence – Tata McGraw Hill, 2nd edition, 1991.

BSCHAI-116 (i) Better Spoken English
4 CREDITS: 4H(L)

Time Allowed: 3 Hours **Max. Marks: 100**
Number of Lecture per Week: 4 **External Marks: 70**
Pass Percentage: 35% **Internal Assessment: 30**

Instructions for the paper setter
The question paper will consist of three sections: A, B & C. Sections A & B will have four questions each from the respective sections of the syllabus carrying 10.5 marks for each question. Section C will have 5-10 short-answer type questions carrying at total of 28 marks, which will cover the entire syllabus uniformly.

Instructions for the candidates
Candidates are required to attempt two questions each from the sections A & B of the question paper and the entire section A.

SECTION A

Skills of effective speaking, Components of effective talk, Mock dialogues/ conversation for developing speaking skills, Guidelines for effective conversation.

Speeches and debates, Preparing and delivering multi-media presentation, Audio-visual aids-Types and role of audio-visual aids.

Role of body language in effective presentation, Manner of speaking-Clarity, Correctness, Pace, pitch & power of voice, pausing.

SECTION B

Articulation of English Speech Sounds – Place and Manner of Articulation, Vowels and consonants, Word Stress in English, Primary stress in simple English words.

Group discussion- Introduction, importance and objectives of group discussion.Skills for success in group discussion.

Conducting Meeting : Purpose, & process of meeting, Role of chairman, secretary & participants in meeting.

Interview: Types of interviews, preparing for a successful job interview, Appropriate use of non-verbal communication.

Recommended Books :

- Chaudhary,Shreesh, Better Spoken English, New Delhi :Vikas Publishing, 1992/2004
- Pease, Allan and Barbara Pease, The Definitive Book of Body Language. New Delhi: Manjul Publishing House, 2005.
- Turk, Christopher. *Effective Speaking,* South Asia Division: Taylor & Francis, 1985.

- Lucas, Stephen E. *The Art of Public Speaking*, 11th Edn., McGraw Hill Book Co., 2014.
- Sharma, Sangeeta and Binod Mishra, *Communication Skills for Engineers and Scientists*. New Delhi: PHI Learning. 2009, 6th Reprint 2015.
- Thorpe, Edgar and Showick Thorpe, *Winning at Interviews*. Pearson Education. 2004.
- Taylor, Grount English *Conversation Practice*, Tata McGraw Hill
- Sethi, J, Sadanand, Kamlesh& Jindal, D V, *Practical Course in English Pronunciation* by Published by PHI Learning Pvt. Ltd; New Delhi.
- Roach, Peter, English Phonetics and Phonology Fourth Edition:A Practical Course, Cambridge University Press, 2010.

The following exercises to be conducted in practical sessions:

- Listening Practical: Listening to pre-recorded talks with the intent of grasping correct pronunciation and along with understanding and comprehending the content.
- Introducing oneself, others and leave taking(talking about yourself)
- Recognizing and articulating English Speech Sounds
- Mock dialogues/ Conversation
- Paper reading before an audience.
- Preparing & delivering a Power point presentation
- Participating in a group discussion.
- Conducting a mock meeting.
- Participating in a mock interview.
- Learning the skills of a compère.

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BSCHAI-116(ii) Stress Management
4 CREDITS: 4H(L)

Time Allowed: 3 Hours **Max. Marks: 100**
Number of Lecture per Week: 4 **External Marks: 70**
Pass Percentage: 35% **Internal Assessment: 30**

Instructions for the paper setter

The question paper will consist of three sections: A, B & C. Sections A & B will have four questions each from the respective sections of the syllabus carrying 10.5 marks for each question. Section C will have 5-10 short-answer type questions carrying at total of 28 marks, which will cover the entire syllabus uniformly.

Instructions for the candidates

Candidates are required to attempt two questions each from the sections A & B of the question paper and the entire section A.

SECTION A

Understanding Stress: Meaning and Nature; Body's Reactions to Stress; Sources of Stress Across, Adaptive and Maladaptive Behaviour, Individual and Cultural Differences.

SECTION B

Strategies of Stress Management and Prevention: Challenging Stressful Thinking, Problem Solving and Time Management, Psychological and Spiritual Relaxation Methods, Physical Methods of Stress Reduction, Preparing for the Future: Occupational Stress, Care of the Self: Nutrition and Other Lifestyle Issues, Stress and Conflict in Relationships, Resilience and Stress.

Suggested Readings:

Kottler, J. A. & Chen, D. D. (2011): Stress management and prevention: Applications to daily life (2nd Ed.). London and New York: Routledge.

Alex, Roney and Cooper, Cary (1997): Professionals on work place stress: John Wiley and Sons Ltd.

Batra, Promod (1995): Simple ways to manage Stress: Thompson Press, India.

Charlesworth, Edward A, Nathan, G Ronald (1982): Stress Management – A Comprehensive guide to wellness, London: Souvenir press.

Chrissie, Wildwood (1997): The Complete Guide to Reducing Stress, London: Judy Piatkus Ltd.

BSCHAI-116 (iii) Introduction to Logic
4 CREDITS: 4H(L)

Time Allowed: 3 Hours	**Max. Marks: 100**
Number of Lecture per Week: 4	**External Marks: 70**
Pass Percentage: 35%	**Internal Assessment: 30**

Instructions for the paper setter

The question paper will consist of three sections: A, B & C. Sections A & B will have four questions each from the respective sections of the syllabus carrying 10.5 marks for each question. Section C will have 5-10 short-answer type questions carrying at total of 28 marks, which will cover the entire syllabus uniformly.

Instructions for the candidates

Candidates are required to attempt two questions each from the sections A & B of the question paper and the entire section C.

SECTION A

Introduction: Logic and its relationship to other disciplines.

Argument, Premises, conclusion, Indicators. Nature and scope of Deductive and Inductive Arguments. Validity and strength of Deductive and Inductive arguments. Truth and Soundness, Counter example method for invalidity of deductive arguments. Diagramming Arguments.

Formal and Informal Fallacies: Denial of Antecedent, Affirming the consequent. Fallacies of relevance. Fallacies arising from the ambiguities in Language.

SECTION- B

Traditional Logic: Why formal Logic? Aristotle Theory of Syllogisms. Square of Opposition, Validity of syllogisms using Venn, Euler diagrams. Limitations of Aristotle Logic, Boolean logic and birth of Modern Logic.

Modern Logic: Propositional and predicate Logic: Syntax and Semantics. Validity, Consistency, Soundness, Proof, Completeness. Various techniques such as Truth Table method. Indirect truth table method. Natural Deduction. Tree Method. Godels incompleteness theorem. Limitations of standard two valued logic.

Text Books:

1. Patrick Hurley A Concise Introduction to Logic, Wardsworth, 2007.
2. Elliot Mendelson Introduction to Mathematical Logic, pp: 1-90 [Propositional and Predicate Logic].

References Books:

1. Shawn Hedman, A first course in Mathematical Logic, oxford university press, pp 1-115.
2. Bertrand Russell and A. N. Whitehead, Principia Mathematica, 1910, pp. 89-135.
3. Raymond Smullyan, Forever Undecided: A Puzzle Guide to G"odel, 1987.
4. Martin Gardner, aha! Insight & aha! Gotcha.The mathematical association of America, 2002.

5. Stephen Read, Thinking about Logic: An Introduction to the Philosophy of Logic, Oxford University Press.
6. Graham Priest, Logic: A Very Short Introduction, Oxford University Press, 2001.

BSCHAI-116(iv) Introduction to Sociology

4 CREDITS: 4H(L)

Time Allowed: 3 Hours	**Max. Marks: 100**
Number of Lecture per Week: 4	**External Marks: 70**
Pass Percentage: 35%	**Internal Assessment: 30**

Instructions for the paper setter

The question paper will consist of three sections: A, B & C. SECTIONs A & B will have four questions each from the respective sections of the syllabus carrying 10.5 marks for each question. SECTION C will have 5-10 short-answer type questions carrying a total of 28 marks, which will cover the entire syllabus uniformly.

Instructions for the candidates

Candidates are required to attempt two questions each from the sections A & B of the question paper and the entire section C.

SECTION A

Introduction to Sociology : Sociological approaches, Nature of society: Individuals and groups, Definition and classification of family , Perspectives on family , Institutions, Community and Association Culture, Cooperation and conflict, Sociological Methods, The Sociology of Anomie: Conformity and Deviance

Social Structure and Social Change: Basic Concepts,Social Differentiation and Social Stratification, Theoretical Perspectives on Social Stratification, Systems of Stratification, Factors of Social Change, Rural-Urban Continuum: Meaning and Context

SECTION B

Sociology of work: Need for work, Social change and work, Development and work, Capitalism and motivation for work.

Socialization: Socialisation, Social Control, Social Roles and Identity.

Sociological Theories: An Overview, Auguste Comte and Herbert Spencer, Emile Durkheim and Max Weber, Karl Marx, Georg Simmel, Thorstein Veblen and Karl Mannheim, Feminism and Sociological Theory.

Text Books:

1. A. Giddens, *Sociology*, Polity Press, 2006.

References Books:

1. A. Inkeles, *What is Sociology: An Introduction to the Discipline and Profession,* Prentice-Hall of India Private Ltd., 1977.
2. T.B. Bottomore, *Sociology: A Guide to Problems and Literature*, Blackie and Sons Publishers, 1978.
3. R.M. MacIver and C.H. Page, *Society: An Introductory Analysis*, The Macmillan Co. India Pvt. Ltd., 1974.

4. R. Bierstedt, *The Social Order*, Tata McGraw-Hill Publishing Co. Ltd., 1970.
5. E.A. Ross, *Social Psychology*, Macmillan, 1921.

BSCHAI-116(v) Brief introduction to Psychology
4 CREDITS: 4H(L)

Time Allowed: 3 Hours	**Max. Marks: 100**
Number of Lecture per Week: 4	**External Marks: 70**
Pass Percentage: 35%	**Internal Assessment: 30**

Instructions for the paper setter

The question paper will consist of three sections: A, B & C. SECTIONs A & B will have four questions each from the respective sections of the syllabus carrying 10.5 marks for each question. SECTION C will have 5-10 short-answer type questions carrying a total of 28 marks, which will cover the entire syllabus uniformly.

Instructions for the candidates

Candidates are required to attempt two questions each from the sections A & B of the question paper and the entire section C.

SECTION A

Introduction to Psychology: Definitions, Historical background, Nature and Scope; Branches of Psychology; Methods of Psychology: Experimental Method, Observational Method, Sampling Techniques, Survey Method; Personality: Nature, Determinants of Personality and Assessment; Motivation: Meaning, techniques and types, Theories of Motivation: Maslow’s Hierarchy of Need.

SECTION B

Intelligence: Meaning and theories of Intelligence (Spearman, Unitary and Thurston), measurement of Intelligence; Introduction to Memory: Nature, Memory Systems; Nature and Causes of Forgetting; Thinking: Concept, Problem Solving, Reasoning, Decision Making; Learning and its Types, Theories of Learning: Trial and Error theory, Pavlov’s classical conditioning theory and Operant Conditioning theory.

Suggested Readings:

1. Ciccarelli, D. (2008): Introduction to Psychology, Delhi: Pearson.
2. Baron, R.A. (2003): Psychology, New Delhi: Pearson Education.
3. Das, J.P. (1998): The Working Mind: Introduction to Psychology, New Delhi: Sage.
4. Morgan, C.T., King, R.A., Weisz. J.R., & Schopler. J. (1986): *Introduction of Psychology*, New York: McGraw Hill Book Co.

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BSCHAI-116 (vi) Developing Soft Skills & Personality

4 CREDITS: 4H(L)

Time Allowed: 3 Hours	**Max. Marks: 100**
Number of Lecture per Week: 4	**External Marks: 70**
Pass Percentage: 35%	**Internal Assessment: 30**

Instructions for the paper setter

The question paper will consist of three sections: A, B & C. Sections A & B will have four questions each from the respective sections of the syllabus carrying 10.5 marks for each question. SECTION C will have 5-10 short-answer type questions carrying a total of 28 marks, which will cover the entire syllabus uniformly.

Instructions for the candidates

Candidates are required to attempt two questions each from the sections A & B of the question paper and the entire section C.

SECTION A

- Introduction to Soft Skills, Interpersonal skills, Importance of Soft Skills.
- Communication: Verbal & Non-verbal communication, Role of body language, Essentials of Effective Communication, barriers to Communication.
- Team building and team work, Leadership, Qualities of a leader.
- Managing Self: Techniques of Time Management, Stress Management.

SECTION B

- Problem Solving: Approaches for problem solving, Steps followed in problem solving.
- Art of listening: Skills for effective listening, Art of Persuasion and Negotiation.
- Speaking Skills: Preparing and delivering effective multimedia presentation.
- Interview Skills, Participation in Group Discussion, Conducting meeting.

Recommended Books :

- Dorch, Patricia. *What Are Soft Skills.* New York: Execu Dress Publisher, 2013.
- Kamin, Maxine. *Soft Skills Revolution: A Guide for Connecting with Compassion for Trainers, Teams, and Leaders.* Washington, DC: Pfeiffer & Company, 2013.
- Klaus, Peggy, Jane Rohman & Molly Hamaker. *The Hard Truth about Soft Skills.*London: Harper Collins E-books, 2007.
- Petes S. J. Francis. *Soft Skills and Professional Communication.* New Delhi: Tata McGraw-Hill Education, 2011.
- Turk, Christopher. *Effective Speaking*, South Asia Division: Taylor & Francis, 1985.
- Lucas, Stephen E. *The Art of Public Speaking*, 11th Edn., International Edn., McGraw Hill Book Co., 2014.
- Holtz, Shel, *Corporate Conversations*, PHI, New Delhi, 2007.
- Chauhan, G.S. and Sharma, S. *Soft Skills.* Wiley, New Delhi, 2016.
- Kumar, Sanajy and Pushp Lata.*Communication Skills*. New Delhi: OUP. 2011.

BSCHAI-116(vii) Ethics

4 CREDITS: 4H(L)

Time Allowed: 3 Hours **Max. Marks: 100**
Number of Lecture per Week: 4 **External Marks: 70**
Pass Percentage: 35% **Internal Assessment: 30**

Instructions for the paper setter

The question paper will consist of three sections: A, B & C. SECTIONs A & B will have four questions each from the respective sections of the syllabus carrying 10.5 marks for each question. SECTION C will have 5-10 short-answer type questions carrying a total of 28 marks, which will cover the entire syllabus uniformly.

Instructions for the candidates

Candidates are required to attempt two questions each from the sections A & B of the question paper and the entire section C.

SECTION A

Introduction to Ethical Theories: Consequentialist and Non-consequentialist theories, Hedonism, Utilitarianism, Deontological theories, Ethical Rules ,Situation Ethics, Virtue Ethics.

Meta-ethical Theories: Ethical Relativism: Is Anything Wrong at all? ,Ethical Naturalism, Non-naturalism.

Non-cognitive or Non descripitivist Theories, Intuitionism, Approach to an Adequate Theory; the moral point of view, Why be Moral?

SECTION B

Ethics in the Indian tradition: Dharma- meaning, definition and classification, Theory of Karma, Nishkam Karma, Gandhian Ethics, Pursarthas, Buddhist Ethics, Jaina Ethics.

Some Ethical Issues:

The Personal life: Family and friends; Virtues, Liberty and Equality: Free Speech; Sexual and Racial Discrimination; Affirmative Action.

Justice: Punishment; Economic Justice; World Hunger and International Justice , Environmental Ethics.

Text Books:

1. Frankena, W.K. Ethics. New Delhi: Prentice Hall of India,1999.
2. LaFollette, Hugh, ed. Ethics in Practice: An Anthology. Cambridge: Blackwell,1997.

References Books:

1. Hospers, John. An Introduction to Philosophical Analysis. New Delhi: Allied Publishers, 1967.
2. Radhakrishnan,S. Indian Philosophy. 2 Vols. New Delhi: Oxford University Press, 1940.
3. Blackburn, Simon. The Oxford dictionary of philosophy. Oxford: Oxford University Press, 1996.
4. Weston, Anthony. A 21st Century Ethical Toolbox. New York: Oxford University Press, 2008.

5. Hospers, John. An introduction to philosophical analysis. New Delhi: Allied Publishers Private Limited, 1967.

BSCHAI-117 Software Lab – I

(Based on paper BSCHAI-114: Problem Solving and Programming in C)

2 CREDITS: 4H(P)

Time Allowed: 3 Hours	**Max. Marks: 100**
Number of Practicals per Week: 4	**External Marks: 70**
Pass Percentage: 35%	**Internal Assessment: 30**

This course will mainly comprise of exercises on the basis of the following theory paper BSCHAI-114: Problem Solving and Programming in C.

***The splitting of marks is as under:**

Maximum Marks for Continuous Assessment: 30
Maximum Marks for University Examination: 70

BSCHAI-118 (SAE-1.1) DRUG ABUSE: PROBLEM, MANAGEMENT & PREVENTIONS

Time Allowed: 3 hours **Maximum Marks: 50**
Pass Marks: 35% **Internal Assessment: 15 Marks**
External: 35 marks

INSTRUCTIONS FOR THE PAPER SETTERS

The question paper will consist of three sections A, B and C. Each of sections A and B will have four questions from the respective sections of the syllabus. Each question shall carry 7 marks. Section C will consist of 14 short answer type of 2 marks each.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt any three questions from section A and any three questions from section B. Section C is compulsory.

SECTION-A

UNIT: I – Problem of Drug Abuse: Concept and Overview; Types of Drug Often Abused

a. Concept and Overview
What are drugs and what constitutes Drug Abuse?
Prevalence of menace of Drug Abuse
How drug Abuse is different from Drug Dependence and Drug Addiction?
Physical and psychological dependence- concepts of drug tolerance

b. Introduction to drugs of abuse: Short Term, Long term effects & withdrawal symptoms
Stimulants: Amphetamines, Cocaine, Nicotine
Depressants: Alcohol, Barbiturates- Nembutal, Seconal, Phenobarbital Benzodiazepines– Diazepam, Alprazolam, Flunitrazepam
Narcotics: Opium, morphine, heroin
Hallucinogens: Cannabis & derivatives (marijuana, hashish, hash oil)

Steroids

Inhalants

UNIT: II –Nature of the Problem

Vulnerable Age Groups

Signs and symptoms of Drug Abuse

(a)- Physical indicators

(b)- Academic indicators

(c)- Behavioral and Psychological indicators

SECTION B

UNIT: III – Causes and Consequences of Drug Abuse

a. Causes

Physiological

Psychological

Sociological

b. Consequences of Drug Abuse

For individuals

For families

For society & Nation

Unit: IV- Management & Prevention of Drug Abuse

Management of Drug Abuse

Prevention of Drug Abuse

Role of Family, School, Media, Legislation & Deaddiction Centers

Suggested Readings:

1. Kapoor.T. (1985) Drug Epidemic among Indian Youth, New Delhi: Mittal Pub
2. Modi, Ishwar andModi, Shalini (1997) Drugs: Addiction and Prevention, Jaipur: Rawat Publication.
3. Ahuja, Ram,(2003),Social Problems in India, Rawat Publications: Jaipur
4. 2003 National Household Survey of Alcohol and Drug Abuse. New Delhi, Clinical Epidemiological Unit, All India Institute of Medical Sciences, 2004.
5. World Drug Report 2011, United Nations Office of Drug and Crime.
6. World Drug Report 2010, United Nations Office of Drug and Crime.
7. Extent, Pattern and Trend of Drug Use in India, Ministry of Social Justice and Empowerment, Government of India, 2004.
8. The Narcotic Drugs and Psychotropic Substances Act, 1985, (New Delhi: Universal, 2012)

SEMESTER - II

BSCHAI-121: Introduction to Data Science
6 CREDITS: 5H(L)+1H(T)

Time Allowed: 3 Hours	**Max. Marks: 100**
Number of Lecture per Week: 6	**External Marks: 70**
Pass Percentage: 35%	**Internal Assessment: 30**

Instructions for the Paper Setter

The question paper will consist of three sections: A, B & C. Sections A & B will have four questions each from the respective sections of the syllabus carrying 10.5 marks for each question. Section C will have 5-10 short-answer type questions carrying at total of 28 marks, which will cover the entire syllabus uniformly.

Instructions for the Candidates

Candidates are required to attempt two questions each from the sections A & B of the question paper and the entire section C.

SECTION A

Introduction to Data Science: Data Science-a discipline, Landscape-Data to Data science, Data Growth-issues and challenges, data science process. foundations of data science.

Data Exploration and Preparation: Messy data, Anomalies and artefacts in datasets. Cleaning data.

Feature Generation and Feature Selection (Extracting Meaning From Data) - Motivating application: user (customer) retention - Feature Generation (brainstorming, role of domain expertise, and place for imagination) - Feature Selection algorithms – Filters; Wrappers; Decision Trees; Random Forests

SECTION B

Data Representation and Transformation: Forms of data-tabular, text data, graph-based data. Modern databases- text files, spreadsheets, SQL databases, NoSQL databases, distributed databases, live data streams.

Representation of data of special types-acoustic, image, sensor and network data.

Computing with Data: Overview of R, Python and Julia.

Data Modeling: Basics of Generative modeling and Predictive modeling.

Data Visualization and Presentation: Charts-histograms, scatter plots, time series plots etc. Graphs, 3D Visualization and Presentation

Text Books:

1.S.J. Russell and P.Norvig: “Artificial Intelligence: A Modern Approach”, Pearson.
2. Sinan Ozdemir, “Principles of Data Science”, Packt Publishing.

Reference Books:

1 E.Rich, K.Knight, S.B. Nair: “Artificial Intelligence”, Tata McGraw Hill Ed Pvt Ltd.

2 Joel Grus: “Data Science from Scratch”, O’Reilly.
3 Foster Provost & Tom Fawcett: “Data Science for Business” O’Reilly
4 Roger D. Peng & Elizabeth Matsui: “The Art of Data Science” Lean Publishing.

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BSCHAI-122: Object Oriented Programming Concepts using C++

4 CREDITS: 4H(L)

Time Allowed: 3 Hours	**Max. Marks: 100**
Number of Lecture per Week: 4	**External Marks: 70**
Pass Percentage: 35%	**Internal Assessment: 30**

Instructions for the Paper Setter

The question paper will consist of three sections: A, B & C. Sections A & B will have four questions each from the respective sections of the syllabus carrying 10.5 marks for each question. Section C will have 5-10 short-answer type questions carrying at total of 28 marks, which will cover the entire syllabus uniformly.

Instructions for the Candidates

Candidates are required to attempt two questions each from the sections A & B of the question paper and the entire section C.

SECTION A

Principles of Object Oriented Programming (OOP): Introduction to OOP, Difference between OOP and Procedure Oriented Programming;

Concepts: Object, Class, Encapsulation, Abstraction, Polymorphism and Inheritance, Applications of OOP.

Special operators: scope resolution operator, Member Dereferencing operators, Memory management operators, Manipulators and Typecast operator

Structure of a C++ Program and Classes and Objects: Class Declaration: Data Members, Member Functions, Private and Public members, Creating Objects, Accessing class data members, Accessing member functions;

Class Function Definition: Member Function definition inside the class declaration and outside the class declaration. Friend function, inline function, Static members, Function Overloading, Arrays within a class. Arrays of Objects; Objects as function arguments: Pass by value, Pass by reference, Pointers to Objects.

Constructors: Declaration and Definition, Types of Constructors, (Default, Parameterized, Copy Constructors). Destructors: Definition and use. Operator Overloading & Type Conversion: Conversion from basic type to user defined type, User defined to basic type and one user defined conversion to another user defined type

SECTION B

Inheritance: Extending Classes Concept of inheritance, Base class, Defining derived classes, Visibility modes: Public, Private, Protected; Types of Inheritance: Single inheritance: Privately derived, publicly derived; Making a protected member inheritable, multilevel inheritance, multiple Inheritance and ambiguity of multiple inheritance, Hierarchal Inheritance, Hybrid, Nesting of classes.

Polymorphism: Definition, Application and demonstration of Data Abstraction, Encapsulation and Polymorphism. Early Binding, Polymorphism with pointers, Virtual Functions, Late binding, pure virtual functions.

Exception Handling: Definition, Exception Handling Mechanism: Throwing mechanism and Catching Mechanism, Rethrowing an Exception

File Processing: Opening and closing of file, Binary file operations.

Text Books :

1. E. Balaguruswamy, 2008: Object Oriented Programming with C++

References:

1. RobertLafore,2003:ObjectOrientedProgramminginTurboC++,GalgotiaPubications
2. Salaria,R.S.:ObjectOrientedProgrammingUsingC++,KhannaBookPublishing
3. Co.(P.)Ltd., New Delhi

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BSCHAI-123: Data Structures

4 CREDITS: 4H(L)

Time Allowed: 3 Hours	**Max. Marks: 100**
Number of Lecture per Week: 4	**External Marks: 70**
Pass Percentage: 35%	**Internal Assessment: 30**

Instructions for the Paper Setter

The question paper will consist of three sections: A, B & C. Sections A & B will have four questions each from the respective sections of the syllabus carrying 10.5 marks for each question. Section C will have 5-10 short-answer type questions carrying at total of 28 marks, which will cover the entire syllabus uniformly.

Instructions for the Candidates

Candidates are required to attempt two questions each from the sections A & B of the question paper and the entire section C.

SECTION A

Introduction: Definition of data structures, Operations on Data Structures, Abstract Data Types, Algorithmic Complexity, Big O Notation, Time Space Tradeoff, Recursion.

Classification: Linear and Non-linear, homogeneous and non-homogeneous, static and dynamic data structures.

Pointers: Basic Concepts, pointers and arrays, pointers and strings, pointers and structures.

Arrays: Definition, Types of arrays, Representation in memory, Operations on arrays, Sparse matrices.

Stacks: Introduction, representation in memory, operations on stacks, applications of stacks-string reversal, parenthesis matching. Use of stacks in implementation of recursion.

Queues: Introduction, types of queues, various representations of queues using array and linked list, operations on queues, applications

Section – B

Linked List: Introduction, memory representation of linked list, operations on linked lists (insertion, deletion, reversing, searching and sorting), applications.

Trees: Introduction, Binary tree and its types, binary tree traversals, operations on binary trees, Binary search tree (BST), applications.

Graphs: Introduction, Graph terminology, memory representation of graphs, operations on graphs, minimum spanning tree, applications of graphs

Text Books:

1. Vishal Goyal, Lalit Goyal, Pawan Kumar, “A Simplified Approach to Data Structures”, Shroff Publications.
2. Yashvant Kanetkar,” Data Structures through C++ “, BPB Publications

Reference Books:

1. Sartaj Sahni “Data Structure, Algorithms and Applications in C++”, Orient Black Swan.
2. Seymour Lipschultz,” Theory and Practice of Data Structures”, McGraw-Hill.
3. J.P. Trembley, P.G. Sorenson, “An Introduction to Data Structures with Applications”, McGraw-Hill.
4. Mark Allen Weiss, “Data Structures and Algorithm Analysis in C”, Addison-Wesley.

BSCHAI-124 (i) Cyber Laws
6 CREDITS: 5H(L)+1H(T)

Time Allowed: 3 Hours	**Max. Marks: 100**
Number of Lecture per Week: 6	**External Marks: 70**
Pass Percentage: 35%	**Internal Assessment: 30**

Instructions for the Paper Setter

The question paper will consist of three sections: A, B & C. Sections A & B will have four questions each from the respective sections of the syllabus carrying 10.5 marks for each question. Section C will have 5-10 short-answer type questions carrying at total of 28 marks, which will cover the entire syllabus uniformly.

Instructions for the Candidates

Candidates are required to attempt two questions each from the sections A & B of the question paper and the entire section C.

SECTION A

Introduction , Computers and Society, Computer and Web Technology, Need for Cyber Law, Cyber Jurisprudence at International and Indian Level, Cyber Law - International Perspectives, UN & International Telecommunication Union (ITU) Initiatives, Council of Europe - Budapest Convention on Cybercrime

Human Rights Issues in Cyberspace, Freedom of Speech and Expression in Cyberspace, Right to Access Cyberspace – Access to Internet, Right to Privacy, Right to Data Protection, Cyber Crimes & Legal Framework, Cyber Crimes against Individuals, Institution and State

SECTION B

Hacking , Digital Forgery, Cyber Stalking/Harassment, Cyber Pornography, Identity Theft & Fraud , Cyber terrorism, Cyber Defamation, Different offences under IT Act, 2000

Intellectual Property Issues in Cyber Space, Interface with Copyright Law, Interface with Patent Law, Trademarks & Domain Names Related issues, Online contracts, Click Wrap Contracts, Dispute Resolution in Cyberspace, Concept of Jurisdiction, Indian Context of Jurisdiction and IT Act, 2000, International Law and Jurisdictional Issues in Cyberspace

References:

1. Justice Yatindra Singh, Cyber Laws, Universal Law Publishing Co, New Delhi, (2012).
2. Verma S, K, Mittal Raman, Legal Dimensions of Cyber Space, Indian Law Institute, New Delhi, (2004)
3. Jonthan Rosenoer, Cyber Law, Springer, New York, (1997).

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BSCHAI-124(ii) Knowledge Management

6 CREDITS: 5H(L)+1H(T)

Time Allowed: 3 Hours	**Max. Marks: 100**
Number of Lecture per Week: 6	**External Marks: 70**
Pass Percentage: 35%	**Internal Assessment: 30**

Instructions for the Paper Setter

The question paper will consist of three sections: A, B & C. Sections A & B will have four questions each from the respective sections of the syllabus carrying 10.5 marks for each question. Section C will have 5-10 short-answer type questions carrying at total of 28 marks, which will cover the entire syllabus uniformly.

Instructions for the Candidates

Candidates are required to attempt two questions each from the sections A & B of the question paper and the entire section C.

Section A

The foundations of knowledge management- including cultural issues- technology applications organizational concepts and processes- management aspects- and decision support systems, The Evolution of Knowledge management**:** From Information Management to Knowledge Management - Key Challenges Facing the Evolution of Knowledge Management - Ethics for Knowledge Management.

Organization and Knowledge Management - Building the Learning Organization, Knowledge Markets:Cooperation among Distributed Technical Specialists – Tacit Knowledge and Quality Assurance

Section B

Telecommunications and Networks in Knowledge Management - Internet Search Engines and Knowledge Management - Information Technology in Support of Knowledge Management -Knowledge Management and Vocabulary Control - Information Mapping in Information Retrieval -Information Coding in the Internet Environment - Repackaging Information.

Components of a Knowledge Strategy - Case Studies (From Library to Knowledge Center, Knowledge Management in the Health Sciences, Knowledge Management in Developing Countries).

References:

1. Create the Dynamics of Innovation", Oxford University Press, 1995.
2. Kimiz Dalkir,Jay Liebowitz, "Knowledge Management in theory & practices",2011,2nd edition.

BSCHAI-124(iii): Digital Marketing
6 CREDITS: 5H(L)+1H(T)

Time Allowed: 3 Hours	**Max. Marks: 100**
Number of Lecture per Week: 6	**External Marks: 70**
Pass Percentage: 35%	**Internal Assessment: 30**

Instructions for the Paper Setter

The question paper will consist of three sections: A, B & C. Sections A & B will have four questions each from the respective sections of the syllabus carrying 10.5 marks for each question. Section C will have 5-10 short-answer type questions carrying at total of 28 marks, which will cover the entire syllabus uniformly.

Instructions for the Candidates

Candidates are required to attempt two questions each from the sections A & B of the question paper and the entire section C.

SECTION A

Meaning and Definition of Marketing- Basics of Marketing**,** Features of Marketing, Importance of Marketing, Functions of Marketing, Core Concept of Marketing - Need, Want, Demand, Value and Satisfaction, Production-Concept, Product concept, selling concept Marketing concept, Marketing Mix**:** Meaning, Seven Ps of marketing mix.

Introduction to Digital Marketing- Key Concepts of Digital Marketing, Traditional Marketing vs. Digital Marketing, The Opportunity of Digital Marketing, Characteristics of Digital Marketing, Implications of Digital Marketing, Strategies in Digital Marketing.

Internet and WWW: Introduction to internet and its working, business use of internet, services offered by Internet, evaluation of internet, internet service provider (ISP), internet addressing (DNS and IP addresses). Introduction and working of WWW, Web browsing (opening, viewing, saving and printing a web page and bookmark).

Search Engine: About search engine, component of search engine, working of search engine, Difference between search engine and web directory.

SECTION B

HTML: Basics of HTML, HTML Tags, Elements of Web page (Text , Image & Hyperlink Elements).

SMO (Social Media Optimization) –Facebook, Twitter, YouTube-Introduction to Social Media, Types of Social Media, How Social Media is affecting Google Search, How to choose right social media, Integrating social media into your website and blogs, Facebook Marketing, Introduction to Facebook, Difference between Profiles, Places, Groups and Pages, Social media and communications strategy, Facebook Connect(Like, Share, Comment),Facebook pages(Creating, Managing, Retention), Facebook Apps, Measuring and Monitoring, Advantages and Challenges ,

Twitter Marketing: Introduction to Micro blogging and Twitter, Twitter Demographics, Use for reputation, promotion, sales, conversing, Who to follow, Tweeting, Searching tweets and users, Measuring Influence, Tools, Tracking Code, Twitter Account Promotion, How to Shorten and Measure your URLs , **Photo Sharing Social Network** : Picasa, Video Sharing Social Network : YouTube

E**mail Marketing:** Introduction to Email Marketing, How Email Marketing Works, Sending Email

References:

1. William I. Stanton, Ajay Pandit-Marketing Concepts & Cases,- The McGraw Hill companies Ltd. New Delhi
2. Search Engine Optimization Bible, Jerri L. Ledford, Wiley Publishing
3. S.A.Sherlekar, "Marketing Management", Himalaya Publishing House, Mumbai.
4. E. Stephen Mack, Janan Platt, "HTML 4.0" BPB Publications, New Delhi

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BSCHAI-124(iv): Economics of Intellectual Property Rights

6 CREDITS: 5H(L)+1H(T)

Time Allowed: 3 Hours	**Max. Marks: 100**
Number of Lecture per Week: 6	**External Marks: 70**
Pass Percentage: 35%	**Internal Assessment: 30**

Instructions for the Paper Setter

The question paper will consist of three sections: A, B & C. Sections A & B will have four questions each from the respective sections of the syllabus carrying 10.5 marks for each question. Section C will have 5-10 short-answer type questions carrying at total of 28 marks, which will cover the entire syllabus uniformly.

Instructions for the Candidates

Candidates are required to attempt two questions each from the sections A & B of the question paper and the entire section C.

Section A

Meaning of property, Is IP a property, Justifications for protection of IP, Major forms of IP, Copyright, Patent, Trade Marks, Designs, Geographic indication, Semi conductors, Plant varieties, Major international documents relating to the protection of IP: Berne Convention, Paris Convention, TRIPS

Meaning and historical development of copyright, Subject matter : Original literary, dramatic, musical, artistic works, Cinematograph films, Sound recordings, Ownership of copyright, Term of copyright, Rights of owner:. Economic Rights, Moral Rights, Assignment and licence of rights, Performers rights, Infringement of copyright, Exceptions of infringement, Remedies, Registration

Section B

Patents, Criteria for obtaining patents, Procedure for registration, Term of patent, Rights of patentee,. Compulsory licence, Revocation,. Government use of patent, Infringement of patents , Exceptions to infringement, Remedies, Patent office and Appellate Board

Trade Marks Meaning and historical development, Functions of marks, Concept of distinctiveness, Absolute grounds of refusal,. Relative grounds for registration, Doctrine of honest concurrent user, Procedure for registration,Term of mark , Rights of holder, Assignment and licensing of marks , Infringement, Trade Marks Registry and Appellate Board

References:

1. P. Narayanan, Intellectual Property Law, Eastern Law House
2. B.L. Wadehra, Law relating to Intellectual Property, Universal Law Publishing Co.

BCAHAI-125-Software Lab-II (Based on BSCHAI-122)

2 CREDITS: 4H(P)

Time Allowed: 3 Hours	**Max. Marks: 100**
Number of Practicals per Week: 4	**External Marks: 70**
Pass Percentage: 35%	**Internal Assessment: 30**

This course will mainly comprise of exercises on the basis of the following theory paper BSCHAI-122: Object Oriented Programming Concepts using C++

***The splitting of marks is as under:**

Maximum Marks for Continuous Assessment: 30
Maximum Marks for University Examination: 70

BCAHAI-126-Software Lab-III (Based on BSCHAI-123)

2 CREDITS: 4H(P)

Time Allowed: 3 Hours	**Max. Marks: 100**
Number of Practicals per Week: 4	**External Marks: 70**
Pass Percentage: 35%	**Internal Assessment: 30**

This course will mainly comprise of exercises on the basis of the following theory paper BSCHAI-123: Data Structures

***The splitting of marks is as under:**

Maximum Marks for Continuous Assessment: 30
Maximum Marks for University Examination: 70

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BSCHAI-127(SAE-1.2): Environmental and Road Safety Awareness

4 Credits: (4L)

Time Allowed: 3hour **Maximum Marks: 100**
Pass Marks: 35% **Internal Assessment: 30 marks**
External: 70 marks

INSTRUCTIONS FOR THE PAPER SETTERS

The question paper will consist of three sections A, B and C. Each of sections A and B will have four questions from the respective sections of the syllabus. Each question shall carry 7 marks. Section C will consist of 7 short answer type questions of 1 mark each.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt any two questions from each section A and B. Section C is compulsory.

SECTION-A

INTRODUCTION TO ENVIRONMENTAL STUDIES: The multidisciplinary nature of environmental studies. Definition, scope and importance, Concept of Biosphere – Lithosphere, Hydrosphere, Atmosphere.

ECOSYSTEM & BIODIVERSITY CONSERVATION

Ecosystem and its components, Types of Ecosystems

Biodiversity - Definition and Value, Threats to biodiversity and its conservation

Level of biological diversity: genetic, species and ecosystem diversity; bio-geographic zones of India; biodiversity patterns and global biodiversity hot spots.

India as Mega-biodiversity nation; Endangered and endemic species of India.

Ecosystem and biodiversity services: Ecological, economic, social, ethical, aesthetic and informational value.

NATURAL RESOURCES–RENEWABLE AND NON-RENEWABLE RESOURCES

Land resources and land use change; land degradation, soil erosion and desertification.

Deforestation: causes and impacts due to mining, dam building on environment, Forests, Biodiversity and tribal populations.

Water: Use and over-exploitation of surface and ground water, Floods, droughts, conflicts over water (international & inter-state)

Energy resources: renewable and nonrenewable energy sources, use of alternate energy sources, growing energy needs, case studies.

SECTION-B

ENVIRONMENTAL POLLUTION

Environmental Pollution: types, causes, effects and controls; Air, water, soil, chemical and noise pollution, Nuclear hazards and human health risks, Solid waste management: Control measures of urban and industrial waste, Pollution case studies.

ENVIRONMENTAL POLICIES AND PRACTICES

Climate change, global warming, ozone layer depletion, acid rain and impacts on human communities and agriculture.

Environment Laws : Environment Protection Act; Air (Prevention & Control of Pollution) Act; Water (Prevention and control of Pollution) Act; Wildlife Protection Act; Forest Conservation Act; International agreements; Montreal and Kyoto protocols and conservation on Biological Diversity (CBD). The Chemical Weapons Convention (CWC), Nature reserves, tribal population and rights, and human, wildlife conflicts in Indian context.

Human Communities and the Environment: Human population growth: Impacts on environment, human health and welfare, Sanitation & Hygiene. Resettlement and rehabilitation of project affected persons; case studies. Disaster management: floods, earthquake, cyclones and landslides. Environment movements: Chipko, Silent valley, Bishnois of Rajasthan. Environmental ethics: Role of Indian and other religions and cultures in environmental conservation for a Clean-green pollution free state.

Environmental communication and public awareness, case studies (e.g., CNG vehicles in Delhi)

Suggested Readings:

1. Carson, R. *2002. Silent Spring.* Houghton Mifflin Harcourt.
2. Gadgil, M., & Guha, R.1993. This *Fissured Land:* An Ecological History of India. Univ. of California Press.
3. Gleeson,B. and Low, N. (eds.) 1999. Global Ethics and Environment, London, Routledge.
4. Gleick, P.H. 1993. Water in *Crisis*. Pacific Institute for Studies in Dev., Environment & Security. Stockholm Env. Institute, Oxford Univ. Press.
5. Groom, Martha J. Gary K. Meffe, and Carl Ronald carroll. *Principles of Conservation Biology.* Sunderland: Sinauer Associates, 2006.
6. Grumbine, R. Edward, and Pandit, M.K. 2013. Threats from India’s Himalaya dams. Science, 339: 36-37.
7. McCully, P.1996. *Rivers no more: the environmental effects of dams*(pp. 29-64). Zed Books.
8. McNeil, John R. 2000. Something New Under the Sun: An Environmental History of the Twentieth Century.
9. Odum, E.P., Odum, h.T. & Andrews, J.1971. *Fundamentals of Ecology.*

Philadelphia: Saunders.

10. Pepper, I.L., Gerba, C.P. & Brusseau, M.L. 2011. Environmental and Pollution Science. Academic Press.

11. Rao, M.N. & Datta, A.K. 1987. *Waste Water Treatement.* Oxford and IBH Publishing Co. Pvt. Ltd.

12. Raven, P.H., Hassenzahl, D.M. & Berg, L.R. 2012. *Environment.* 8th edition. John Wiley & Sons.

13. Rosencranz, A., Divan, S., & Noble, M.L. 2001. *Environmental law and policy in India.* Tripathi 1992.

14. Sengupta, R. 2003.*Ecology and economics:* An approach to sustainable development. OUP.

15. Singh, J.S., Singh, S.P. and Gupta, S.R. 2014. *Ecology, Environmental Science and Conservation.* S. Chand Publishing, New Delhi.

16. Sodhi, N.S., Gibson, L. & Raven, P.H. (eds). 2013. *Conservation Biology: Voices from the Tropics.* John Wiley & Sons.

17. Thapar, V. 1998. *Land of the Tiger: A Natural History of the Indian Subcontinent.*

18. Warren, C.E. 1971. *Biology and Water Pollution Control.* WB Saunders.

19. Wilson, E.O. 2006. *The Creation: An appeal to save life on earth.* New York: Norton.

20. World Commission on environment and Development. 1987. *Our Common Future.* Oxford University Press.

21. www.nacwc.nic.in

22. www.opcw.org

Members of Board of Studies

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(P.G. DEPARTMENT OF COMPUTER SCIENCE)

OUTLINES OF TESTS,
SYLLABI AND COURSES OF READING

FOR

B.SC.(HONS.) IN ARTIFICIAL INTELLIGENCE AND DATA SCIENCE
(SEMESTER SYSTEM)
SECOND YEAR (Semester III & IV)
(2020-21, 2021-22 and 2022-23 Sessions)

FACULTY OF COMPUTING SCIENCES

SRI GURU TEG BAHADUR KHALSA COLLEGE

Sri Anandpur Sahib

An Autonomous College

Affiliated to Punjabi University, Patiala

SYLLABI, OUTLINES OF PAPERS AND TESTS FOR
B.Sc.(Hons.) in ARTIFICIAL INTELLIGENCE AND DATA SCIENCE
Second Year - Third Semester Examinations
For Session 2020-21, 2021-22, 2022-23

CODE NO.	TITLE OF THE PAPER	Schedule of Teaching (Hrs/Week)			TOTAL HOURS	CREDITS	MARKS	
		L	T	P			Internal	External
BSCHAI-131	Mathematical Foundation Course	5	1	0	6	6	30	70
BSCHAI-132	Problem Solving and Programming in Python	4	0	0	4	4	30	70
BSCHAI-133	Fundamentals of DBMS	4	0	0	4	4	30	70
BSCHAI-134	Open Elective –III*	5	1	0	6	6	30	70
BSCHAI-135	Programming Lab-III (Based on BSCHAI-132)	0	0	4	4	2	30	70
BSCHAI-136	Programming Lab-IV (Based on BSCHAI-133)	0	0	4	4	2	30	70
BSP-301A,B	Punjabi Compulsory OR Punjabi Mudhla Gyan	4	0	0	4	4	30	70
	Total	22	2	8	32	28	210	490

Open Elective –III* (Choose any one among below)
BSCHAI-134 (i) Communication Skills
BSCHAI-134(ii) Theory of Computation
BSCHAI-134(iii) Intellectual Property Rights Awareness.

Note:

1. The break up of marks for the practical will be as under:

i. Internal Assessment	30 Marks
ii. Viva Voce (External Evaluation)	30 Marks
iii. Lab Record Program Development and Execution(External Evaluation)	40 Marks

2. The breakup of marks for the internal assessment for theory Subjects will be as under:

Mid semester test – I	10 Marks
Mid semester test – II	10 Marks
Attendance	5 Marks
Assignment	5 Marks

SYLLABI, OUTLINES OF PAPERS AND TESTS FOR

B.Sc. (Hons.) in ARTIFICIAL INTELLIGENCE AND DATA SCIENCE

Second Year - Fourth Semester Examinations

For Session 2020-21, 2021-22, 2022-23

CODE NO.	TITLE OF THE PAPER	Schedule of Teaching (Hrs/Week)			TOTAL HOURS	CREDITS	MARKS	
		L	T	P			Internal	External
BSCHAI-141	Probability and Statistics in Data Science	5	1	0	6	6	30	70
BSCHAI-142	Data Analysis using Python	4	0	0	4	4	30	70
BSCHAI-143	Web Technology	4	0	0	4	4	30	70
BSCHAI-144	Open Elective-IV	5	1	0	6	6	30	70
BSCHAI-145	Programming Lab-V (Based on BSCHAI-142)	0	0	4	4	2	30	70
BSCHAI-146	Software Lab-I (Based on BSCHAI-143)	0	0	4	4	2	30	70
	Total	18	2	8	28	24	180	420

Open Elective –IV* (Choose any one amongst below)
BSCHAI-144(i) Software Engineering
BSCHAI-144(ii) Cyber Security and Information Assurance
BSCHAI-144(iii) Social Networking and Mining

Note:

1. The break up of marks for the practical will be as under:

i. Internal Assessment	30 Marks
ii. Viva Voce (External Evaluation)	30 Marks
iii. Lab Record Program Development and Execution(External Evaluation)	40 Marks

2. The breakup of marks for the internal assessment for theory Subjects will be as under:

Mid semester test – I	10 Marks
Mid semester test – II	10 Marks
Attendance	5 Marks
Assignment	5 Marks

Mathematical Foundation Course
BSCHAI – 131
6 CREDITS: 5H(L)+1H(T)

Time Allowed: 3 Hours	**Max. Marks: 100**
Number of Lecture per Week: 6	**External Marks: 70**
Pass Percentage: 35%	**Internal Assessment: 30**

Instructions for the Paper Setter

The question paper will consist of three sections: A, B & C. Sections A & B will have four questions each from the respective sections of the syllabus carrying 10.5 marks for each question. Section C will have 5-10 short-answer type questions carrying at total of 28 marks, which will cover the entire syllabus uniformly.

Instructions for the Candidates

Candidates are required to attempt two questions each from the sections A & B of the question paper and the entire section C.

SECTION A

Matrices: Types of Matrices, Addition, Subtraction, Multiplication, Transpose, Conjugate and their properties, Symmetric, Skew-symmetric, Minor, co-factors, Adjoint, Inverse of matrices, Solution of linear system of equations using matrices.

Determinants: Expansion of determinants, solution of linear system of equations using Cramer rule.

Basic Number System: Floating point representation of numbers, arithmetic operation with normalised floating point numbers and its consequences, errors in numbers.

Solution of transcendental equations (without convergence): Bi-section method, Regula-falsi method, Newton/Raphson method, Secant method

Solution of simultaneous algebraic equations: Gauss elimination method, pivoting, ill-conditioned equations, Gauss-Seidel iterative method, comparison of direct and iterative method.

SECTION B

Complex Numbers: Complex Numbers in the form of a+ib, Real and Imaginary parts of a complex number, Complex conjugate, algebra of complex numbers, square roots of a complex number, cube roots of unity.

Quadratic Equations: Solutions of Quadratic equations (with real and complex coefficients), Relations between roots and coefficients, Nature of roots, Equations reducible to quadratic equations.

Cartesian System of Rectangular Coordinates: Cartesian coordinate system, distance formula, section formula, centroid and incentre, area of triangle, condition for collinearities of three points in a plane.

Reference Books:

1. NCERT Textbooks of Mathematics for +1 and +2.
2. M K. Jain, S.R.K. Iyengar and R.K. Jain," Numerical Methods for Scientific and Engineering Computation", Wiley.
3. B. S. Grewal, Higher Engineering Mathematics", Khanna Publishers.

Problem Solving and Programming in Python
BSCHAI – 132
4 CREDITS: 4H(L)

Time Allowed: 3 Hours	**Max. Marks: 100**
Number of Lecture per Week: 4	**External Marks: 70**
Pass Percentage: 35%	**Internal Assessment: 30**

Instructions for the Paper Setter

The question paper will consist of three sections: A, B & C. Sections A & B will have four questions each from the respective sections of the syllabus carrying 10.5 marks for each question. Section C will have 5-10 short-answer type questions carrying at total of 28 marks, which will cover the entire syllabus uniformly.

Instructions for the Candidates

Candidates are required to attempt two questions each from the sections A & B of the question paper and the entire section C.

Section A

Introduction to Python: History of Python, Strength and Weakness, Different Versions, Installing Python , Setting up in local environment, IDLE, Executing from file, command line from interactive mode, Python Identifiers and reserved key words.

Python syntax: Variables and Variables type, Data types, Data Types Conversion, Operators (Arithmetic, Comparison, Assignment, Bitwise, Logical, Membership, Identity), Operators Precedence, Python Decision making (if, el if, else, nested if), Python loops (while, for, nested loops), Break and continue statements.

Python Collections or Sequence: Sequence introduction, Number operations, String Operations, List, Tuple, Dictionary, Set.

Python Functions: Function introduction, User defined functions, Functions with parameters, Keywords and optional parameters, Scope of variables (Global and Local), Anonymous function – Lambda, In-build function, List comprehension.

Section B

Python Modules: Modules, Standard Modules (Sys, Math, Time), Import Statement, from statement, Dir() functions.

Python File handling: Sending Output to STDOUT Using the print() Method, Reading Input with the input() Method, Creating File Objects with the open() Method, Controlling File Access Modes, Working with File Object Attributes, Closing File Objects with the close() Method, Reading and Writing to File Objects with read() and write(), Using File Processing Functions from the OS Module.

OOP: Class and object, Attributes, Inheritance, Overloading, Overriding, Polymorphism.

Text Books:

1. Paul Gries, Jennifer Campbell, Jason Montojo, Practical Programming- An Introduction to Computer Science Using Python 3.6, Shroff Publications and Distributors.

Reference books:

1. John V Guttag, Introduction to Computation and Programming Using Python‘‘, Revised and expanded Edition, MIT Press.

2. Robert Sedgewick, Kevin Wayne, Robert Dondero, ―Introduction to Programming in Python: An Inter-disciplinary Approach, Pearson India Education Services Pvt. Ltd.

3. Timothy A. Budd, Exploring Python, Mc-Graw Hill Education (India) Private Ltd.

4. Paul Gries, Jennifer Campbell and Jason Montojo, Practical Programming: An Introduction to Computer Science using Python 3, Second edition, Pragmatic Programmers, LLC.

5. Rossum, Introduction To Python ,Shroff Publications and Distributors

6. Downey,Think Python 2/ED, Shroff Publications and Distributors

7. Lutz, Learning Python, 5/ED, Shroff Publications and Distributors

8. Campbell ,Practical Programming: An Introduction to Computer Science Using Python, Shroff Publications and Distributors

Fundamentals of DBMS
BSCHAI – 133
4 CREDITS: 4H(L)

Time Allowed: 3 Hours	**Max. Marks: 100**
Number of Lecture per Week: 4	**External Marks: 70**
Pass Percentage: 35%	**Internal Assessment: 30**

Instructions for the Paper Setter

The question paper will consist of three sections: A, B & C. Sections A & B will have four questions each from the respective sections of the syllabus carrying 10.5 marks for each question. Section C will have 5-10 short-answer type questions carrying at total of 28 marks, which will cover the entire syllabus uniformly.

Instructions for the Candidates

Candidates are required to attempt two questions each from the sections A & B of the question paper and the entire section C.

Section A

Introduction: Database Approach, Characteristics of a Database Approach, Database System Environment. Roles in Database Environment: Database Administrators, Database Designers, End Users, Application Developers.

Database Management Systems: Definition, Characteristics, Advantages of Using DBMS Approach, Classification of DBMSs.

Architecture: Data Models, Categories of Data Models- Conceptual Data Models, Physical data Models, Representational Data Models, such as, Object Based Models, Record Based Models, Database Schema and Instance, Three Schema Architecture, Data Independence – Physical and Logical data Independence.

Database Conceptual Modelling by E-R model: Concepts, Entities and Entity Sets, Attributes, Mapping Constraints, E-R Diagram, Weak Entity Sets, Strong Entity Sets. **Enhanced E-R Modelling:** Aggregation, Generalization, Converting ER Diagrams to Tables. **Relational Data Model:** Concepts and Terminology, Characteristics of Relations. **Constraints:** Integrity Constraints- Entity and Referential Integrity constraints, Keys- Super Keys, Candidate Keys, Primary Keys, Secondary Keys and Foreign Keys.
Database languages: DDL, DML, DCL.

SECTION-B

Database Design: Informal Design Guidelines for Relation Schemas, Problems of Bad Database Design,

Normalization: Functional Dependency, Full Functional Dependency, Partial Dependency, Transitive Dependency, Normal Forms– 1NF, 2NF, 3NF, Boyce-Codd NF,

Transaction & Concurrency Control: Concept of transaction, ACID properties, Serializibility, States of transaction, Concurrency Control – Locking techniques, time-stamp based protocols.
Database Security: Security requirements, database integrity, Granting & revoking privileges.

Text Books:

1. Elmisry Navathe, Introduction to Database Systems, Pearson Education India.
2. Content Development Group" Working with MS-OFFICE 2000 ", TMH.

Reference Books:

1. Henry F. Korth, Abraham, Database System Concepts, Tata McGraw Hill.
2. Naveen Prakash, Introduction to Database Management", TMH.
3. C.J. Date, An Introduction to Data Base Systems, Pearson Education India.

Communication Skills
BSCHAI – 134 (i)
6 CREDITS: 5H(L)+1H(T)

Time Allowed: 3 Hours	**Max. Marks: 100**
Number of Lecture per Week: 6	**External Marks: 70**
Pass Percentage: 35%	**Internal Assessment: 30**

Texts Prescribed for Grammar and Vocabulary:
Prose Parable – (1-10 chapters)
W. Stannard Allen: Living English Structure (Orient Longman)
The Written Wond by Vandana R. Singh

SECTION A

Q.1 (a) One essay type question with an internal alternative on the theme, incident & character from Prose Parables. The answer should not exceed 250 words. 10 marks

(b) 5 short answer type questions to be attempted out of the given eight from Prose Parables (40-50 words) 5×2 = 10 marks

SECTION B – COMPREHENSION

Q.2 One unseen passage with five questions from the passage for five marks and 05 marks for vocabulary such as word formation and inferring meaning 10 marks

SECTION C – GRAMMAR

Q.3 (a) Transcoding : Prose to dialogue. (One passage will be given) 5 marks
(b) Error correction in sentences.(Attempt 5 out of 8 sentences) 5 marks
(c) Drafting questions based on given inputs 5 marks

SECTION D – COMPOSITION

Q.4 (a) Writing one out of two official letters from the given topics

1. Making inquiries
2. Suggesting changes
3. Registering complaints
4. Asking and giving information 10 marks
(b) Development of a story from given hints 10 marks
(c) Application for job including CV/Resume 10 marks

Theory of Computation
BSCHAI – 134 (ii)
6 CREDITS: 5H(L)+1H(T)

Time Allowed: 3 Hours	**Max. Marks: 100**
Number of Lecture per Week: 6	**External Marks: 70**
Pass Percentage: 35%	**Internal Assessment: 30**

Instructions for the Paper Setter

The question paper will consist of three sections: A, B & C. Sections A & B will have four questions each from the respective sections of the syllabus carrying 10.5 marks for each question. Section C will have 5-10 short-answer type questions carrying at total of 28 marks, which will cover the entire syllabus uniformly.

Instructions for the Candidates

Candidates are required to attempt two questions each from the sections A & B of the question paper and the entire section C.

Section A

Languages: Alphabets, string, language, Basic Operations on language, Concatenation, KleeneStar.

Finite Automata and Regular Languages: Regular Expressions, Transition Graphs, Deterministics and non-deterministic finite automata, NFA to DFA Conversion, Regular languages and their relationship with finite automata, Pumping lemma and closure properties of regular languages.

Section B

Context free languages: Context free grammars, parse trees, ambiguities in grammars and languages, Pushdown automata (Deterministic and Non-deterministic), Pumping Lemma, Properties of context free languages, normal forms.

Turing Macines and Models of Computations: RAM, Turing Machine as a model of computation, Universal Turing Machine, Language acceptability, decidability, halting problem, Recursively enumerable and recursive languages, unsolvability problems.

Reference Books:

1. Daniel I.A.Cohen, Introduction to computer theory, John Wiley.
2. Lewis & Papadimitriou, Elements of the theory of computation , PHI.
3. Hoperoft, Aho, Ullman, Introduction to Automata theory, Language & Computation –3rd Edition, Pearson Education.
4. P. Linz, An Introduction to Formal Language and Automata 4th edition Publication Jones Bartlett.

Intellectual Property Rights Awareness
BSCHAI – 134 (iii)
6 CREDITS: 5H(L)+1H(T)

Time Allowed: 3 Hours	**Max. Marks: 100**
Number of Lecture per Week: 6	**External Marks: 70**
Pass Percentage: 35%	**Internal Assessment: 30**

Instructions for the Paper Setter

The question paper will consist of three sections: A, B & C. Sections A & B will have four questions each from the respective sections of the syllabus carrying 10.5 marks for each question. Section C will have 5-10 short-answer type questions carrying at total of 28 marks, which will cover the entire syllabus uniformly.

Instructions for the Candidates

Candidates are required to attempt two questions each from the sections A & B of the question paper and the entire section C.

Section A

Overview Of Intellectual Property: Introduction and the need for intellectual property right (IPR), IPR in India – Genesis and Development, IPR in abroad, Some important examples of IPR.
Patents: Macro economic impact of the patent system, Patent and kind of inventions protected by a patent, Patent document, How to protect your inventions?, Granting of patent, Rights of a patent, How extensive is patent protection?, Why protect inventions by patents?, Searching a patent, Drafting of a patent, Filing of a patent, The different layers of the international patent system, (national, regional and international options)
Utility models, Differences between a utility model and a patent?, Trade secrets and know-how agreements.
Copyright: Definition, Copyright Scope, Duration of Copyright, Reasons for protecting through copyright, RELATED RIGHTS: Definition, Distinction between related rights and copyright, Rights covered by copyright.
Trademarks: Definition, Rights of trademark, Kind of signs used as trademarks, Types of trademark, function does a trademark perform, Procedure for protecting trademark.
Registration Process of trademark, Duration of registered trademark, Extensiveness of trademark protection, Various well-known marks and procedure for their protection, Domain name and its relation with trademarks.

Section B

Geographical Indications: Definition, Procedure for geographical indication protection, Reasons for geographical indications protection.
Industrial Designs: Definition, Procedure for industrial design protection.
Kinds of protection provided by industrial designs, Duration, Reasons for protecting industrial designs.
Unfair Competition: Definition, Relationship between unfair competition and intellectual property laws.

Enforcement Of Intellectual Property Rights: Infringement of intellectual property rights, Enforcement Measures

Emerging Issues In Intellectual Property: Intellectual Property Intellectual Property Rights related to I.T., Management Licensing and Enforcing Intellectual Property, Commercializing I.T. Invention, Case studies of I.T. Patents

Startups: Introduction about Startup: Schemes by Govt of India for Starting Startups, Procedure for applying for funding for opening Startups.

Incubation Centers: Introduction about Incubation Center, Schemes by Govt of India for Starting Incubation Centers, Procedure for applying for funding for Opening Incubation Centers. Various Activities by Incubation Centers.

Text Books

1. T. M Murray and M.J. Mehlman, Encyclopedia of Ethical, Legal and Policy issues in Biotechnology, John Wiley & Sons.

Online Course Web Link:

NPTEL Web Course on Intellectual Property Rights. http://nptel.iitm.ac.in

References

1. P.N. Cheremisinoff, R.P. Ouellette and R.M. Bartholomew, Biotechnology Applications and Research, Technomic Publishing Co., Inc. USA.
2. D. Balasubramaniam, C.F.A. Bryce, K. Dharmalingam, J. Green and K. Jayaraman, Concepts in Biotechnology, University Press (Orient Longman Ltd)
3. Bourgagaize, Jewell and Buiser, Biotechnology: Demystifying the Concepts, Wesley Longman, USA.
4. Ajit Parulekar and Sarita D’ Souza, Indian Patents Law – Legal & Business Implications; Macmillan India Ltd.
5. B.L.Wadehra; Law Relating to Patents, Trade Marks, Copyright, Designs & Geographical Indications; Universal law Publishing Pvt. Ltd., India.
6. P. Narayanan; Law of Copyright and Industrial Designs; Eastern law House, Delhi.

Programming Lab-III (Based on BSCHAI-132)
BSCHAI – 135
2 CREDITS: 4H(P)

Time Allowed: 3 Hours	**Max. Marks: 100**
Number of Practicals per Week: 4	**External Marks: 70**
Pass Percentage: 35%	**Internal Assessment: 30**

This course will mainly comprise of exercises on the basis of the following theory paper BSCHAI-132: Problem Solving and Programming in Python.

***The splitting of marks is as under:**

Maximum Marks for Continuous Assessment: 30
Maximum Marks for University Examination: 70

Programming Lab-IV (Based on BSCHAI-133)

BSCHAI – 136

2 CREDITS: 4H(P)

Time Allowed: 3 Hours **Max. Marks: 100**
Number of Practicals per Week: 4 **External Marks: 70**
Pass Percentage: 35% **Internal Assessment: 30**

This course will mainly comprise of exercises on the basis of the following theory paper BSCHAI-133: Fundamentals of DBMS.

***The splitting of marks is as under:**

Maximum Marks for Continuous Assessment: 30
Maximum Marks for University Examination: 70

ਬੀ.ਐਸ.ਸੀ ਆਨਰਜ਼ ਆਰਟੀਫਿਸ਼ਲ ਇੰਟੈਲੀਜੈਂਸ ਐਂਡ ਡਾਟਾ ਸਾਇੰਸ ਅਤੇ ਬੀ.ਐਸ.ਸੀ.(ਮੈਡੀਕਲ/ਨਾਨ ਮੈਡੀਕਲ)

ਭਾਗ ਦੂਜਾ ,ਸਮੈਸਟਰ ਤੀਜਾ

ਪੇਪਰ- ਪੰਜਾਬੀ ਲਾਜ਼ਮੀ

ਪੇਪਰ ਕੋਡ:**BSP-301A,** ਕ੍ਰੈਡਿਟ-04

2020-21,2021-22,2022-23 ਸੈਸ਼ਨ ਲਈ

ਕੁੱਲ ਅੰਕ :100	ਵਿਸ਼ੇ ਵਿਚੋਂ ਪਾਸ ਅੰਕ : 35
ਬਾਹਰੀ ਪਰੀਖਿਆ:70 ਅੰਕ	ਬਾਹਰੀ ਪਰੀਖਿਆ ਵਿਚੋਂ ਪਾਸ ਅੰਕ: 25
ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ :30 ਅੰਕ	ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਵਿਚੋਂ ਪਾਸ ਅੰਕ:10
ਸਮਾਂ:3 ਘੰਟੇ	ਕੁੱਲ ਲੈਕਚਰ:60

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼:

1.ਵਿਦਿਆਰਥੀਆਂ ਵਿਚ ਸਾਹਿਤ ਪੜ੍ਹਨ ਦੀ ਰੁਚੀ ਪੈਦਾ ਕਰਨਾ।
2.ਮਾਤ ਭਾਸ਼ਾ ਵਿੱਚ ਉਚੇਰੀ ਸਿੱਖਿਆ ਗ੍ਰਹਿਣ ਕਰਨ ਦੀ ਜਾਗ ਲਾਉਣਾ।
3.ਵਿਆਕਰਨਕ ਪੱਖਾਂ ਨਾਲ ਰਾਬਤਾ ਕਾਇਮ ਕਰਵਾਉਣਾ।
4.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਨੈਤਿਕ ਕਦਰਾਂ-ਕੀਮਤਾਂ ਬਾਰੇ ਜਾਣਕਾਰੀ ਦੇਣਾ।

ਪੇਪਰ ਸੈਂਟਰ ਅਤੇ ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਹਦਾਇਤਾਂ:

1.ਭਾਗ-ੳ ਵਿਚੋਂ ਨਾਟਕ ਦਾ ਵਿਸ਼ਾ-ਵਸਤੂ /ਸਾਰ/ ਲੇਖਕ ਦਾ ਯੋਗਦਾਨ (ਦੋ ਵਿਚੋਂ ਇੱਕ) 10 ਅੰਕ
2.ਭਾਗ-ੳ ਵਿਚ ਨਾਟਕ ਦੀ ਪਾਠ-ਪੁਸਤਕ ਵਿਚੋਂ ਪਾਤਰਾਂ ਦਾ ਚਰਿੱਤਰ-ਚਿਤਰਣ (ਪੰਜ ਵਿਚੋਂ ਦੋ) 5+5=10 ਅੰਕ
3. ਭਾਗ ਅ-1 ਵਿਚ ਨੈਤਿਕ ਕਦਰਾਂ-ਕੀਮਤਾਂ ਨਾਲ ਸੰਬੰਧਿਤ ਪੈਰ੍ਹੇ ਦਾ ਸਿਰਲੇਖ ਦੱਸ ਕੇ ਸੰਖੇਪ ਰਚਨਾ (ਦੋ ਵਿਚੋਂ ਇੱਕ)2+8=10 ਅੰਕ
4.ਭਾਗ-ਅ:2 ਵਿਚੋਂ ਵਿਆਕਰਨ ਨਾਲ ਸੰਬੰਧਿਤ ਵਰਣਾਤਮਕ ਪ੍ਰਸ਼ਨ (ਦੋ ਵਿਚੋਂ ਇੱਕ) 10 ਅੰਕ
5.ਭਾਗ-ੲ ਵਿਚ ਨਾਟਕ ਦੀ ਪਾਠ-ਪੁਸਤਕ ਅਤੇ ਵਿਆਕਰਨ ਵਿੱਚੋਂ ਕੁੱਲ 15(8+7) ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਲਾਜ਼ਮੀ ਪ੍ਰਸ਼ਨ।ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਜ਼ਰੂਰੀ ਹਨ।ਹਰੇਕ ਪ੍ਰਸ਼ਨ 2 ਅੰਕਾਂ ਦਾ ਹੋਵੇਗਾ ।
(15X2=30 ਅੰਕ)

ਪਾਠਕ੍ਰਮ ਅਤੇ ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਦੀ ਰੂਪ-ਰੇਖਾ

ਭਾਗ-ੳ

ੳ - ਹਿੰਦ ਦੀ ਚਾਦਰ (ਨਾਟਕ):ਹਰਚਰਨ ਸਿੰਘ,ਲਾਹੌਰ ਬੁੱਕ ਸ਼ਾਪ,ਲੁਧਿਆਣਾ

ਭਾਗ-ਅ

ਅ-1:ਨੈਤਿਕ ਕਦਰਾਂ-ਕੀਮਤਾਂ ਨਾਲ ਸੰਬੰਧਿਤ ਸੰਖੇਪ ਰਚਨਾ
ਅ-2: ਵਿਆਕਰਨ

(i) ਵਿਆਕਰਨਕ ਇਕਾਈਆਂ
(ii) ਉਪਵਾਕ:ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਵਰਗੀਕਰਨ
(iii) ਉਪਵਾਕ:ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਵਰਗੀਕਰਨ

ਭਾਗ-ੲ

ਨਾਟਕ ਦੀ ਪਾਠ-ਪੁਸਤਕ ਅਤੇ ਵਿਆਕਰਨ ਵਾਲੇ ਭਾਗ ਵਿਚੋਂ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਪ੍ਰਸ਼ਨ

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1. ਹਰਚਰਨ ਸਿੰਘ, ਨਾਟਕ ਕਲਾ ਤੇ ਹੋਰ ਲੇਖ,ਪੈਪਸੂ ਬੁੱਕ ਡਿਪੂ ,ਪਟਿਆਲਾ,1972
2. ਹਰਚਰਨ ਸਿੰਘ,ਪੰਜਾਬ ਦੀ ਨਾਟ ਪਰੰਪਰਾ,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ ,ਪਟਿਆਲਾ,
3. ਬਲਵੰਤ ਗਾਰਗੀ,ਰੰਗਮੰਚ,ਨਵਯੁਗ ਪਬਲਿਸ਼ਰਜ਼,ਦਿੱਲੀ,1964
4. ਹਰਸਰਨ ਸਿੰਘ,ਥੀਏਟਰ,ਲੋਕਗੀਤ ਪ੍ਰਕਾਸ਼ਨ,ਚੰਡੀਗੜ੍ਹ,1988
5. ਬੂਟਾ ਸਿੰਘ ਬਰਾੜ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਸ੍ਰੋਤ ਤੇ ਸਰੂਪ,ਵਾਰਿਸ ਸ਼ਾਹ ਫਾਂਊਡੇਸ਼ਨ ਅੰਮ੍ਰਿਤਸਰ,2012
6. ਬੂਟਾ ਸਿੰਘ ਬਰਾੜ, ਪੰਜਾਬੀ ਵਿਆਕਰਨ ਸਿਧਾਂਤ ਅਤੇ ਵਿਹਾਰ,ਚੇਤਨਾ ਪ੍ਰਕਾਸ਼ਨ ,ਲੁਧਿਆਣਾ,2008
7. ਬਲਦੇਵ ਸਿੰਘ ਚੀਮਾ, ਪੰਜਾਬੀ ਵਿਆਕਰਨ ਤੇ ਭਾਸ਼ਾ ਵਿਗਿਆਨ,ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ ਦਾ ਵਿਸ਼ਾ ਕੋਸ਼, ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ,2009
8. ਡਾ. ਜਗਜੀਤ ਸਿੰਘ,ਪੰਜਾਬੀ ਵਿਆਕਰਨ:ਸ਼੍ਰੇਣੀਆ ਅਤੇ ਇਕਾਈਆ,ਨਿਊ ਬੁੱਕ ਕੰਪਨੀ,ਚੰਡੀਗੜ੍ਹ।
9. ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨ ਭਾਗ **II**,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991
10. ਗਿਆਨੀ ਲਾਲ ਸਿੰਘ ਤੇ ਹਰਕੀਰਤ ਸਿੰਘ ,ਕਾਲਜ ਪੰਜਾਬੀ ਵਿਆਕਰਣ ,ਪੰਜਾਬ ਸਟੇਟ ਯੂਨੀ.ਟੈਕਸਟ ਬੁੱਕ ਬੋਰਡ,ਚੰਡੀਗੜ੍ਹ
11. ਸੰਤ ਸਿੰਘ ਸੇਖੋਂ,ਸਾਹਿਤਆਰਥ,ਲਾਹੌਰ ਬੁੱਕ ਸ਼ਾਪ,ਲੁਧਿਆਣਾ

ਬੀ.ਐਸ.ਸੀ ਆਨਰਜ਼ ਆਰਟੀਫਿਸ਼ਲ ਇੰਟੈਲੀਜੈਂਸ ਐਂਡ ਡਾਟਾ ਸਾਇੰਸ ਅਤੇ ਬੀ.ਐਸ.ਸੀ.(ਮੈਡੀਕਲ/ਨਾਨ ਮੈਡੀਕਲ)

ਭਾਗ ਦੂਜਾ ,ਸਮੈਸਟਰ ਤੀਜਾ

ਪੇਪਰ- ਪੰਜਾਬੀ ਮੁੱਢਲਾ ਗਿਆਨ

ਪੇਪਰ ਕੋਡ:**BSP-301B,** ਕ੍ਰੈਡਿਟ-04

2020-21,2021-22,2022-23ਸੈਸ਼ਨ ਲਈ

ਕੁੱਲ ਅੰਕ :100	ਵਿਸ਼ੇ ਵਿਚੋਂ ਪਾਸ ਅੰਕ : 35
ਬਾਹਰੀ ਪਰੀਖਿਆ:70 ਅੰਕ	ਬਾਹਰੀ ਪਰੀਖਿਆ ਵਿਚੋਂ ਪਾਸ ਅੰਕ: 25
ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ :30 ਅੰਕ	ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਵਿਚੋਂ ਪਾਸ ਅੰਕ:10
ਸਮਾਂ:3 ਘੰਟੇ	ਕੁੱਲ ਲੈਕਚਰ:60

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼:

1.ਵਿਦਿਆਰਥੀਆਂ ਵਿਚ ਸਾਹਿਤ ਪੜ੍ਹਨ ਦੀ ਰੁਚੀ ਪੈਦਾ ਕਰਨਾ।
2.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੀ ਜਾਣਕਾਰੀ ਦੇਣਾ।
3.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਸਹਿਤ ਸਿਰਜਣ ਲਈ ਪ੍ਰੇਰਿਤ ਕਰਨਾ।
4.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਸਭਿਆਚਾਰ,ਲੋਕਧਾਰਾ ਅਤੇ ਨੈਤਿਕ ਕਦਰਾਂ -ਕੀਮਤਾਂ ਤੋਂ ਜਾਣੂ ਕਰਵਾਉਣਾ।

ਪੇਪਰ ਸੈੱਟਰ ਅਤੇ ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਹਦਾਇਤਾਂ:

1.ਸਾਰਾ ਪੇਪਰ 'ਅੱਖਰ ਗਿਆਨ (ਭਾਗ-ਦੂਜਾ)'ਪਾਠ-ਪੁਸਤਕ ਵਿਚੋਂ ਹੀ ਸੈਟ ਕੀਤਾ ਜਾਵੇ।
2.ਭਾਗ-ੳ: ਵਿਚ ਨਿਬੰਧ ਦਾ ਵਿਸ਼ਾ-ਵਸਤੂ /ਸਾਰ (ਤਿੰਨ ਵਿਚੋਂ ਇੱਕ)10 ਅੰਕ
3.ਭਾਗ-ਅ:1 ਵਿਚ ਅੰਗਰੇਜ਼ੀ ਸ਼ਬਦਾਂ ਤੋਂ ਪੰਜਾਬੀ ਸ਼ਬਦਾਂ ਵਿਚ ਅਨੁਵਾਦ (ਪੰਦਰਾਂ ਵਿਚੋਂ ਦਸ) 10 ਅੰਕ
4.ਭਾਗ-ਅ:2 ਵਿਚ ਸ਼ਬਦਾਂ -ਜੋੜਾਂ ਦੀ ਸੁਧਾਈ (ਪੰਦਰਾਂ ਵਿਚੋਂ ਦਸ) 10ਅੰਕ
5.ਭਾਗ-ਅ:3 ਵਿਚ ਵਿਆਕਰਨ ਨਾਲ ਸੰਬੰਧਿਤ ਵਰਣਾਤਮਕ ਪ੍ਰਸ਼ਨ (ਦੋ ਵਿਚੋਂ ਇੱਕ) 10 ਅੰਕ
6.ਭਾਗ-ੲ ਵਿਚ ਭਾਗ-ੳ ਅਤੇ ਅ ਦੇ ਸਾਰੇ ਸਿਲੇਬਸ ਵਿਚੋਂ ਕੁੱਲ 15 ਆਬਜੈਕਟਿਵ ਪ੍ਰਸ਼ਨ।ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਲਾਜ਼ਮੀ ਹਨ । ਹਰੇਕ ਪ੍ਰਸ਼ਨ 2 ਅੰਕਾਂ ਦਾ ਹੋਵੇਗਾ । **(15X2=30** ਅੰਕ)

ਪਾਠਕ੍ਰਮ ਅਤੇ ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਦੀ ਰੂਪ-ਰੇਖਾ

ਭਾਗ-ੳ

ੳ - ਅੱਖਰ ਗਿਆਨ(ਭਾਗ-ਦੂਜਾ), ਮੁੱਖ ਸੰਪਾ. ਡਾ.ਜਸਵੀਰ ਸਿੰਘ,ਸੰਪਾ.ਡਾ.ਅਵਤਾਰ ਸਿੰਘ,ਡਾ.ਗੁਰਪ੍ਰੀਤ ਕੌਰ, ਪ੍ਰੋ.ਸੁਖਵਿੰਦਰ ਸਿੰਘ,ਸ੍ਰੀ ਗੁਰੂ ਤੇਗ ਬਹਾਦਰ ਖ਼ਾਲਸਾ ਕਾਲਜ,ਸ੍ਰੀ ਅਨੰਦਪੁਰ ਸਾਹਿਬ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ,ਪੁਸਤਕ ਵਿੱਚੋਂ ਨਿਬੰਧ ਵਾਲਾ ਭਾਗ

ਭਾਗ-ਅ

ਅ-1. ਅਨੁਵਾਦ(ਅੰਗਰੇਜ਼ੀ ਸ਼ਬਦਾਂ ਤੋਂ ਪੰਜਾਬੀ ਸ਼ਬਦਾਂ ਵਿਚ)
ਅ-2 .ਸ਼ਬਦ ਜੋੜਾਂ ਦੀ ਸੁਧਾਈ।
ਅ-3 . ਵਿਸ਼ੇਸ਼ਣ ਅਤੇ ਕਿਰਿਆ ਵਿਸ਼ੇਸ਼ਣ :ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਕਿਸਮਾਂ

ਭਾਗ-ੲ

ਭਾਗ-ੳ ਅਤੇ ਅ ਦੇ ਸਾਰੇ ਸਿਲੇਬਸ ਵਿਚੋਂ ਆਬਜੈਕਟਿਵ ਪ੍ਰਸ਼ਨ

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1. ਬਲਦੇਵ ਸਿੰਘ ਚੀਮਾ, ਪੰਜਾਬੀ ਵਿਆਕਰਨ ਤੇ ਭਾਸ਼ਾ ਵਿਗਿਆਨ,ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ ਦਾ ਵਿਸ਼ਾ ਕੋਸ਼, ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ,2009

2. ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨ ਭਾਗ **I**,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991
3. ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨ ਭਾਗ **II**,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991

4.ਬਲਵੀਰ ਸਿੰਘ ਦਿਲ, ਪੰਜਾਬੀ ਨਿਬੰਧ :ਸਰੂਪ, ਸਿਧਾਂਤ ਅਤੇ ਵਿਕਾਸ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ, ਪੰਜਾਬੀ,ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।

5.ਖੋਜ ਪੱਤ੍ਰਿਕਾ, ਨਿਬੰਧ ਅੰਕ–29,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ, ਪੰਜਾਬੀ,ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।

SEMESTER - IV

Probability and Statistics in Data Science
BSCHAI – 141
6 CREDITS: 5H(L)+1H(T)

Time Allowed: 3 Hours	**Max. Marks: 100**
Number of Lecture per Week: 6	**External Marks: 70**
Pass Percentage: 35%	**Internal Assessment: 30**

Instructions for the Paper Setter

The question paper will consist of three sections: A, B & C. Sections A & B will have four questions each from the respective sections of the syllabus carrying 10.5 marks for each question. Section C will have 5-10 short-answer type questions carrying at total of 28 marks, which will cover the entire syllabus uniformly.

Instructions for the Candidates

Candidates are required to attempt two questions each from the sections A & B of the question paper and the entire section C.

Section A

Collection of data, Measures of central tendency (Mean, Median, Mode) , Mean Deviation, Standard Deviation, Variance, Coefficient of Variation, Skewness, Kurtosis, Moments, Corelation (Karl Pearson Coeficient of correlation, Spearmans Rank Corelation) , Regression Analysis

Section B

Probability

Definition, Addition theorem, Independent Events, Conditional Probability, Bayes theorem, Random Variable , Binomial Distribution, Poisson Distribution, Normal Distribution.

Sampling:-

Sample , Hypothesis, Confidence Limits, Central Limit Theorem, Population, Universe, t-test, F-test, Chi- Square test, Anova

Text Books:-

1. Statistical Methods , SP Gupta , Sultan Chand and Sons.
2. Higher Engineering Mathematics , BS Grewal , Khanna Publishers.
3. A Text Book for Statistics , Goon and Gupta.

Data Analysis using Python

BSCHAI – 142

4 CREDITS: 4H(L)

Time Allowed: 3 Hours	**Max. Marks: 100**
Number of Lecture per Week: 4	**External Marks: 70**
Pass Percentage: 35%	**Internal Assessment: 30**

Instructions for the Paper Setter

The question paper will consist of three sections: A, B & C. Sections A & B will have four questions each from the respective sections of the syllabus carrying 10.5 marks for each question. Section C will have 5-10 short-answer type questions carrying at total of 28 marks, which will cover the entire syllabus uniformly.

Instructions for the Candidates

Candidates are required to attempt two questions each from the sections A & B of the question paper and the entire section C.

Section A

Introduction to Data Analysis, Kinds of Data, Essential Python Libraries: NumPy, Pandas, Matplotlib, IPython, Jupyter, SciPy, Scikit-learn, Statsmodels

Introduction to IPython, and Jupyter Notebooks: The Python Interpreter

Python Language Basics

NumPy Basics: Arrays and Vectorized Computation, The NumPy ndarray: A Multidimensional Array Object, Universal Functions: Fast Element-Wise Array Functions, Array-Oriented Programming with Arrays.

Advanced NumPy: ndarray Object Internals, Advanced Array Manipulation, Broadcasting, Advanced ufunc Usage, Structures and Record Arrays, More About Sorting.

Getting Started With Pandas: Introduction to pandas Data Structures

Essential Functionality: Reindexing, Dropping Entries from an Axis, Indexing, Selection, Filtering, Integer Indexes, Arithmetic and Data Alignment, Function Application and Mapping, Sorting and Ranking, Axis Indexes with Duplicate Labels

Summarizing and Computing Descriptive Statistics: Data Loading, Storage, and File Formats, Reading and Writing Data in Text Format: Binary Data Formats

Data Cleaning and Preparation: Handling Missing Data, Data Transformation, String Manipulation, Data Wrangling, Join, Combine, and Reshape, Hierarchical Indexing, Combining and Merging Datasets, Reshaping and Pivoting

Section B

Data Aggregation and Group Operations: GroupBy Mechanics, Data Aggregation

General split-apply-combine: Suppressing the Group Keys, Quantile and Bucket Analysis, Example: Filling Missing Values with Group-Specific Values, Example: Random Sampling and Permutation, Example: Group Weighted Average and Correlation.

Advanced pandas: Categorical Data, Advanced GroupBy Use, Techniques for Method Chaining

Introduction to Modeling Libraries in Python: Interfacing Between pandas and Model Code, Creating Model Descriptions with Patsy
Introduction to statsmodels: Estimating Linear Models, Estimating Time Series Processes
Introduction to scikit-learn
Plotting and Visualization: A Brief matplotlib API Primer, Plotting with pandas and seaborn,

Text Book:

1. Wes McKinney, Python for Data Analysis, Shroff Publications and Distributors

Reference Book:

1. Michael Milton, A Brain Friendly Guide: Head First Data Analysis, Shroff Publications and Distributors.

Web Technology
BSCHAI – 143
4 CREDITS: 4H(L)

Time Allowed: 3 Hours **Max. Marks: 100**
Number of Lecture per Week: 4 **External Marks: 70**
Pass Percentage: 35% **Internal Assessment: 30**

Instructions for the Paper Setter

The question paper will consist of three sections: A, B & C. Sections A & B will have four questions each from the respective sections of the syllabus carrying 10.5 marks for each question. Section C will have 5-10 short-answer type questions carrying at total of 28 marks, which will cover the entire syllabus uniformly.

Instructions for the Candidates

Candidates are required to attempt two questions each from the sections A & B of the question paper and the entire section C.

Section A

Introduction to HTML: Basic HTML concepts, an overview of HTML markup.
What is good Web design, the process of Web publishing, implementation, the phases of Web site development, HTML's role in the Web, and issues facing HTML and the Web.
HTML overview: the structure of HTML documents; document types, the <HTML> element; the <HEAD> element, the <BODY> element.
Links and Addressing: Linking basics, what are URLs; linking in HTML, anchor attributes, images and anchors, image maps; semantic linking with the <LINK> element, meta-information.
HTML and Images: The role of images on the Web, image preliminaries; image downloading issues, obtaining images, HTML image basics, images as buttons.
Introduction to Layout: Backgrounds, Colors, and Text**,** Design requirements, HTML approach to Web design, fonts, colors in HTML, document-wide color attributes for <BODY>, and background images. Introduction to lists, tables, frames.

Section B

Basic Interactivity and HTML: Forms form preliminaries; the <FORM> element; form controls.
Style Sheets: style sheets basics, style sheet example, style sheet properties, positioning with style sheets.
Javascript : Client side scripting, What is Javascript, How to develop Javascript, simple Javascript, variables, functions, conditions, loops and repetition
Introduction to Bootstrap: Introduction to Bootstrap Framework, need of Bootstrap, history of Bootstrap, advantages of Bootstrap Framework, responsive web page, how to remove Responsiveness, major features of Bootstrap.

Text Book:

1. Jeffrey C Jackson, “Web Technology – A computer Science perspective”, Persoson Education.
2. Thomas A. Powell , “HTML: The Complete Reference”, Osborne/McGraw-Hill

References:

1. Deitel, Deitel and Nieto : Internet & WWW. How to program, 2nd Edition, Pearson Education Asia.
2. E Stephen Mack, JananPlatt : HTML 4.0 , No Experience Required, 1998, BPB Publications.
3. "HTML Complete" by Sybex, BPB Publications.
4. Bayross, "Web Enabled Commercial Applications Development Using HTML, DHTML, Java Script, Perl CGI," Third Edition, BPB Publications.
5. Scott Mitchell, "Designing Active Server Pages, "O Relly.
6. Keith Morneau, Jill Batistick, "Active Server Pages", First Edition, Vikas Thomson Learning.
7. Smith, A. Eric, "Active Server Pages 3 Programming Bible", Wiley India.

Software Engineering
BSCHAI – 144 (i)
6 CREDITS: 5H(L)+1H(T)

Time Allowed: 3 Hours	**Max. Marks: 100**
Number of Lecture per Week: 6	**External Marks: 70**
Pass Percentage: 35%	**Internal Assessment: 30**

Instructions for the Paper Setter

The question paper will consist of three sections: A, B & C. Sections A & B will have four questions each from the respective sections of the syllabus carrying 10.5 marks for each question. Section C will have 5-10 short-answer type questions carrying at total of 28 marks, which will cover the entire syllabus uniformly.

Instructions for the Candidates

Candidates are required to attempt two questions each from the sections A & B of the question paper and the entire section C.

Section A

Introduction – The Problem Domain, Software Engg.Challenges, Software Engg.Approach. Software development life cycle, its phases**, Software development process models :**Waterfall, Prototyping, Iterative;

Software Process- Characteristics of software process, Project management process, Software configuration management process.

Project Planning – activities, COCOMO model.**Software Metrics** – Definition, Importance, Categories of metrics. **Software Quality** – Attributes,Cyclomatic complexity metric.

Software Requirements Analysis – Need for SRS, Data flow diagrams, Data Dictionary, entity relationship diagram, Characteristics and components of SRS, validation, metrics

Section B

Software Design – Design principles, Module-level concepts, Structure Chart and Structured Design methodology,, verification, metrics : network metrics, information flow metrics.

Coding – Programming Principles and Guidelines, Verification- code inspections, static analysis.**Software Testing** – testing fundamentals, Black Box Testing : Equivalence class partitioning, Boundary value analysis, cause-effect graphing; White Box Testing : Control flow and Data flow based testing, mutation testing; levels of testing, test plan, test case specification, test case execution and analysis,

Software maintenance – Categories of maintenance.

Software Reliability – Definition, uses of reliability studies

Text Book:

1. An Integrated approach to Software Engineering, Third Edition, PankajJalote, Narosa Publications.

References:

1. Software Engineering , Revised Second Edition , K.K. Aggarwal, Yogesh Singh, New Age International Publishers.
2. Software Engineering – A Practitioner’s Approach, Fifth Edition, Roger. S. Pressman, McGraw Hill

Cyber Security and Information Assurance
BSCHAI – 144 (ii)
6 CREDITS: 5H(L)+1H(T)

Time Allowed: 3 Hours	**Max. Marks: 100**
Number of Lecture per Week: 6	**External Marks: 70**
Pass Percentage: 35%	**Internal Assessment: 30**

Instructions for the Paper Setter

The question paper will consist of three sections: A, B & C. Sections A & B will have four questions each from the respective sections of the syllabus carrying 10.5 marks for each question. Section C will have 5-10 short-answer type questions carrying at total of 28 marks, which will cover the entire syllabus uniformly.

Instructions for the Candidates

Candidates are required to attempt two questions each from the sections A & B of the question paper and the entire section C.

Section A

Critical characteristics of Information - NSTISSC Security Model -Components of information System –SDLC – Information assurance - Security Threats and vulnerabilities - Overview of Security threats-– Security Standards .

Classical Cryptography - Symmetric Cryptography- Asymmetric Cryptography - Modern Cryptography – Access Control - DRM – Steganography – Biometrics.

Network security - Intrusion Prevention, detection and Management - Firewall – Ecommerce Security - Computer Forensics - Security for VPN and Next Generation Networks.

Section B

Host and Application security -Control hijacking, Software architecture and a simple buffer overflow - Common exploitable application bugs, shellcode - Buffer Overflow - Side-channel attacks - Timing attacks, power analysis, cold-boot attacks, defenses – Malware - Viruses and worms, spyware, key loggers, and botnets; defenses auditing, policy - Defending weak applications - Isolation, sandboxing, virtual machines.

Mobile, GSM and Wireless LAN security - Protection measures - Business risk analysis – Information Warfare and Surveillance – Case study on Attack prevention, detection and response.

References:

1. William Stallings, “Cryptography and Network Security: Principles and Practice”, 6 th Edition, PHI.

2. Michael E. Whitman and Herbert J Mattord, "Principles of Information Security", 6 th edition, Vikas Publishing House.

3. Bill Nelson, Amelia Phillips, F.Enfinger and Christopher Stuart, “Guide to Computer Forensics and Investigations, 4 th ed., Thomson Course Technology.

4. Matt Bishop, “Computer Security: Art and Science”, 1st edition, Addison-Wesley Professional.

Social Networking and Mining
BSCHAI – 144 (iii)
6 CREDITS: 5H(L)+1H(T)

Time Allowed: 3 Hours	**Max. Marks: 100**
Number of Lecture per Week: 6	**External Marks: 70**
Pass Percentage: 35%	**Internal Assessment: 30**

Instructions for the Paper Setter

The question paper will consist of three sections: A, B & C. Sections A & B will have four questions each from the respective sections of the syllabus carrying 10.5 marks for each question. Section C will have 5-10 short-answer type questions carrying at total of 28 marks, which will cover the entire syllabus uniformly.

Instructions for the Candidates

Candidates are required to attempt two questions each from the sections A & B of the question paper and the entire section C.

Section A

Introduction- Introduction to Web - Limitations of current Web – Development of Semantic Web – Emergence of the Social Web – Statistical Properties of Social Networks -Network analysis - Development of Social Network Analysis - Key concepts and measures in network analysis - Discussion networks - Blogs and online communities - Web-based networks.

Modeling And Visualization- Visualizing Online Social Networks - A Taxonomy of 26 Visualizations - Graph Representation - Centrality- Clustering - Node-Edge Diagrams - Visualizing Social Networks with Matrix-Based Representations- Node-Link Diagrams - Hybrid Representations - Modelling and aggregating social network data – Random Walks and their Applications –Use of Hadoop and Map Reduce - Ontological representation of social individuals and relationships.

Mining Communities- Aggregating and reasoning with social network data- Advanced Representations - Extracting evolution of Web Community from a Series of Web Archive - Detecting Communities in Social Networks - Evaluating Communities – Core Methods for Community Detection & Mining - Applications of Community Mining Algorithms - Node Classification in Social Networks.

Section B

Text and Opinion Mining- Text Mining in Social Networks -Opinion extraction – Sentiment classification and clustering - Temporal sentiment analysis - Irony detection in opinion mining - Wish analysis - Product review mining – Review Classification – Tracking sentiments towards topics over time.

Tools for Social Network Analysis- UCINET – PAJEK – ETDRAW – StOCNET – Splus – R – NodeXL – SIENA and RSIENA – Real world Social Networks (Facebook- Twitteretc.)

References:

1. Charu C. Aggarwal, “Social Network Data Analytics”, Springer.

2. Peter Mika, “Social Networks and the Semantic Web”, 1 st edition, Springer.

3. BorkoFurht, “Handbook of Social Network Technologies and Applications”, 1st edition, Springer.

Programming Lab-V (Based on BSCHAI-142)
BSCHAI – 145
2 CREDITS: 4H(P)

Time Allowed: 3 Hours	**Max. Marks: 100**
Number of Practicals per Week: 4	**External Marks: 70**
Pass Percentage: 35%	**Internal Assessment: 30**

This course will mainly comprise of exercises on the basis of the following theory paper BSCHAI-142: Data Analysis using Python.

***The splitting of marks is as under:**

Maximum Marks for Continuous Assessment: 30
Maximum Marks for University Examination: 70

Software Lab-I (Based on BSCHAI-143)
BSCHAI – 146
2 CREDITS: 4H(P)

Time Allowed: 3 Hours	**Max. Marks: 100**
Number of Practicals per Week: 4	**External Marks: 70**
Pass Percentage: 35%	**Internal Assessment: 30**

This course will mainly comprise of exercises on the basis of the following theory paper BSCHAI-143: Web Technology.

***The splitting of marks is as under:**

Maximum Marks for Continuous Assessment: 30
Maximum Marks for University Examination: 70

Members of Board of Studies

1. **Mr. Surender Kumar**
2. **Dr. Dharamveer Sharma**
3. **Dr. Major Singh Gorya**
4. **Dr. Navdeep Singh**
5. **Mr. Sandeep Sharma**
6. **Mr. Rakesh Kumar**
7. **Mrs. Tajinder Kaur**
8. **Mrs. Paramjit Kaur**
9. **Mrs. Amandeep Kaur**

(P.G. DEPARTMENT OF COMPUTER SCIENCE)

OUTLINES OF TESTS,
SYLLABI AND COURSES OF READING

FOR

BACHELOR OF VOCATION SOFTWARE DEVELOPMENT
(SEMESTER SYSTEM)
FIRST YEAR (Semester I & II)
(2020-21, 2021-22 and 2022-23 Sessions)

FACULTY OF COMPUTING SCIENCES

SRI GURU TEG BAHADUR KHALSA COLLEGE
Sri Anandpur Sahib
An Autonomous College
Affiliated to Punjabi University, Patiala

PROGRAMME OF STUDY
BACHELOR OF VOCATION SOFTWARE DEVELOPMENT
PART I (SEMESTER I)
Sessions: 2020-21, 2021-22 and 2022-23

Code	Title of Paper	Credits	University Examination	Internal Assessment	Max. Marks	Exam. Duration Hours
BVSD-111	Fundamentals of Computer & Software Development	4.5	70	30	100	3
BVSD-112	Programming using C	4.5	70	30	100	3
BVSD-113	Web designing using HTML	4.5	70	30	100	3
BVSD-114	Communication Skills -I	4	70	30	100	3
BSP-101A,B	Punjabi Compulsory OR Punjabi Mudhla Gyan*	4	70	30	100	3
BVSD-116	Software Lab I(Based on BVSD-111)	4	70	30	100	3
BVSD-117	Software Lab II(Based on BVSD-112 &BVSD-113)	4.5	70	30	100	3
BVSD-118 (SAE 1.1)	Drug Abuse: Problem Management & Prevention (Qualifying)	-	35	15	50	3
Total		**30**	**490**	**210**	**700**	

1. **The breakup of marks for the practical will be as under:**

i.	Internal Assessment	30 Marks
ii.	Viva Voce (External Evaluation)	40 Marks
iii.	Practical Performance & write up (External Evaluation)	30 Marks

2. **The breakup of marks for the internal assessment for theory Subjects will be as under:**

Mid semester test – I	10 Marks
Mid semester test – II	10 Marks
Attendance	5 Marks
Assignment	5 Marks

***Only those students who have not studied Punjabi up to matriculation can opt Mudhla Gyan. Other students will study Punjabi Compulsory.**

PROGRAMME OF STUDY
BACHELOR OF VOCATION SOFTWARE DEVELOPMENT
PART I (SEMESTER II)
Sessions: 2020-21, 2021-22 and 2022-23

Code	Title of Paper	Credits	University Examination	Internal Assessment	Max. Marks	Exam. Duration Hours
BVSD-121	Object Oriented Programming Using C++	4	70	30	100	3
BVSD-122	Data Structures	4	70	30	100	3
BVSD-123	Discrete Mathematics	4	70	30	100	3
BVSD-124	Communication Skills -II	3	70	30	100	3
BSP-201A,B	Punjabi Compulsory OR Punjabi Mudhla Gyan*	3	70	30	100	3
BVSD-126	Software Lab III(Based on BVSD-121 &BVSD-122)	4	70	30	100	3
BVSD-127	Language Lab –I (Based On BVSD-124 & BSP - 201A,B)	4	- -	50 50	100	3
BVSD-128 (SAE 1.2)	Environmental and Road Safety Awareness	4	70	30	100	3
Total		**30**	**490**	**310**	**800**	

1. **The breakup of marks for the practical will be as under:**

i.	Internal Assessment	30 Marks
ii.	Viva Voce (External Evaluation)	40 Marks
iii.	Practical Performance & write up (External Evaluation)	30 Marks

2. **The breakup of marks for the internal assessment for theory Subjects will be as under:**

Mid semester test – I	10 Marks
Mid semester test – II	10 Marks
Attendance	5 Marks
Assignment	5 Marks

***Only those students who have not studied Punjabi up to matriculation can opt Mudhla Gyan. Other students will study Punjabi Compulsory.**

BVSD-111 FUNDAMENTALS OF COMPUTER AND SOFTWARE DEVELOPMENT

Time allowed: 3 hours	**Max Marks: 100**
Number of Lectures: 60	**External Marks : 70 marks**
Pass Marks: 35%	**Internal Assessment: 30 marks**

(CREDITS: 4.5)

Instructions for the paper setter

The question paper will consist of ***three sections A, B and C.*** Section A and B will have four questions from the respective section of the syllabus carrying 10.5 marks for each question. Section C will consist of 5-10 short answer type questions carrying a total of 28 marks, which will cover the entire syllabus uniformly. Candidates are required to ***attempt five questions in all by selecting at least two questions each from the section A and B. Section C is compulsory.***

Instructions for the candidates

Candidates are required to attempt five questions in all by selecting at least two questions each from the section A and B. Section C is compulsory.

SECTION A

Introduction to Computer: Block diagram of a Computer, Characteristics of computers andGenerations of computers.

Software and Hardware: Types of Software and Hardware.

Input/output Devices, Memories: Main Memories - RAM, ROM and Secondary StorageDevices - Hard Disk, Compact Disk, DVD, and Portable devices.

Computer Languages: Machine language, assembly language, high level language, 4GL,

Operating System : Introduction to windows, Linux, MAC.,Software Installation, Driver Installation, Working with Control Panel, Window 7 installation.

Applications of Information Technology and Trends: IT in Business and Industry, IT inEducation & training, IT in Science and Technology, IT and Entertainment, Current Trends in IT Application - AI, Virtual Reports, voice recognition, Robots, Multimedia Technology.

SECTIONB

Number System: Non-positional and positional number systems, Base conversion, Concept of Bit and Byte, binary, decimal, hexadecimal, and octal systems, conversion from one system to the other.

Computer Network: Network types, network topologies.

Understanding Basics of Software Development: Basic Requirements for SoftwareDevelopment. Describing Software Quality Attributes and the problems associated with software and software Development. Professional issues related to Software Development. Understanding Core Programming, Understanding Object oriented Programming. Opportunities and Challenges facing softwareengineering.

Reference Books:

1 P.K. Sinha and P. Sinha, Foundations of Computing, BPB.

2 ChetanSrivastva, Fundamentals of Information Technology, Kalyani Publishers.

3 Roger S.Pressman, Tata Mcgraw Hill.

4 Ian Somerville, Software Engineering, Pearson education.

5 Rajib Mall, Fundamental of Software Engineering, PHI.

BVSD—112 PROGRAMMING USING C

Time allowed: 3 hours	**Max Marks: 100**
Number of Lectures: 60	**External Marks : 70 marks**
Pass Marks: 35%	**Internal Assessment: 30 marks**
(CREDITS: 4.5)	

Instructions for the paper setter

The question paper will consist of ***three sections A, B and C.*** Section A and B will have four questions from the respective section of the syllabus carrying 10.5 marks for each question. Section C will consist of 5-10 short answer type questions carrying a total of 28 marks, which will cover the entire syllabus uniformly. . Candidates are required to ***attempt five questions in all by selecting at least two questions each from the section A and B. Section C is compulsory.***

Instructions for the candidates

Candidates are required to attempt five questions in all by selecting at least two questions each from the section A and B. Section C is compulsory.

SECTIONA

Fundamental of C programming: Overview, Basic Structure of C Program, Program Debugging, Compilation and Execution, Rules of Character set, Identifiers and keywords, Constants, Variables, Data types.

Header Files: stdio.h, math.h, string.h, process.h etc.

I/O functions: Formatted and Unformatted console I/O functions.

Operators: Need, Types, Precedence and Associativity. Type conversion (Implicit and Explicit conversion).

Control Structure: Decision making statements (if, if else, switch), Loop control statements (for, while and do-while), jumping statements (break, continue, goto), nested control structures.

Arrays: One dimensional and multidimensional arrays, Array declaration, initialization, reading values into an array, displaying array contents.

Strings: input/output of strings, string handling functions (strlen, strcpy, strcmp, strcat & strrev).

SECTIONB

Functions: Uses of functions, various categories of functions, Library functions and user defined functions, prototype, definition and call, formal and actual arguments, local and global variables, methods of parameter passing to functions, recursion.

Storage Classes: automatic, external, static and register variable**s.**

Structures and unions: using structures and unions, comparison of structure with arrays and union. **Pointers:** pointer data type, pointer declaration, initialization, accessing values using pointers, pointers and arrays.

Introduction to Files in C: opening and closing files. Basic I/O operation on files.

Reference Books:

1. E. Balagurusamy, Programming in C, Tata McGraw-Hill.
2. Let Us C, Yashvant P Kanetkar, BPB.

3. Kernighan and Ritchie, The C Programming Language, PHI.
4. Byron Gottfried, Programming in C, Tata McGraw-Hill.
5. Kamathane, Programming in C, Oxford University Press.

BVSD-113 WEB DESIGNING USING HTML

Time allowed: 3 hours **Max Marks: 100**
Number of Lectures: 60 **External Marks : 70 marks**
Pass Marks: 35% **Internal Assessment: 30 marks**
(CREDITS: 4.5)

Instructions for the paper setter
The question paper will consist of ***three sections A, B and C.*** Section A and B will have four questions from the respective section of the syllabus carrying 10.5 marks for each question. Section C will consist of 5-10 short answer type questions carrying a total of 28 marks, which will cover the entire syllabus uniformly. . Candidates are required to ***attempt five questions in all by selecting at least two questions each from the section A and B. Section C is compulsory.***

Instructions for the candidates
Candidates are required to attempt five questions in all by selecting at least two questions each from the section A and B. Section C is compulsory.

SECTION-A

Introduction to HTML: Basic HTML concepts, an overview of HTML markup.
What is good Web design, the process of Web publishing, implementation, the phases of Web site development, HTML's role in the Web, and issues facing HTML and the Web?

HTML overview: the structure of HTML documents; document types, the <HTML>element; the <HEAD> element, the <BODY> element.

Links and Addressing: Linking basics, what are URLs; linking in HTML, anchor attributes,images and anchors, image maps; semantic linking with the <LINK> element, meta-information.

HTML and Images: The role of images on the Web, image preliminaries; imagedownloading issues, obtaining images, HTML image basics, images as buttons; and image maps.

Introduction to Layout: Backgrounds, Colors, and Text**,** Design requirements, HTMLapproach to Web design, fonts, colors in HTML, document-wide color attributes for <BODY>, and background images.

SECTION-B

Introduction to Lists: Different types of list tags, Nested Lists, type attribute.

Tables: Basic Table tags, Setting table borders, Inserting Rows & Columns in Table, Including background colors and images in tables, Spanning Rows & Columns, Cell Spacing & Padding, Advantages & Disadvantages of using Tables.

Frames: Creating Framed documents, <Frameset>&<Frame> tags, Elastic & Nested Frames, Formatting Frames, Scroll Bars, <Noframe> tag, Advantages & Disadvantages of using Frames.

Basic Interactivity and HTML: Forms form preliminaries; the <FORM> element; formcontrols.

Style Sheets: style sheets basics, style sheet example, style sheet properties, positioning withstyle sheets.

Reference Books:

1. Deitel, Deitel and Nieto: Internet & WWW. How to program, Pearson Education.
2. Thomas A. Powell, HTML: The Complete Reference, Osborne/McGraw-Hill
3. E Stephen Mack, JananPlatt : HTML 4.0 , No Experience Required, BPB Publications.
4. "HTML Complete" by Sybex, BPB Publications.
5. Bayross, Web Enabled Commercial Applications Development Using HTML, DHTML, Java Script, Perl CGI, BPB Publication
6. Scott Mitchell, Designing Active Server Pages, O Relly.

BVSD-114- COMMUNICATION SKILLS-1

Time Allowed: 3 Hours **Max. Marks: 100**
Number of Lectures: 60 **Written Examination: 70**
Pass Percentage: 35% **Internal Assessment: 30**
Credits-4

COURSE CONTENT

English communication Skills has been designed to develop the student's communicative competence in English. Therefore, content selection is determined by the student's present and future academic, social and professional needs.

The course content of this paper shall comprise the following books:

1. Literary Skills: Flights of Fancy (Poems 1-10) – Bakhshish Singh (editor)
2. Writing Skills: The Written Word- Vandana R. Singh

Note: First ten poems are to be studied.

TESTING

Section –A (Literary)

1. One essay type question based on internal alternative on main ideas/summary of poems from "FLIGHTS OF FANCY". (15 marks)
2. Short answer questions .Five to be attempted out of the given eight questions in about 25-30 words each. (15 marks)
3. Explain two stanzas with reference to the context. (5x 2 = 10 marks)

Section- B (Writing Skills)

4. Resume Writing/ Curriculum Vitae. (20 marks)
5. Make dialogues from a given prose passage. (10 marks)

ਬੀ.ਐਸ.ਸੀ.(ਮੈਡੀਕਲ / ਨਾਨ ਮੈਡੀਕਲ) ,ਬੀ.ਸੀ.ਏ.,ਬੀ.ਐਸ.ਸੀ.ਆਰਟੀਫੀਸ਼ਲ ਇੰਟੈਲੀਜੈਂਸ ਐਂਡ ਡਾਟਾ ਸਾਇੰਸ,ਬੀ.ਵਾਕ ਸਾਫ਼ਟਵੇਅਰ ਡਿਵੈਲਪਮੈਂਟ ਅਤੇ ਬੀ.ਵਾਕ ਫੂਡ ਪ੍ਰੋਸੈਸਿੰਗ,

ਭਾਗ ਪਹਿਲਾ,ਸਮੈਸਟਰ ਪਹਿਲਾ

ਪੇਪਰ-ਪੰਜਾਬੀ ਲਾਜ਼ਮੀ,ਪੇਪਰ ਕੋਡ:**BSP-101A**

2020-21,2021-22 ਸੈਸ਼ਨ ਲਈ

ਕੁੱਲ ਅੰਕ :100 ਵਿਸ਼ੇ ਵਿਚੋਂ ਪਾਸ ਅੰਕ : 35
ਬਾਹਰੀ ਪਰੀਖਿਆ:70 ਅੰਕ ਬਾਹਰੀ ਪਰੀਖਿਆ ਵਿਚੋਂ ਪਾਸ ਅੰਕ: 25
ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ :30 ਅੰਕ ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਵਿਚੋਂ ਪਾਸ ਅੰਕ:10
ਸਮਾਂ:3 ਘੰਟੇ ਕ੍ਰੈਡਿਟ-04, ਕੁੱਲ ਲੈਕਚਰ:60

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼:
1.ਵਿਦਿਆਰਥੀਆਂ ਵਿਚ ਸਾਹਿਤ ਪੜ੍ਹਨ ਦੀ ਰੁਚੀ ਪੈਦਾ ਕਰਨਾ।
2.ਮਾਤ ਭਾਸ਼ਾ ਵਿੱਚ ਉਚੇਰੀ ਸਿੱਖਿਆ ਗ੍ਰਹਿਣ ਕਰਨ ਦੀ ਜਾਗ ਲਾਉਣਾ।
3.ਵਿਆਕਰਨਕ ਪੱਖਾਂ ਨਾਲ ਰਾਬਤਾ ਕਾਇਮ ਕਰਵਾਉਣਾ।
4.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਵਾਤਾਵਰਣ ਅਤੇ ਸਭਿਆਚਾਰਕ ਵਿਸ਼ਿਆਂ /ਸਮੱਸਿਆਵਾਂ ਤੋਂ ਜਾਣੂ ਕਰਵਾਉਣਾ।

ਪੇਪਰ ਸੈੱਟਰ ਅਤੇ ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਹਦਾਇਤਾਂ

1.ਭਾਗ-ੳ: ਵਿਚੋਂ ਨਿਬੰਧ ਦਾ ਵਿਸ਼ਾ-ਵਸਤੂ ਜਾਂ ਸਾਰ (ਤਿੰਨ ਵਿਚੋਂ ਇੱਕ)10 ਅੰਕ
2.ਭਾਗ-ੳ: ਵਿਚੋਂ ਪੁਸਤਕ ਵਿਚਲੇ ਵਿਚਾਰਾਂ ਸੰਬੰਧੀ ਪ੍ਰਸ਼ਨ (ਪੰਜ ਵਿਚੋਂ ਤਿੰਨ) 4+4+4=12 ਅੰਕ
3.ਭਾਗ-ਅ:1 ਵਿਚੋਂ ਨਿਬੰਧ ਰਚਨਾ (ਤਿੰਨ ਵਿਚੋਂ ਇੱਕ) 08 ਅੰਕ
4.ਭਾਗ-ਅ:2 ਵਿਚੋਂ ਵਿਆਕਰਨ ਨਾਲ ਸੰਬੰਧਿਤ ਵਰਣਾਤਮਕ ਪ੍ਰਸ਼ਨ (ਦੋ ਵਿਚੋਂ ਇੱਕ) 10 ਅੰਕ
5. ਭਾਗ-ੲ ਵਿਚ ਨਿਬੰਧ ਅਤੇ ਵਿਆਕਰਨ ਵਿੱਚੋਂ ਕੁੱਲ 15(8+7) ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਲਾਜ਼ਮੀ ਪ੍ਰਸ਼ਨ।ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਲਾਜ਼ਮੀ ਹਨ ।ਹਰੇਕ ਪ੍ਰਸ਼ਨ 2ਅੰਕਾਂ ਦਾ ਹੋਵੇਗਾ ।
15X2=30 ਅੰਕ

ਪਾਠਕ੍ਰਮ ਅਤੇ ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਦੀ ਰੂਪ-ਰੇਖਾ

ਭਾਗ-ੳ

ੳ -ਮੇਰਾ ਜੀਵਨ ਅਨੁਭਵ (ਵਾਰਤਕ -ਸੰਗ੍ਰਹਿ),ਮੁੱਖ ਸੰਪਾਦਕ ਡਾ.ਜਸਵੀਰ ਸਿੰਘ ,ਸੰਪਾ.ਡਾ.ਅਵਤਾਰ ਸਿੰਘ, ਡਾ.ਗੁਰਪ੍ਰੀਤ ਕੌਰ,ਪ੍ਰੋ.ਸੁਖਵਿੰਦਰ ਸਿੰਘ,ਸ੍ਰੀ ਗੁਰੂ ਤੇਗ਼ ਬਹਾਦਰ ਖ਼ਾਲਸਾ ਕਾਲਜ,ਸ੍ਰੀ ਅਨੰਦਪੁਰ ਸਾਹਿਬ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ

ਭਾਗ-ਅ

ਅ-1:ਸਮਾਜਿਕ ਅਤੇ ਵਾਤਾਵਰਨ ਵਿਸ਼ਿਆ ਨਾਲ ਸੰਬੰਧਿਤ ਨਿਬੰਧ ਰਚਨਾ
ਅ-2: ਵਿਆਕਰਨ

- **(i)** ਸਵਰ:ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਵਰਗੀਕਰਣ
- **(ii)** ਵਿਅੰਜਨ:ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਵਰਗੀਕਰਣ
- **(iii)** ਉਚਾਰਨ ਅੰਗ
- **(iv)** ਨਾਂਵ ਅਤੇ ਇਸਦਾ ਰੂਪਾਂਤਰਣ
- **(v)** ਪੜਨਾਂਵ ਅਤੇ ਇਸਦਾ ਰੂਪਾਂਤਰਣ
- **(vi)** ਕਿਰਿਆ ਅਤੇ ਇਸਦਾ ਰੂਪਾਂਤਰਣ

ਭਾਗ-ੲ ਨਿਬੰਧ ਅਤੇ ਵਿਆਕਰਨ ਵਾਲੇ ਭਾਗ ਵਿਚੋਂ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਪ੍ਰਸ਼ਨ

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1. ਬੂਟਾ ਸਿੰਘ ਬਰਾੜ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਸ੍ਰੋਤ ਤੇ ਸਰੂਪ,ਵਾਰਿਸ਼ ਸ਼ਾਹ ਫਾਂਊਡੇਸ਼ਨ ਅੰਮ੍ਰਿਤਸਰ,2012
2. ਬੂਟਾ ਸਿੰਘ ਬਰਾੜ, ਪੰਜਾਬੀ ਵਿਆਕਰਨ ਸਿਧਾਂਤ ਅਤੇ ਵਿਹਾਰ,ਚੇਤਨਾ ਪ੍ਰਕਾਸ਼ਨ ,ਲੁਧਿਆਣਾ,2008
3. ਬਲਦੇਵ ਸਿੰਘ ਚੀਮਾ, ਪੰਜਾਬੀ ਵਿਆਕਰਨ ਤੇ ਭਾਸ਼ਾ ਵਿਗਿਆਨ,ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ ਦਾ ਵਿਸ਼ਾ ਕੋਸ਼,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ,2009
4.ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨਕ ਭਾਗ **I**,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991
5.ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨਕ ਭਾਗ **II**,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991
6.ਗਿਆਨੀ ਲਾਲ ਸਿੰਘ ਤੇ ਹਰਕੀਰਤ ਸਿੰਘ ,ਕਾਲਜ ਪੰਜਾਬੀ ਵਿਆਕਰਣ ,ਪੰਜਾਬ ਸਟੇਟ ਯੂਨੀ.ਟੈਕਸਟ ਬੁੱਕ ਬੋਰਡ,ਚੰਡੀਗੜ੍ਹ
7.ਸੰਤ ਸਿੰਘ ਸੇਖੋਂ,ਸਾਹਿਤਆਰਥ,ਲਾਹੌਰ ਬੁੱਕ ਸ਼ਾਪ,ਲੁਧਿਆਣਾ
8.ਬਲਵੀਰ ਸਿੰਘ ਦਿਲ, ਪੰਜਾਬੀ ਨਿਬੰਧ :ਸਰੂਪ, ਸਿਧਾਂਤ ਅਤੇ ਵਿਕਾਸ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ, ਪੰਜਾਬੀ,ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।
9.ਖੋਜ ਪੱਤ੍ਰਿਕਾ, ਨਿਬੰਧ ਅੰਕ-29,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ, ਪੰਜਾਬੀ,ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।

ਬੀ.ਐਸ.ਸੀ.(ਮੈਡੀਕਲ / ਨਾਨ ਮੈਡੀਕਲ) ,ਬੀ.ਸੀ.ਏ.,ਬੀ.ਐਸ.ਸੀ.ਆਰਟੀਫੀਸ਼ਲ ਇੰਟੈਲੀਜੈਂਸ ਐਂਡ ਡਾਟਾ ਸਾਇੰਸ,ਬੀ.ਵਾਕ ਸਾਫ਼ਟਵੇਅਰ ਡਿਵੈਲਪਮੈਂਟ ਅਤੇ ਬੀ.ਵਾਕ ਫੂਡ ਪ੍ਰੋਸੈਸਿੰਗ

ਭਾਗ ਪਹਿਲਾ(ਸਮੈਸਟਰ-ਪਹਿਲਾ)

ਪੇਪਰ-ਪੰਜਾਬੀ ਮੁੱਢਲਾ ਗਿਆਨ,ਪੇਪਰ ਕੋਡ:**BSP-101B**

2020-21,2021-22 ਸੈਸ਼ਨ ਲਈ

ਕੁੱਲ ਅੰਕ :100	ਵਿਸ਼ੇ ਵਿਚੋਂ ਪਾਸ ਹੋਣ ਲਈ ਅੰਕ : 35
ਬਾਹਰੀ ਪਰੀਖਿਆ:70 ਅੰਕ	ਬਾਹਰੀ ਪਰੀਖਿਆ ਵਿਚੋਂ ਪਾਸ ਹੋਣ ਲਈ ਅੰਕ: 25
ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ :30 ਅੰਕ	ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਵਿਚੋਂ ਪਾਸ ਹੋਣ ਲਈ ਅੰਕ:10
ਸਮਾਂ:3 ਘੰਟੇ	ਕ੍ਰੈਡਿਟ-04, ਕੁੱਲ ਲੈਕਚਰ:60

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼:

1.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਸਾਹਿਤ ਪੜ੍ਹਨ ਲਈ ਪ੍ਰੇਰਿਤ ਕਰਨਾ।

2.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੀ ਜਾਣਕਾਰੀ ਦੇਣਾ।

3.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਪੰਜਾਬੀ ਪੜ੍ਹਨਾ ਅਤੇ ਲਿਖਣਾ ਸਿਖਾਉਣਾ।

ਪੇਪਰ ਸੈੱਟਰ ਅਤੇ ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਹਦਾਇਤਾਂ:

1.ਭਾਗ-ੳ: ਵਿਚੋਂ ਵੱਡੇ ਪ੍ਰਸ਼ਨ	(ਦੋ ਵਿਚੋਂ ਇੱਕ)10 ਅੰਕ
2.ਭਾਗ-ੳ ਵਿਚੋਂ ਛੇ ਛੋਟੇ ਪ੍ਰਸ਼ਨ	(ਛੇ ਵਿਚੋਂ ਤਿੰਨ) 5+5+5=15 ਅੰਕ
3.ਭਾਗ-ਅ ਵਿਚੋਂ ਵੱਡੇ ਪ੍ਰਸ਼ਨ	(ਦੋ ਵਿਚੋਂ ਇੱਕ)10 ਅੰਕ
4.ਭਾਗ-ਅ ਵਿਚੋਂ ਛੇ ਛੋਟੇ ਪ੍ਰਸ਼ਨ	(ਛੇ ਵਿਚੋਂ ਤਿੰਨ) 5+5+5=15 ਅੰਕ

5.ਭਾਗ-ੲ ਵਿਚ ਭਾਗ ੳ ਅਤੇ ਅ ਵਿਚੋਂ ਕੁੱਲ 15 ਆਬਜੈਕਟਿਵ ਪ੍ਰਸ਼ਨ।ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਲਾਜ਼ਮੀ ਹਨ । ਹਰੇਕ ਪ੍ਰਸ਼ਨ 2 ਅੰਕਾਂ ਦਾ ਹੋਵੇਗਾ । **(15X2=30 ਅੰਕ)**

ਪਾਠਕ੍ਰਮ ਅਤੇ ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਦੀ ਰੂਪ-ਰੇਖਾ

ਭਾਗ-ੳ

ੳ -1.ਪੈਂਤੀ ਅੱਖਰੀ ਅਤੇ ਭੁਲਾਵੇਂ ਅੱਖਰ

2.ਦੋ ਅੱਖਰਾਂ ਵਾਲੇ,ਤਿੰਨ ਅੱਖਰਾਂ ਵਾਲੇ ਅਤੇ ਚਾਰ ਅੱਖਰਾਂ ਵਾਲੇ ਪੰਜ-ਪੰਜ ਸ਼ਬਦ

3.ਲਗਾਮਾਤਰਾਵਾਂ ਦੀ ਵਰਤੋਂ ਕਰਕੇ ਪੰਜ-ਪੰਜ ਸ਼ਬਦ

4.ਲਗਾਖਰਾਂ ਦੀ ਵਰਤੋਂ ਕਰਕੇ ਪੰਜ-ਪੰਜ ਸ਼ਬਦ

ਭਾਗ-ਅ

ਅ-**1.** ਇੱਕ ਤੋਂ ਪੰਜਾਹ ਤੱਕ ਗਿਣਤੀ

2. ਹਫ਼ਤੇ ਦੇ ਦਿਨਾਂ ਦੇ ਨਾਂ

3.ਪੰਜ ਫਲਾਂ ਅਤੇ ਸਬਜ਼ੀਆਂ ਦੇ ਨਾਂ

4. ਪੰਜ ਘਰੇਲੂ ਵਸਤਾਂ ਅਤੇ ਆਵਾਜਾਈ ਦੇ ਸਾਧਨਾਂ ਦੇ ਨਾਂ

5. ਪੰਜ ਰਿਸ਼ਤਿਆਂ ਦੇ ਨਾਂ

6. ਪੰਜ ਪਸ਼ੂ ਪੰਛੀਆਂ ਦੇ ਨਾਂ

ਭਾਗ-ੲ

ਭਾਗ ੳ ਅਤੇ ਅ ਵਿਚੋਂ ਅਬਜੈਕਟਿਵ ਪ੍ਰਸ਼ਨ

ਨੋਟ:ਵਿਦਿਆਰਥੀ ਪਹਿਲੀ ਵਾਰ ਗੁਰਮੁਖੀ ਸਿੱਖ ਰਹੇ ਹਨ।ਇਸ ਲਈ ਵਿਦਿਆਰਥੀਆਂ ਦੇ ਪੱਧਰ ਨੂੰ ਧਿਆਨ ਵਿੱਚ ਰੱਖਦੇ ਹੋਏ ਸਰਲ ਅਤੇ ਸਪੱਸ਼ਟ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣ।

ਸਹਾਇਕ ਪਾਠ ਸਮੱਗਰੀ

1.ਸਤਿਨਾਮ ਸਿੰਘ ਸੰਧੂ,ਆਓ ਪੰਜਾਬੀ ਸਿੱਖੀਏ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ,2009
2. ਸਤਿਨਾਮ ਸਿੰਘ ਸੰਧੂ,ਗੁਰਮੁਖੀ ਸਿੱਖੋ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ,2011
3.ਸੀਤਾ ਰਾਮ ਬਾਹਰੀ, ਪੰਜਾਬੀ ਸਿੱਖੀਏ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ,2002
4.ਪੰਜਾਬੀ ਗਿਆਨ ਸੀ.ਡੀ.(ਕੰਪਿਊਟਰ ਐਪਲੀਕੇਸ਼ਨ ਟੂ-ਲਰਨ ਐਂਡ ਟੀਚ ਪੰਜਾਬੀ), ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ
5. ਚਰਨ ਪੁਆਧੀ,ਆਓ ਪੰਜਾਬੀ ਸਿੱਖੀਏ,ਸੰਗਮ ਪਬਲੀਕੇਸ਼ਨ,ਪਟਿਆਲਾ

BVSD-116 Software Lab I (Based on BVSD-111)

Time allowed: 3 hours	**Max Marks: 100**
Number of Lectures: 30	**External Marks : 70 marks**
Pass Marks: 35%	**Internal Assessment: 30 marks**
Credits:4	

Note : Student Have to Submit Project Report on MS- Office

MS-word: Design, create and modify a range of business documents, Displaying DifferentViews of a Document, Creating and Saving a Document, Selecting, Modifying, Finding and Replace Text, Align Text Using Tabs, Display Text as List Items. Apply Borders and Shading, Preview a document, and adjust its margins and orientation, Insert & Format a Table, Convert Text to a Table, Check Spelling and Grammar, Use the Thesaurus, Print with default or custom settings, Managing Lists – Sort, Renumber, Customize a List, Apply a Page Border and Colour, Sorting Table Data, Control Cell Layout, Perform Calculations in a Table, Creating Customized Formats with Styles and Themes. Create or Modify a Text Style, Create a Custom List or Table Style. Modifying Pictures & Picture Appearance Settings, Wrap Text around a Picture, Insert and Format Screenshots in a Document, Add WordArt , Use the Mail Merge Feature including Envelopes and Labels.

MS-Excel: Construct a spreadsheet and populating Cell Data, Formatting Cells – SearchWorksheet Data, Changing Fonts, Modify Rows and Columns, Managing Worksheets and Workbooks, Applying Formulas and Functions, Inserting Currency Symbols, Merging cells, Spell Check a Worksheet, Add Borders and Color to Cells, Printing options to output a chart, Modify the Layout of a Paragraph – Tabs, Headers, Footers, Apply Styles & Manage Formatting, Document Templates, Insert contents, page and section breaks, Apply Character Formatting.

Clip Art , Symbols, Illustrations, Set Page Breaks, Page Layout Options, Manage Workbook Views, Apply Cell and Range Names, Auto Sum in Cells, Calculate Data Across Worksheets, Sort or Filter Worksheet or Table Data, Create, Modify and Format Charts, Create, modify and format spreadsheets using the full range of the software formatting, features including conditional formatting for example Hide /unhide/freeze rows and columns.

MS-PowerPoint: Salient features of POWER POINT, Starting ,Saving and quittingpresentation, various components and elements of PowerPoint Package. Insert Clip Art and Graphs. Adding Multimedia Effects to the slide. Formatting and Editing Presentations. Adding Animation and Transition effects to the presentations.

Reference Books

1. Microsoft Office Word by TorbenLageFrandsen
2. Word 2010 Introduction by Stephen
3. Word 2010 Advanced by Stephen Moffat

BVSD -117 SOFTWARE LAB – I I(Based on BVSD-112 and BVSD-113)

Time allowed: 3 hours	**Max Marks: 100**
Number of Lectures: 60	**External Marks : 70 marks**
Pass Marks: 35%	**Internal Assessment: 30 marks**
Credits:4.5	

This laboratory course will comprise as exercises to supplement what is learnt under paper BVSD-112 and BVSD-113.

A. 'C ' Programming

Students are required to develop the following programs with internal documentation:

1 **Assignments on Data types, Operators, Control Structure (if else, while, for, Do-while), jumping statements in C .**

- i. Write a program to print the size of all the data types supported by C.
- ii. Write a program to check whether the given number is a even number or not.
- iii. Write a program to accept three numbers and find the largest among them.
- iv. Write a program to count the different vowels in a line of text using switch.
- v. Write a program to accept two numbers and perform various arithmetic operations (+, -, *, /) based on the symbol entered.
- vi. Write a program to find factorial of a number.
- vii. Write a program to print all prime numbers between any 2 given limits.
- viii. Write a program to print all the Armstrong numbers between any 2 given limits.
- ix. Write a program to demonstrate the use of break and continue statements.

2 **Assignment on Arrays(one and two dimensional) and strings (string handling functions)**

- i. Write a program to find largest element in an array.
- ii. Write a program to search an element in an array.
- iii. Write a program to find sum and average of numbers stored in an array.
- iv. Write a program to check whether a string is a Palindrome.
- v. Write a program to perform matrix addition.
- vi. Write a program to perform matrix multiplication.
- vii. Write a program to demonstrate string handling functions.

3 **Assignment on Pointers and Array of Pointers**

- i. Write a function to swap two numbers using pointers.
- ii. Write a program to access an array of integers using pointers.

4 **Assignment on Functions , Recursion and Storage Classes**

- i. Write a program to demonstrate the methods of argument passing.
- ii. Write a program to find the roots of a quadratic equation using function.
- iii. Write a recursive program to find the factorial of a number.
- iv. Write a recursive program to find the nth Fibonacci number.
- v. Write a program to show the significance of different storage classes.

5 **Assignment on Structures and Unions**

- i. Write a program to create an employee structure and display the same.
- ii. Write a program to create a student database storing the roll no, name, class etc and sort by name.

B. HTML

1. Assignment on Structure of HTML.
2. Assignment on HTML TAGS.
3. Assignment on HTML Lists.
4. Assignment on HTML Images.
5. Assignment on HTML Tables.
6. Assignment on HTML Links.
7. Assignment on HTML Forms.
8. Assignment on HTML Frames.
9. Assignment on CSS properties.

BVSD -118(SAE-1.1) DRUG ABUSE: PROBLEM, MANAGEMENT AND PREVENTION

Note: This is a compulsory qualifying paper, which the students have to study and qualify during three years of their degree course.

Total Marks: 50 **Theory 35**
Number of Lectures:30 **Internal Assessment 15**

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections: A, B & C. Section A& B will have four questions in each section from the respective sections of the syllabus and will carry 5 marks each. Section C will consist of 5 short-answer type questions will cover the entire syllabus uniformly and each will carry 3 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions from each section A & B of the question paper and the entire section C.

SECTION A

UNIT: I – Problem of Drug Abuse: Concept and Overview; Types of Drug Often Abused

(a) Concept and Overview

What are drugs and what constitutes Drug Abuse?

Prevalence of menace of Drug Abuse

How drug Abuse is different from Drug Dependence and Drug Addiction?

Physical and psychological dependence- concepts of drug tolerance

(b) Introduction to drugs of abuse: Short Term, Long term effects & withdrawal symptoms

Stimulants: Cocaine, Nicotine

Depressants: Alcohol, Barbiturates- Nembutal

Benzodiazepines –Diazepam

Narcotics: Opium, heroin

Hallucinogens: Cannabis & derivatives (marijuana, hashish, hash oil)

Steroids

Inhalants

UNIT: II –Nature of the Problem

Vulnerable Age Groups

Signs and symptoms of Drug Abuse

(a)- Physical indicators

(b)- Academic indicators

(c)- Behavioral and Psychological indicators

SECTION B

UNIT: III – Causes and Consequences of Drug Abuse

a) Causes

Physiological

Psychological

Sociological

b) Consequences of Drug Abuse

For individuals

For families

For society & Nation

UNIT: IV- Management & Prevention of Drug Abuse

Management of Drug Abuse

Prevention of Drug Abuse

Role of Family, School, Media, Legislation & Deaddiction Centers

SUGGESTED READINGSMATERIAL

1. Kapoor. T. (1985) Drug Epidemic among Indian Youth, New Delhi: Mittal Pub
2. Modi, Ishwar and Modi, Shalini (1997) Drugs: Addiction and Prevention,Jaipur: Rawat Publication.
3. Ahuja, Ram,(2003),Social Problems in India, Rawat Publications: Jaipur
4. 2003 National Household Survey of Alcohol and Drug Abuse. New Delhi, Clinical Epidemiological Unit, All India Institute of Medical Sciences, 2004.
5. World Drug Report 2011, United Nations Office of Drug and Crime.
6. World Drug Report 2010, United nations Office of Drug and Crime.
7. Extent, Pattern and Trend of Drug Use in India, Ministry of Social Justice and Empowerment, Government of India, 2004.
8. The Narcotic Drugs and Psychotropic Substances Act, 1985, (New Delhi: Universal, 2012)

Pedagogy of the Course Work:
The pedagogy of the course work will consist of the following:
70% lectures (including expert lectures).
30% assignments, discussion and seminars and class tests.
Note: A visit to drug de-addiction centre could also be undertaken.

Semester II

BVSD-121 Object Oriented Programming Using C++

Time allowed: 3 hours	**Max Marks: 100**
Number of Lectures: 60	**External Marks : 70 marks**
Pass Marks: 35%	**Internal Assessment: 30 marks**
CREDITS: 4	

Instructions for the paper setter

The question paper will consist of ***three sections A, B and C.*** Section A and B will have four questions from the respective section of the syllabus carrying 10.5 marks for each question. Section C will consist of 5-10 short answer type questions carrying a total of 28 marks, which will cover the entire syllabus uniformly. . Candidates are required to ***attempt five questions in all by selecting at least two questions each from the section A and B. Section C is compulsory.***

Instructions for the candidates

Candidates are required to attempt five questions in all by selecting at least two questions each from the section A and B. Section C is compulsory.

SECTION A

Introduction : Basics of Object Oriented Programming (OOP), Difference between C &C++, Manipulators, Storage classes.

Classes and Objects: Class Declaration and Class Definition, Defining member functions, inline functions, Nesting of member functions, Members access control. this pointer. Objects: Object as function arguments, array of objects, functions returning objects, Const member. Static data members and Static member functions, Friend functions and Friend classes .

Constructors: properties, types of constructors, Dynamic constructors, Constructor over loading.

Destructors: Properties, Virtual destructors. Destroying objects. Rules for constructors and destructors. Array of objects. Dynamic memory allocation using new and delete operators, Nested classes, Scopes: Local, Global, Namespace and Class.

Inheritance: Defining derived classes, Types of inheritance, types of derivation- public, private, protected, function redefining, constructors in derived class, Types of base classes – abstract and virtual.

SECTION B

Operator overloading: rules for operator overloading over-loading binary operator, overloading unary operators, Function overloading.

Polymorphism : virtual functions, late binding, pure virtual functions and abstract base class Difference between function overloading, redefining, and overriding.

Templates: Generic Functions and Generic Classes, Overloading of template functions.

Exception Handling : catching class types, handling derived class exceptions, catching exceptions, restricting exception, rethrowing exceptions, terminate and unexpected, uncaught exceptions.

Introduction to Files in C++: opening and closing files. Basic I/O operation on files.

Reference Books:

1. E. Balaguruswamy, Object Oriented Programming with C++, Tata McGraw-Hill.
2. Deitel&Deitel, "C++ How to Program", Pearson Education.
3. Herbert Schildt, The Complete Reference C++, Tata McGraw-Hill.
4. Robert Lafore, Object Oriented Programming in C++, Galgotia Publications,
5. BjarneStrautrup, "The C++ Programming Language", Addition- Wesley Publication.
6. E. Balagurusamy, Object Oriented Programming with C++, Tata McGraw-Hill.
7. Anshuman Sharma, Learn Programming in C++, Lakhanpal Publishcations.

BVSD-122 DATA STRUCTURES

Time allowed: 3 hours **Max Marks: 100**
Number of Lectures: 60 **External Marks : 70 marks**
Pass Marks: 35% **Internal Assessment: 30 marks**
CREDITS: 4

Instructions for the paper setter
The question paper will consist of ***three sections A, B and C.*** Section A and B will have four questions from the respective section of the syllabus carrying 10.5 marks for each question. Section C will consist of 5-10 short answer type questions carrying a total of 28 marks, which will cover the entire syllabus uniformly. . Candidates are required to ***attempt five questions in all by selecting at least two questions each from the section A and B. Section C is compulsory.***

Instructions for the candidates
Candidates are required to attempt five questions in all by selecting at least two questions each from the section A and B. Section C is compulsory.

SECTION A

Basic concepts and notations: Types of data structures, Data structure operations, Mathematical notations and functions, Algorithmic complexity, Big ‘O’ notation, Time and space trade off.
Arrays: Linear array, representation of array in memory, traversing linear array, insertion and deletion in an array, Two-dimensional array, row major and column major orders, sparse matrix.
Stacks: Representation of stacks in memory (linked and sequential), operations on stacks, Applications of stacks: string reversal, parentheses matching.
Queues: Representation of queues in memory (linked and sequential), operations on queues, insertion in rear, deletion from front.

SECTION B

Linked list: Representation of linked list using dynamic data structures, insertion and deletion of a node from linked list, searching in link list, searching in sorted link list.
Trees: Definition and basic concepts, linked representation and representation in contiguous storage, binary tree, binary tree traversal, Binary search tree, searching, insertion and deletion in binary search tree.
Searching and sorting algorithms: Linear and binary search, bubble sort, insertion sort, selection sort, quick sort, merge sort.

Reference Books:

1. Seymour Lipschutz, Theory and Practice of Data Structures, McGraw-Hill.
2. Vishal Goyal, Lalit Goyal, Pawan Kumar, A Simplified Approach to Data Structures, Shroff Publications.
3. Y. L. Tenenbaum, and A. J. Augenstein, Data Structures using C and C++, PHI.
4. Robert Sedgewick, Algorithms in C, Pearson Education.

BVSD-123: Discrete Mathematics

Time allowed: 3 hours	**Max Marks: 100**
Number of Lectures: 60	**External Marks : 70 marks**
Pass Marks: 35%	**Internal Assessment: 30 marks**
CREDITS: 4	

Instructions for the paper setter

The question paper will consist of ***three sections A, B and C.*** Section A and B will have four questions from the respective section of the syllabus carrying 10.5 marks for each question. Section C will consist of 5-10 short answer type questions carrying a total of 28 marks, which will cover the entire syllabus uniformly. Candidates are required to ***attempt five questions in all by selecting at least two questions each from the section A and B. Section C is compulsory.***

Instructions for the candidates

Candidates are required to attempt five questions in all by selecting at least two questions each from the section A and B. Section C is compulsory.

SECTION-A

Set Theory: Sets, Type of sets, Set operations, Principle of Inclusion-Exclusion, Cartesian prodouct of sets, Partitions.

Logic : Propositions, Implications, Precedence of logical operators, Translating English sentences into logical expressions, Propositional equivalence

Principle of Mathematical induction.

Relations: Relations and diagraph, n-ary relations and their applications, properties of relations, representing relations, closure of relation, equivalence relation, operation on relations, partial ordering.

SECTION- B

Functions: Functions, One-to-one Functions, Onto Functions, Inverse and Composition of Functions, Floor Function, Ceiling Function.

Basic Concepts (Only Definition): Big-O Notation, Big-Omega and Big-Theta Notation.

Graphs: Introduction to Graph, Graph terminology, Representing graphs and Graph Isomorphism, Connectivity, Euler Paths and Circuits, Hamillonian paths and circuits, Shortest Path Problems, Planar Graphs.

Trees : Trees, labelled trees, Tree Traversal, Undirected trees, Spanning Trees, Minimum spanning trees.

Text Book :

1. Discrete Mathematical Structures-Bernard Kolman, Robert C. Busby, Sharon C. Ross, 4th Edition, Pearson Education Asia.

Reference Books :

1. Discrete Mathematics-Richard Johnsonbaugh, 5th Edition, Pearson Education, Asia.
2. Elements of Discrete Mathematics, Second Edition, Tata McGraw Hill.
3. Discrete Mathematics, SeymonLipschutz& Max Lans Lipson, Tata McGraw Hill.

BVSD-124-COMMUNICATION SKILLS-II

Time Allowed: 3 Hours	**Max. Marks: 100**
Number of Lectures: 60	**Written Examination: 70**
Pass Percentage: 35%	**Internal Assessment: 30**
Credits-3	

Instructions for the paper setter

The question paper will consist of three sections A, B and C. Each of sections A and B will have four questions from the respective sections of the syllabus and each question carry 10.5 marks. Section C will consist of 5-10 short answer type questions carrying a total of 28 marks, which will cover the entire syllabus uniformly.

Instructions for the candidates

Candidates are required to attempt two questions each from section A and B and the entire section C.

SECTION A

Communication: Meaning, Importance, and Process, Objectives of Communication, Effective Communication, Means/ Media and Types of Communication, Channels of Communication, Barriers to Communication, Importance of Feedback. Report Writing, Speeches and Presentations, Documentation, Group Discussion.
Business Correspondence: Business letters: Purchase order letter, Enquiry Letter, Quotation Letter, and Cancellation of order letter.

SECTION B

Personality Development: Types of personality, Dynamics of Personality, Personality Traits, Influences on Personality, Personality Analysis through body language and Individual habits, Physical Aspects of personality, Emotional Stability, Mind and mental development, Mental Blocks, Manners and Art of Living.

Reference Books:

1. The Written Word by Vandan R.Singh
2. Business Communication by M.K. Sehgal, Vandana Khetarpal
3. A Course in Communication Skills by Duttetal
4. Succeeding through Communication by SubhashJagota
5. Personality Development and Soft Skills by Prof. Achhru Singh & Dr. Dharminder Singh Ubha
6. Communication Skills & Technical Writings by Dr. Gurpreet Kaur

ਬੀ.ਐਸ.ਸੀ.(ਮੈਡੀਕਲ / ਨਾਨ ਮੈਡੀਕਲ),ਬੀ.ਸੀ.ਏ.,ਬੀ.ਵਾਕ (ਸਾਫ਼ਟਵੇਅਰ ਡਿਵੈਲਪਮੈਂਟ) ਅਤੇ ਬੀ.ਵਾਕ (ਫੂਡ ਪ੍ਰੋਸੈਸਿੰਗ)ਭਾਗ ਪਹਿਲਾ , ਸਮੈਸਟਰ ਦੂਜਾ

ਪੇਪਰ-ਪੰਜਾਬੀ ਲਾਜ਼ਮੀ,ਪੇਪਰ ਕੋਡ:**BSP-201A,** ਕ੍ਰੈਡਿਟ-03

2020-21,2021-22 ਸੈਸ਼ਨ ਲਈ

ਕੁੱਲ ਅੰਕ :100	ਵਿਸ਼ੇ ਵਿਚੋਂ ਪਾਸ ਅੰਕ : 35
ਬਾਹਰੀ ਪਰੀਖਿਆ:70 ਅੰਕ	ਬਾਹਰੀ ਪਰੀਖਿਆ ਵਿਚੋਂ ਪਾਸ ਅੰਕ: 25
ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ :30 ਅੰਕ	ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਵਿਚੋਂ ਪਾਸ ਅੰਕ:10
ਸਮਾਂ:3 ਘੰਟੇ	ਕੁੱਲ ਲੈਕਚਰ:60

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼:

1.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਸਾਹਿਤ ਪੜ੍ਹਨ ਲਈ ਪ੍ਰੇਰਿਤ ਕਰਨਾ।
2.ਮਾਤ ਭਾਸ਼ਾ ਵਿੱਚ ਉਚੇਰੀ ਸਿੱਖਿਆ ਗ੍ਰਹਿਣ ਕਰਨ ਦੀ ਜਾਗ ਲਾਉਣਾ।
3.ਵਿਆਕਰਨਕ ਪੱਖਾਂ ਨਾਲ ਰਾਬਤਾ ਕਾਇਮ ਕਰਵਾਉਣਾ।
4.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਚਿੱਠੀ-ਪੱਤਰ ਲਿਖਣਾ ਸਿਖਾਉਣਾ।

ਪੇਪਰ ਸੈੱਟਰ ਅਤੇ ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਹਦਾਇਤਾਂ

1.ਭਾਗ-ੳ: ਵਿਚੋਂ ਨਿਬੰਧ ਦਾ ਵਿਸ਼ਾ-ਵਸਤੂ ਜਾਂ ਸਾਰ (ਤਿੰਨ ਵਿਚੋਂ ਇੱਕ)10 ਅੰਕ
2.ਭਾਗ-ੳ: ਵਿਚੋਂ ਪੁਸਤਕ ਵਿਚਲੇ ਵਿਚਾਰਾਂ ਸੰਬੰਧੀ ਪ੍ਰਸ਼ਨ (ਪੰਜ ਵਿਚੋਂ ਦੋ) 5+5=10ਅੰਕ
3.ਭਾਗ-ਅ:1 ਵਿਚੋਂ ਚਿੱਠੀ-ਪੱਤਰ (ਤਿੰਨ ਵਿਚੋਂ ਇੱਕ) 10 ਅੰਕ
4.ਭਾਗ-ਅ:2 ਵਿਚੋਂ ਵਿਆਕਰਨ ਨਾਲ ਸੰਬੰਧਿਤ ਵਰਣਾਤਮਕ ਪ੍ਰਸ਼ਨ (ਦੋ ਵਿਚੋਂ ਇੱਕ) 10 ਅੰਕ
5. ਭਾਗ-ੲ ਵਿਚ ਨਿਬੰਧ ਦੀ ਪਾਠ-ਪੁਸਤਕ ਅਤੇ ਵਿਆਕਰਨ ਵਿੱਚੋਂ ਕੁੱਲ 15(8+7) ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਲਾਜ਼ਮੀ ਪ੍ਰਸ਼ਨ।ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਲਾਜ਼ਮੀ ਹਨ ।ਹਰੇਕ ਪ੍ਰਸ਼ਨ 02ਅੰਕਾਂ ਦਾ ਹੋਵੇਗਾ ।

15X2=30 ਅੰਕ

ਪਾਠਕ੍ਰਮ ਅਤੇ ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਦੀ ਰੂਪ-ਰੇਖਾ

ਭਾਗ-ੳ

ੳ -ਜੀਵਨ-ਵਿਹਾਰ (ਵਾਰਤਕ-ਸੰਗ੍ਰਹਿ),ਮੁੱਖ ਸੰਪਾ.ਡਾ.ਜਸਵੀਰ ਸਿੰਘ,ਸੰਪਾ.ਡਾ.ਅਵਤਾਰ ਸਿੰਘ, ਡਾ.ਗੁਰਪ੍ਰੀਤ ਕੌਰ,ਪ੍ਰੋ.ਸੁਖਵਿੰਦਰ ਸਿੰਘ,ਸ੍ਰੀ ਗੁਰੂ ਤੇਗ਼ ਬਹਾਦਰ ਖ਼ਾਲਸਾ ਕਾਲਜ, ਸ੍ਰੀ ਅਨੰਦਪੁਰ ਸਾਹਿਬ ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ

ਭਾਗ-ਅ

ਅ1:ਦਫ਼ਤਰੀ ਚਿੱਠੀ -ਪੱਤਰ

ਅ-2:ਵਿਆਕਰਨ

- **(i)** ਭਾਸ਼ਾ ਦਾ ਟਕਸਾਲੀ ਰੂਪ
- **(ii)** ਭਾਸ਼ਾ ਅਤੇ ਉਪਭਾਸ਼ਾ ਦਾ ਅੰਤਰ
- **(iii)** ਪੂਰਬੀ ਪੰਜਾਬ ਦੀਆਂ ਉਪਭਾਸ਼ਾਵਾਂ ਦੇ ਪਛਾਣ- ਚਿੰਨ੍ਹ
- **(iv)** ਸ਼ਬਦ :ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਵਰਗੀਕਰਨ
- **(v)** ਵਧੇਤਰ

ਭਾਗ-ੲ

ਭਾਗ–ੳ ਅਤੇ ਵਿਆਕਰਨ ਵਾਲੇ ਭਾਗ ਵਿਚੋਂ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਪ੍ਰਸ਼ਨ

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1. ਬੂਟਾ ਸਿੰਘ ਬਰਾੜ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਸ੍ਰੋਤ ਤੇ ਸਰੂਪ,ਵਾਰਿਸ਼ ਸ਼ਾਹ ਫਾਂਊਡੇਸ਼ਨ ਅੰਮ੍ਰਿਤਸਰ,2012
2. ਬੂਟਾ ਸਿੰਘ ਬਰਾੜ, ਪੰਜਾਬੀ ਵਿਆਕਰਨ ਸਿਧਾਂਤ ਅਤੇ ਵਿਹਾਰ,ਚੇਤਨਾ ਪ੍ਰਕਾਸ਼ਨ ,ਲੁਧਿਆਣਾ,2008
3. ਬਲਦੇਵ ਸਿੰਘ ਚੀਮਾ, ਪੰਜਾਬੀ ਵਿਆਕਰਨ ਤੇ ਭਾਸ਼ਾ ਵਿਗਿਆਨ,ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ ਦਾ ਵਿਸ਼ਾ ਕੋਸ਼, ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ,2009
4. ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨਕ ਭਾਗ **I**,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991
5. ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨਕ ਭਾਗ **II**,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991
6. ਗਿਆਨੀ ਲਾਲ ਸਿੰਘ ਤੇ ਹਰਕੀਰਤ ਸਿੰਘ ,ਕਾਲਜ ਪੰਜਾਬੀ ਵਿਆਕਰਣ ,ਪੰਜਾਬ ਸਟੇਟ ਯੂਨੀ.ਟੈਕਸਟ ਬੁੱਕ ਬੋਰਡ,ਚੰਡੀਗੜ੍ਹ
7. ਸੰਤ ਸਿੰਘ ਸੇਖੋਂ,ਸਾਹਿਤਆਰਥ,ਲਾਹੌਰ ਬੁੱਕ ਸ਼ਾਪ,ਲੁਧਿਆਣਾ
8. ਬਲਵੀਰ ਸਿੰਘ ਦਿਲ, ਪੰਜਾਬੀ ਨਿਬੰਧ :ਸਰੂਪ, ਸਿਧਾਂਤ ਅਤੇ ਵਿਕਾਸ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ, ਪੰਜਾਬੀ,ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।
9. ਖੋਜ ਪੱਤ੍ਰਿਕਾ, ਨਿਬੰਧ ਅੰਕ–29,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ, ਪੰਜਾਬੀ,ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।

ਬੀ.ਐਸ.ਸੀ.(ਮੈਡੀਕਲ / ਨਾਨ ਮੈਡੀਕਲ),ਬੀ.ਸੀ.ਏ.,ਬੀ.ਵਾਕ ਸਾਫ਼ਟਵੇਅਰ ਡਿਵੈਲਪਮੈਂਟ ਅਤੇ ਬੀ.ਵਾਕ ਫੂਡ ਪ੍ਰੋਸੈਸਿੰਗ

ਭਾਗ ਪਹਿਲਾ , ਸਮੈਸਟਰ ਦੂਜਾ

ਪੇਪਰ-ਪੰਜਾਬੀ ਮੁੱਢਲਾ ਗਿਆਨ

ਪੇਪਰ ਕੋਡ:**BSP-201B,** ਕ੍ਰੈਡਿਟ-03

2020-21,2021-22 ਸੈਸ਼ਨ ਲਈ

ਕੁੱਲ ਅੰਕ :100	ਵਿਸ਼ੇ ਵਿਚੋਂ ਪਾਸ ਅੰਕ : 35
ਬਾਹਰੀ ਪਰੀਖਿਆ:70 ਅੰਕ	ਬਾਹਰੀ ਪਰੀਖਿਆ ਵਿਚੋਂ ਪਾਸ ਅੰਕ: 25
ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ :30 ਅੰਕ	ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਵਿਚੋਂ ਪਾਸ ਅੰਕ:10
ਸਮਾਂ:3 ਘੰਟੇ	ਕੁੱਲ ਲੈਕਚਰ:60

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼:

1.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਸਾਹਿਤ ਪੜ੍ਹਨ ਲਈ ਪ੍ਰੇਰਿਤ ਕਰਨਾ।

2.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੀ ਜਾਣਕਾਰੀ ਦੇਣਾ।

3.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਪੰਜਾਬੀ ਪੜ੍ਹਨਾ ਅਤੇ ਲਿਖਣਾ ਸਿਖਾਉਣਾ।

ਪੇਪਰ ਸੈੱਟਰ ਅਤੇ ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਹਦਾਇਤਾਂ:

1.ਭਾਗ-ੳ: ਵਿਚੋਂ ਵੱਡੇ ਪ੍ਰਸ਼ਨ	(ਦੋ ਵਿਚੋਂ ਇੱਕ)10 ਅੰਕ
2.ਭਾਗ-ੳ ਵਿਚੋਂ ਛੇ ਛੋਟੇ ਪ੍ਰਸ਼ਨ	(ਛੇ ਵਿਚੋਂ ਚਾਰ) 5+5+5+5=20ਅੰਕ
3.ਭਾਗ-ਅ ਵਿਚੋਂ ਵੱਡੇ ਪ੍ਰਸ਼ਨ	(ਦੋ ਵਿਚੋਂ ਇੱਕ)10 ਅੰਕ
4.ਭਾਗ-ਅ ਵਿਚੋਂ ਛੇ ਛੋਟੇ ਪ੍ਰਸ਼ਨ	(ਛੇ ਵਿਚੋਂ ਚਾਰ) 5+5+5+5=20 ਅੰਕ

5.ਭਾਗ-ੲ ਵਿਚ ਭਾਗ ੳ ਅਤੇ ਅ ਵਿਚੋਂ ਕੁੱਲ 10 ਆਬਜੈਕਟਿਵ ਪ੍ਰਸ਼ਨ।ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਲਾਜ਼ਮੀ ਹਨ । ਹਰੇਕ ਪ੍ਰਸ਼ਨ 01 ਅੰਕ ਦਾ ਹੋਵੇਗਾ । **(10X1=10 ਅੰਕ)**

ਪਾਠਕ੍ਰਮ ਅਤੇ ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਦੀ ਰੂਪ-ਰੇਖਾ

ਭਾਗ-ੳ

ੳ -1.ਵਿਰੋਧੀ ਸ਼ਬਦ,ਸਮਾਨਾਰਥਕ ਸ਼ਬਦ

2.ਲਿੰਗ,ਵਚਨ,ਕਾਲ ਅਤੇ ਪੁਰਖ

3.ਸ਼ਬਦ ਸ਼੍ਰੇਣੀਆਂ(ਨਾਂਵ,ਪੜਨਾਂਵ ਅਤੇ ਕਿਰਿਆ):ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਉਦਾਹਰਣਾਂ

4.ਵਿਸ਼ਰਾਮ ਚਿੰਨ੍ਹਾਂ ਦੀ ਵਰਤੋਂ

ਭਾਗ-ਅ

ਅ -ਲੇਖ ਰਚਨਾ(200 ਸ਼ਬਦਾਂ ਵਿੱਚ):ਮੇਰਾ ਅਧਿਆਪਕ,ਮੇਰਾ ਕਾਲਜ ਅਤੇ ਦੀਵਾਲੀ

2. ਚਿੱਠੀ ਪੱਤਰ:ਫ਼ੀਸ ਮੁਆਫ਼ੀ ਅਤੇ ਬਿਮਾਰੀ ਕਾਰਨ ਛੁੱਟੀ ਲੈਣ ਸੰਬੰਧੀ

3.ਦੇਸੀ ਅਤੇ ਅੰਗਰੇਜ਼ੀ ਮਹੀਨਿਆਂ ਦੇ ਨਾਂ

੪. ਇੱਕ ਤੋਂ ਸੌ ਤੱਕ ਗਿਣਤੀ

ਭਾਗ-ੲ

ਭਾਗ ੳ ਅਤੇ ਅ ਵਿਚੋਂ ਆਬਜੈਕਟਿਵ ਪ੍ਰਸ਼ਨ

ਨੋਟ:ਵਿਦਿਆਰਥੀ ਗੁਰਮੁਖੀ ਸਿੱਖ ਰਹੇ ਹਨ।ਇਸ ਲਈ ਵਿਦਿਆਰਥੀਆਂ ਦੇ ਪੱਧਰ ਨੂੰ ਧਿਆਨ ਵਿੱਚ ਰੱਖਦੇ ਹੋਏ ਸਰਲ ਅਤੇ ਸਪੱਸ਼ਟ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣ।

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1.ਸਤਿਨਾਮ ਸਿੰਘ ਸੰਧੂ,ਆਓ ਪੰਜਾਬੀ ਸਿੱਖੀਏ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ,2009
2. ਸਤਿਨਾਮ ਸਿੰਘ ਸੰਧੂ,ਗੁਰਮੁਖੀ ਸਿੱਖੋ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ,2011
3.ਸੀਤਾ ਰਾਮ ਬਾਹਰੀ, ਪੰਜਾਬੀ ਸਿੱਖੀਏ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ,2002
4.ਪੰਜਾਬੀ ਗਿਆਨ ਸੀ.ਡੀ.(ਕੰਪਿਊਟਰ ਐਪਲੀਕੇਸ਼ਨ ਟੂ-ਲਰਨ ਐਂਡ ਟੀਚ ਪੰਜਾਬੀ), ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ
5. ਚਰਨ ਪੁਆਧੀ,ਆਓ ਪੰਜਾਬੀ ਸਿੱਖੀਏ,ਸੰਗਮ ਪਬਲੀਕੇਸ਼ਨ,ਪਟਿਆਲਾ

BVSD-126 SOFTWARE LAB – III(Based on BVSD-121 and 122)

Time allowed: 3 hours	**Max Marks: 100**
Number of Lectures: 60	**External Marks : 70 marks**
Pass Marks: 35%	**Internal Assessment: 30 marks**
(CREDITS: 4)	

This laboratory course will comprise as exercises to supplement what is learnt under paper BVSD-121 and 122.Students are required to perform following activities with internal documentation:

1. Write a program to find area of rectangle using the concept of classes & object.
2. Write a program to implement the concept of array of object.
3. Write a program to show the use of friend function.
4. Write a program to show the use of constructor overloading.
5. Write a program to show the use of copy constructor.
6. Write a program to show the use of destructors.
7. Write a program to show the use of virtual function.
8. Write a program to implement the concept of multilevel inheritance.
9. Write a program to implement the concept of multiple inheritance.
10. Write a program of unary operator overloading.
11. Write a program of Binary operator overloading.
12. Write a program to swap two values independent of type of the variable using function template.
13. Write a program to illustrate how an exception is handled using try catch block using throw statements.

Students are required to develop the following programs in C/C++ with internal documentation:

1 Program to insert an element from an array.
2 Program to delete an element from an array.
3 Program to store an array using sparse representation.
4 Program to apply various operations on stack.
5 Program for parenthesis matching using stack.
6 Program for String reversal using stack.
7 Program to insert and delete nodes in a queue.
8 Program to insert and delete nodes in a linked list.
9 Program to search a node in a linked list.
10 Program to insert or delete node in a binary tree.
11 Program to traverse binary tree.
12 Program for implementing linear search.
13 Program for implementing binary search.
14 Program for implementing Bubble sort.

15 Program for implementing Selection sort.
16 Program for implementing Insertion sort.
17 Program for implementing Quick sort.
18 Program for implementing Merge sort.

B.VSD-127 LANGUAGE LAB-I (Based on B.VSD 124 BSP201A,B)

Time allowed: 3 hours **Max Marks: 100**
Number of Lectures: 60 **Internal Assessment: 100 marks**
Pass Marks: 35%
(CREDITS: 4)

A. Based on B.VSD-124

Internal Assessment: 50 Marks **Passing Mark:18**

Reading Skills (10 Marks)
Comprehension of various passages with special emphasis on framing questions and answers, word-meaning.
Speaking Skills (10 Marks)
Speech Organs, Basic phonetic symbols and correct pronunciation.
Teaching conversations skills with special emphasis an grammar and vocabulary through the use of audio-visual aids
Listening and Writing Skills (10 Marks)
The students should be made to view English movies with the aim of comprehension.
The students should be able to answer the questions at the end of each session.
Creative writing
Personality Development (20 Marks)

B. Based on BSP-201 A, B

ਕੁੱਲ ਅੰਕ–50 ਵਿਸ਼ੇ ਵਿਚੋਂ ਪਾਸ ਹੋਣ ਲਈ ਅੰਕ–18

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼:
1.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਆਧੁਨਿਕ ਯੁੱਗ ਦੇ ਹਾਣੀ ਬਣਾਉਣਾ।
2.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਵਿੱਚ ਟਾਈਪਿੰਗ ਸਿਖਾਉਣਾ।
3.ਵਿਦਿਆਰਥੀਆਂ ਦੀਆਂ ਵਿਵਹਾਰਕ ਅਤੇ ਕਿੱਤਾਮੁਖੀ ਲੋੜਾਂ ਦੀ ਪੂਰਤੀ ਕਰਨਾ।

1 ਅਨਮੋਲ ਫੌਂਟ ਵਿਚ ਟਾਈਪ ਕਰਨਾ
2 ਵਿਸ਼ੇਸ਼ ਅੱਖਰ ਪਾਉਣ ਲਈ ਕੀ. ਬੋਰਡ ਸ਼ਾਰਟਕੱਟ
3 ਯੂਨੀਕੋਡ ਪ੍ਰਣਾਲੀ ਵਿਚ ਟਾਈਪ ਕਰਨਾ
4 ਯੂਨੀਕੋਡ ਦੇ ਲਾਭ
5 ਫੌਂਟ ਬਦਲਣਾ
6 ਈ. ਮੇਲ ਭੇਜਣਾ
7 ਵੈੱਬਸਾਈਟ ਖੋਲ੍ਹਣਾ

BVSD-128(SAE-1.2)- Environmental and Road Safety Awareness

Credits : (4)

Max Marks: 100	**Max Time: 3hrs.**
Internal Assessment: 30	**External Marks: 70**
Number of Lectures:30	

INSTRUCTIONS FOR THE PAPER SETTERS

The question paper will consist of three sections A, B and C. Each of sections A and B will have four questions from the respective sections of the syllabus. Each question shall carry 7 marks. Section C will consist of 7 short answer type questions of 1 mark each.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt any two questions from each section A and B. Section C is compulsory.

SECTION-A

INTRODUCTION TO ENVIRONMENTAL STUDIES: The multidisciplinary nature of environmental studies. Definition, scope and importance, Concept of Biosphere – Lithosphere, Hydrosphere, Atmosphere.

ECOSYSTEM & BIODIVERSITY CONSERVATION

Ecosystem and its components, Types of Ecosystems
Biodiversity - Definition and Value, Threats to biodiversity and its conservation
Level of biological diversity: genetic, species and ecosystem diversity; bio-geographic zones of India; biodiversity patterns and global biodiversity hot spots.
India as Mega-biodiversity nation; Endangered and endemic species of India.
Ecosystem and biodiversity services: Ecological, economic, social, ethical, aesthetic and informational value.

NATURAL RESOURCES–RENEWABLE AND NON-RENEWABLE RESOURCES

Land resources and land use change; land degradation, soil erosion and desertification.
Deforestation: causes and impacts due to mining, dam building on environment, Forests, Biodiversity and tribal populations.
Water: Use and over-exploitation of surface and ground water, Floods, droughts, conflicts over water (international & inter-state)

Energy resources: renewable and nonrenewable energy sources, use of alternate energy sources, growing energy needs, case studies.

SECTION-B

ENVIRONMENTAL POLLUTION

Environmental Pollution: types, causes, effects and controls; Air, water, soil, chemical and noise pollution, Nuclear hazards and human health risks, Solid waste management: Control measures of urban and industrial waste, Pollution case studies.

ENVIRONMENTAL POLICIES AND PRACTICES

Climate change, global warming, ozone layer depletion, acid rain and impacts on human communities and agriculture.

Environment Laws : Environment Protection Act; Air (Prevention & Control of Pollution) Act; Water (Prevention and control of Pollution) Act; Wildlife Protection Act; Forest Conservation Act; International agreements; Montreal and Kyoto protocols and conservation on Biological Diversity (CBD). The Chemical Weapons Convention(CWC), Nature reserves, tribal population and rights, and human, wildlife conflicts in Indian context.

Human Communities and the Environment: Human population growth: Impacts on environment, human health and welfare, Sanitation & Hygiene. Resettlement and rehabilitation of project affected persons; case studies. Disaster management: floods, earthquake, cyclones and landslides. Environment movements: Chipko, Silent valley, Bishnois of Rajasthan. Environmental ethics: Role of Indian and other religions and cultures in environmental conservation for a Clean-green pollution free state.

Environmental communication and public awareness, case studies (e.g., CNG vehicles in Delhi)

Suggested Readings:

1. Carson, R. *2002. Silent Spring.* Houghton MifflinHarcourt.
2. Gadgil, M., &Guha, R.1993. This *Fissured Land:* An Ecological History of India. Univ. of CaliforniaPress.
3. Gleeson,B. and Low, N. (eds.) 1999. Global Ethics and Environment, London, Routledge.
4. Gleick, P.H. 1993. Water in *Crisis*. Pacific Institute for Studies in Dev., Environment & Security. Stockholm Env. Institute, Oxford Univ.Press.
5. Groom, MarthaJ. Gary K. Meffe, andCarl Ronald carroll. *Principles of ConservationBiology.* Sunderland:SinauerAssociates,2006.

6. Grumbine, R. Edward, and Pandit, M.K. 2013. Threats from India's Himalaya dams. Science, 339:36-37.
7. McCully, P.1996. *Rivers no more: the environmental effects of dams*(pp. 29-64). ZedBooks.
8. McNeil, John R. 2000. Something New Under the Sun: An Environmental History of the TwentiethCentury.
9. Odum,E.P.,Odum,h.T.&Andrews,J.1971.*FundamentalsofEcology.* Philadelphia: Saunders.
10. Pepper, I.L., Gerba, C.P. &Brusseau, M.L. 2011. Environmental and Pollution Science. AcademicPress.
11. Rao, M.N. &Datta, A.K. 1987. *Waste Water Treatement.* Oxford and IBH Publishing Co. Pvt.Ltd.
12. Raven, P.H., Hassenzahl, D.M. & Berg, L.R. 2012.*Environment.* 8th edition. John Wiley &Sons.
13. Rosencranz, A., Divan, S., & Noble, M.L. 2001. *Environmental law and policy in India.* Tripathi1992.
14. Sengupta, R. 2003.*Ecology and economics:* An approach to sustainable development.OUP.
15. Singh, J.S., Singh, S.P. and Gupta, S.R. 2014. *Ecology, Environmental Science and Conservation.* S. Chand Publishing, NewDelhi.
16. Sodhi, N.S., Gibson, L. & Raven, P.H. (eds). 2013. *Conservation Biology: Voices from the Tropics.* John Wiley &Sons.
17. Thapar, V. 1998. *Land of the Tiger: A Natural History of the Indian Subcontinent.*
18. Warren, C.E. 1971.*Biology and Water Pollution Control.* WBSaunders.
19. Wilson, E.O. 2006. *The Creation: An appeal to save life on earth.* New York: Norton.
20. World Commission on environment and Development. 1987. *Our Common Future.* Oxford University Press.
21. www.nacwc.nic.in
22. www.opcw.org

Note:

1. **The committee recommends to continue the syllabus of Punjabi University, Patiala for B.Voc(SD)-III^rd Year.**
2. **Credits are exceeded due to Credits given to Course work of Punjabi Compulsory as per Punjab State Policy.**

Members of Board of Studies

1. **Mr. Surender Kumar**
2. **Dr. Dharamveer Sharma**
3. **Dr. Major Singh Gorya**
4. **Dr. Navdeep Singh**
5. **Mr. Sandeep Sharma**
6. **Mr. Rakesh Kumar**
7. **Mrs. Tajinder Kaur**
8. **Mrs. Paramjit Kaur**
9. **Mrs. Amandeep Kaur**

(P.G. DEPARTMENT OF COMPUTER SCIENCE)

OUTLINES OF TESTS,
SYLLABI AND COURSES OF READING

FOR

BACHELOR OF VOCATION SOFTWARE DEVELOPMENT

(SEMESTER SYSTEM)

SECOND YEAR (Semester III & IV)

(2020-21, 2021-22 and 2022-23 Sessions)

FACULTY OF COMPUTING SCIENCES

SRI GURU TEG BAHADUR KHALSA COLLEGE

Sri Anandpur Sahib
An Autonomous College
Affiliated to Punjabi University, Patiala

PROGRAMME OF STUDY

BACHELOR OF VOCATION SOFTWARE DEVELOPMENT

PART II (SEMESTER III)

Sessions: 2020-2021, 2021-2022 and 2022-23

Code	Title of Paper	Credits	University Examination	Internal Assessment	Max. Marks	Exam. Duration Hours
BVSD-211	Programming using Java	4.5	70	30	100	3
BVSD-212	Fundamentals of DBMS	4.5	70	30	100	3
BVSD-213	Operating System	4.5	70	30	100	3
BVSD-214	Management Information System	4.5	70	30	100	3
BVSD-215	Software Lab – IV(Based on BVSD-211)	4	70	30	100	3
BVSD-216	Software Lab – V(Based on BVSD-212)	4	70	30	100	3
BVSD-217	Workshop On Adobe Photoshop	4		50	50	3
Total		**30**	**420**	**230**	**650**	

1. **The breakup of marks for the practical will be as under:**

i.	Internal Assessment	30 Marks
ii.	Viva Voce (External Evaluation)	40 Marks
iii.	Practical Performance & write up (External Evaluation)	30 Marks

2. **The breakup of marks for the internal assessment for theory Subjects will be as under:**

Mid semester test – I	10 Marks
Mid semester test – II	10 Marks
Attendance	5 Marks
Assignment	5 Marks

PART II (SEMESTER IV)

Sessions: 2020-2021, 2021-2022 and 2022-23

Code	Title of Paper	Credits	University Examination	Internal Assessment	Max. Marks	Exam. Duration Hours
BVSD-221	Web Development using PHP And MYSQL	4.5	70	30	100	3
BVSD-222	Content Management System	4.5	70	30	100	3
BVSD-223	Computer Networks	4.5	70	30	100	3
BVSD-224	Relational Database Management System	4.5	70	30	100	3
BVSD-225	Software Lab – VI(Based on BVSD-221 & BVSD-222)	4	70	30	100	3
BVSD-226	Software Lab – VII(Based on BVSD-224)	4	70	30	100	3
BVSD-227	Project-I(In house Industrial Training)	4	50	50	100	3
Total		**30**	**470**	**230**	**700**	

1. **The breakup of marks for the practical will be as under:**

i.	Internal Assessment	30 Marks
ii.	Viva Voce (External Evaluation)	40 Marks
iii.	Practical Performance & write up (External Evaluation)	30 Marks

2. **The breakup of marks for the internal assessment for theory Subjects will be as under:**

Mid semester test – I	10 Marks
Mid semester test – II	10 Marks
Attendance	5 Marks
Assignment	5 Marks

BVSD-211 PROGRAMMING USING JAVA

Time allowed: 3 hours **Max Marks: 100**
Number of Lectures: 60 **External Marks : 70 marks**
Pass Marks: 35% **Internal Assessment: 30 marks**
(CREDITS: 4.5)

Instructions for the paper setter

The question paper will consist of ***three sections A, B and C.*** Section A and B will have four questions from the respective section of the syllabus carrying 10.5 marks for each question. Section C will consist of 5-10 short answer type questions carrying a total of 28 marks , which will cover the entire syllabus uniformly. Candidates are required to ***attempt five questions in all by selecting at least two questions each from the section A and B. Section C is compulsory.***

Instructions for the candidates

Candidates are required to attempt five questions in all by selecting at least two questions each from the section A and B. Section C is compulsory.

SECTION A

Introduction: Features of Java, Java Development Kit, Java Virtual Machine, tokens, keywords, constants, variables, data types.

Operators and Expressions: arithmetic, relational, logical, assignment, increment, decrement, conditional and bitwise.

Control statements: if else, switch case, for, while, do while, break, continue.

Class: Concepts of Classes and Objects, Constructors, Constructor Overloading, destructor.

Inheritance: Types of Inheritance, Use of Super keyword, Method Overriding, Function Overloading, abstract class, wrapper classes.

Interfaces and Packages: Interfaces and implementing multiple inheritance through interfaces, Packages.

Multithreaded Programming: Creating Threads, Life cycle of thread, Thread priority, Thread synchronization, Inter-thread communication.

SECTION B

Exception Handling: Types of errors, Exception classes, Exception handling in java, use of try, catch, finally, throw and throws.

Event Handling: Event Classes, Event Sources, Event Listener Interfaces, Adapter Classes.

Swing: Features, Swing Packages, Components and containers, Working with Swings, User Interface **Components:** JApplet, Label, Button, CheckBox, TextField, TextArea, adioButton, Panel, ScrollPane, List. Types of Layouts : FlowLayout, BorderLayout, GridLayout, CardLayout, Gridbag Layout. Using Dailogs, JOptionPane.

JDBC: JDBC Fundamentals, Establishing Connectivity and working with connection interface.

Reference Books:

1. Patrick Naughton and Herbert Schildt, The Complete Reference Java 2, Tata McGraw Hill.
2. Gilbert, Stephan D. and William B. Hccarthy, Object Oriented Programming in Java , The Waite Group Press.
3. Mary Campione and Kathy Walrath, The Java Tutorial, Addison – Wesley.
4. Cay S. Horstmann, and Gary Cornell, Core Java 2 : Fundamentals Vol. 1, Pearson Education.
5. Balagurusamy, Programming with Java : A Primer, Tata McGraw Hill.
6. Jeffry A. Borror, Object Oriented Programming with Java-An Ultimate Tutorial, Dream Tech Press.

BVSD-212 FUNDAMENTALS OF DBMS

Time allowed: 3 hours	**Max Marks: 100**
Number of Lectures: 60	**External Marks : 70 marks**
Pass Marks: 35%	**Internal Assessment: 30 marks**
(CREDITS: 4.5)	

Instructions for the paper setter

The question paper will consist of ***three sections A, B and C.*** Section A and B will have four questions from the respective section of the syllabus carrying 10.5 marks for each question. Section C will consist of 5-10 short answer type qestions carrying a total of 28 marks , which will cover the entire syllabus uniformly. Candidates are required to ***attempt five questions in all by selecting at least two questions each from the section A and B. Section C is compulsory.***

Instructions for the candidates

Candidates are required to attempt five questions in all by selecting at least two questions each from the section A and B. Section C is compulsory.

SECTION A

Introduction to DBMS: Definition of Database, Components of DBMS Environment, Database Schema and Instance. Three Level architecture of DBMS, Mapping between different levels, Data Independence.

Keys : Super, candidate, primary, unique, foreign, composite, alternate

E-R model: Definition, Entity and Relationship, cardinality of a relationship, E-R Diagram Notations, Modeling using E-R Diagrams, Aggregation, Generalization, Specialization, Transforming E-R Model into Physical database Design, merits and demerits of E-R Modeling.

Record Based Logical Models: Hierarchical Model - Operations, Implementation, Advantages and Disadvantages. Network Model - Operations, Implementation, Advantages and Disadvantages, Relational Model - Operations, Implementation, Advantages and Disadvantages. Comparison between Hierarchical, Network and Relational Model

SECTION B

Normalization: Definition, Need, Process: Determinant, Functional Dependency, Full Functional Dependency, Partial Dependency, Transitive dependency, Multivalued Dependency, Join Dependency, Types of Normal Forms, Merits and Demerits of Normalization.

Database languages: DDL, DML, DCL.

Transaction & Concurrency Control: Concept of transaction, ACID properties, Serializibility, States of transaction, Concurrency Control – Locking techniques, time-stamp based protocols.

Database Security: Security requirements, database integrity, Granting & revoking privileges.

Working with SQL: Implementing DDL, DML, DCL statements and integrity constraints in Oracle

Reference Books:

1. JD Ullman, Garcia Molina, Database System: The Complete Book, Pearson Education.
2. Ramez Elmasri, Fundamentals of Database Systems, Pearson Education.
3. C.J Date, An Introduction to Database System, Pearson Education.
4. Parteek Bhatia, Database Management System.
5. Henry F. Korth, Database System Concepts, Tata McGraw-Hill.

BVSD-213 Operating System

Time allowed: 3 hours **Max Marks: 100**
Number of Lectures: 60 **External Marks : 70 marks**
Pass Marks: 35% **Internal Assessment: 30 marks**
(CREDITS: 4.5)

Instructions for the paper setter

The question paper will consist of ***three sections A, B and C.*** Section A and B will have four questions from the respective section of the syllabus carrying 10.5 marks for each question. Section C will consist of 5-10 short answer type questions carrying a total of 28 marks , which will cover the entire syllabus uniformly. Candidates are required to ***attempt five questions in all by selecting at least two questions each from the section A and B. Section C is compulsory.***

Instructions for the candidates

Candidates are required to attempt five questions in all by selecting at least two questions each from the section A and B. Section C is compulsory.

SECTION-A

Operating System – Definition, Need, Services, Types of operating systems: simple batch system, multi programmed batch system, time sharing system, parallel system, multitasking system, distributed system, real time system. Operating system components, system calls.
Process Management – process definition, process state, process scheduling, operations on processes, Basic concepts of thread, Difference between process and thread.
CPU Scheduling – Basic concepts, scheduling criteria, scheduling algorithms – FCFS, SJF, Round Robin, Multilevel queue scheduling and Multilevel feedback queue scheduling.

SECTION-B

Deadlocks – Characteristics of deadlocks, methods for handling deadlocks, deadlock prevention, deadlock avoidance
Memory Management – Logical versus Physical address space, swapping, contiguous allocation, Paging, Concept of Virtual memory, Implementation by Demand Paging, Page replacement algorithms – FIFO, Optimal, LRU, Concept of thrashing .
File Management – Allocation methods: contiguous allocation, linked allocation and indexed allocation;
Device Management – Disk Scheduling: FCFS, SSTF, SCAN, C-SCAN, LOOK, C-LOOK.

Text Book:

1. Abraham Silberschatz, Peter B. Galvin, Operating Sytem Concepts, Addison –Wesley Publishing Co. Engineering, Third Edition 2005 ,PankajJalote, Narosa Publications. 5th Edition

BVSD-214 MANAGEMENT INFORMATION SYSTEM

Time allowed: 3 hours	**Max Marks: 100**
Number of Lectures: 60	**External Marks : 70 marks**
Pass Marks: 35%	**Internal Assessment: 30 marks**
(Credits: 4.5)	

Instructions for the paper setter

The question paper will consist of ***three sections A, B and C.*** Section A and B will have four questions from the respective section of the syllabus carrying 10.5 marks for each question. Section C will consist of 5-10 short answer type questions carrying a total of 28 marks , which will cover the entire syllabus uniformly. Candidates are required to ***attempt five questions in all by selecting at least two questions each from the section A and B. Section C is compulsory.***

Instructions for the candidates

Candidates are required to attempt five questions in all by selecting at least two questions each from the section A and B. Section C is compulsory.

SECTION-A

Management Information system: Meaning and definition, Role of information system, Nature and scope of MIS.

Information and system concepts: Definition and types of information, Information quality, dimensions of information, value of information, general model of human as an information processor. System related concepts, elements of a system, and types of system.

Role and importance of Management: Introduction, levels and functions of management. Structure and classification of MIS, Components of MIS, Framework for understanding MIS: Robert Anthony's hierarchy of management activity, Information requirements.

SECTION-B

Decision making concept, types of decisions, methods of choosing among alternatives, Role of MIS in decision making. Simon's model of decision making, Structured and unstructured decisions.

Development of MIS: Stages in the development of MIS, System development approaches: Waterfall model, Prototyping, Iterative enhancement model, Spiral model. Applications of information systems in Functional areas: Marketing MIS, Financial MIS, Production MIS, Personnel MIS.

Decision Support Systems: Definition and characteristics, MIS versus DSS, Tools and Models for decision support.

Text Book:

1. D.P. Goyal, Management Information Systems: Managerial Perspectives, Macmillan India Ltd.

Reference Books:

1. Robert G. Murdick, Joel E. Ross, James R. Claggett, Information Systems for Modern Management, Prentice Hall of India Pvt. Ltd.
2. Gordon B. Davis, M.H. Olson, Management Information Systems: Conceptual Foundations, Structure & Development, McGraw-Hill Book Co.
3. W.S. Jawadekar, Management Information Systems, Tata McGraw-Hill Publishing Co.

BVSD – 215 SOFTWARE LAB – IV (Based on BVSD- 211)

Time allowed: 3 hours	**Max Marks: 100**
Number of Lectures: 30	**External Marks : 70 marks**
Pass Marks: 35%	**Internal Assessment: 30 marks**
Credits: 4	

This laboratory course will comprise as exercises to supplement what is learnt under paper BVSD-211: Programming Using Java. Students are required to develop the following programs with internal documentation:

1. WAP to demonstrate the concept of class.
2. WAP that illustrates the use of constructor.
3. WAP for constructor overloading.
4. WAP for single inheritance using super keyword.
5. WAP for multilevel inheritance.
6. WAP to demonstrate method overriding.
7. WAP that implements multiple inheritance through interface.
8. WAP to demonstrate importing multiple packages.
9. WAP to demonstrate creating threads by extending Thread class.
10. WAP to demonstrate creating threads by implementing Runnable interface.
11. WAP that illustrates the use of exception handling.
12. WAP to implement Flow Layout.
13. WAP to implement Grid Layout.

Activity

Write code for event handling, database connectivity and report generation.

BVSD – 216 SOFTWARE LAB – V (Based on BVSD- 212)

Time allowed: 3 hours	**Max Marks: 100**
Number of Lectures: 60	**External Marks : 70 marks**
Pass Marks: 35%	**Internal Assessment: 30 marks**
Credits: 4	

This laboratory course will comprise as exercises to supplement what is learnt under paper BVSD-212: Fundamentals of DBMS.

Students are required to practices writing SQL statements for

1. Creating a table
2. Specifying relational data types.
3. Specifying constraints (Primary, Foreign and Not Null).
4. DML statements.
5. TCL statements.
6. Creating a table from existing table.
7. DROP, ALTER and RENAME statement.
8. The SELECT statement using the WHERE clause.
9. The SELECT statement using logical Operators in the WHERE clause.
10. The SELECT statement using IN, BETWEEN, LIKE, ORDER BY clause and GROUP BY clause.

BVSD - 217 WORKSHOP ON ADOBE PHOTOSHOP

Time allowed: 3 hours	**Max Marks: 50**
Number of Lectures: 30	**Internal Assessment: 50 marks**
Pass Marks: 35%	
Credits: 4	

Introduction to Photoshop: Basics of Adobe Photoshop. Understanding pixels & resolution. Exploring menus, panels and toolbox. Creating new image files and opening existing files in Photoshop. Understanding and handling different image file formats, changing the resolution, color, greyscales and size of the images. Zooming & panning an image. Working with multiple images, rulers, guides & grids. Creating multicolor images and using brushes, adjusting color using the panel. Cropping, rotating, overlapping and superimposing photos on a page. Undoing Steps with History

Working with selections, layers and channels: Understanding selection tools, refining the selection and edges. Understanding layers, creating, selecting, editing, locking and grouping layers. Layer styles, consolidating layers. Manipulating layer mask. Understanding color channels, working with channels panel.

Working with filters: Basics of Filters, constructive filters, blur filters, destructive filters, effects filters, render filters, liquify filter and other filters required for artistic effects.

Creating images for the web: understanding web image formats, preparing and slicing images for the web use. Adding transparency to the web, previewing images in a browser.

References:

1. Adobe Photoshop CS6, Bible the comprehensive, tutorial resource – Lisa Danae Dayley, Brad Dayley - Wiley India
2. Photoshop 7 Savvy – Steve Romaniello – BPB Publications.

SEMESTER - IV

BVSD-221 Web Development Using PHP and MYSQL

Time allowed: 3 hours **Max Marks: 100**
Number of Lectures: 60 **External Marks : 70 marks**
Pass Marks: 35% **Internal Assessment: 30 marks**
(Credits: 4.5)

Instructions for the paper setter

The question paper will consist of ***three sections A, B and C.*** Section A and B will have four questions from the respective section of the syllabus carrying 10.5 marks for each question. Section C will consist of 5-10 short answer type questions carrying a total of 28 marks , which will cover the entire syllabus uniformly. Candidates are required to ***attempt five questions in all by selecting at least two questions each from the section A and B. Section C is compulsory.***

Instructions for the candidates

Candidates are required to attempt five questions in all by selecting at least two questions each from the section A and B. Section C is compulsory.

SECTION A

PHP: A Brief History of PHP, Introduction to PHP, Client Server Environment, Install & Configure Server on windows. Syntax of php, Scope of Variables: Global and Local Variables, Super Global Variables, Data types, Operators- Arithmetic, Logical, Relational and Bit-Wise operators. Control Statements.

Functions: Defining a Function, Calling Functions, Built -in Functions.

Array: Numeric Array, Associative array, Multidimensional Arrays.

String: Quoting String Constants, Printing Strings, Accessing Individual Characters, Cleaning Strings, Encoding and Escaping, Comparing Strings, Manipulating and Searching Strings.

SECTION B

Scripting Languages: Server side Scripting, Client Side Scripting, HTML Form Fields (Controls), PHP Form Handling, Form Validations.

Class Object: Declaring a Class, Creating an Object, Accessing Properties and Methods.

File Handling: Opening File, Reading File, Writing File, Closing File, Appending File.

Connecting to MYSQL from PHP: Database Connection, Execute Queries.

Introduction to MySql: Data Types, Sql Queries: Creating Database, Creating Table, Dropping Database, Inserting, Updating, Deleting Data, Altering table, Dropping Table.

Reference Books:

1. Robin Nixon, Learning PHP, MySQL, and JavaScript, Shroff/O'Reilly.
2. Raj Kamal, Internet and Web Technologies, Tata McGraw-Hill.
3. Matt Zandstra, Sams Teach Yourself PHP in 24 Hours, Sams Publishing.
4. Steven M. Schafer, HTML, CSS, JavaScript, Perl, Python and PHP, Wiley India

BVSD -222 Content Management System

Time allowed: 3 hours	**Max Marks: 100**
Number of Lectures: 60	**External Marks : 70 marks**
Pass Marks: 35%	**Internal Assessment: 30 marks**
(CREDITS: 4.5)	

Instructions for the paper setter

The question paper will consist of ***three sections A, B and C.*** Section A and B will have four questions from the respective section of the syllabus carrying 10.5 marks for each question. Section C will consist of 5-10 short answer type questions carrying a total of 28 marks , which will cover the entire syllabus uniformly. Candidates are required to ***attempt five questions in all by selecting at least two questions each from the section A and B. Section C is compulsory.***

Instructions for the candidates

Candidates are required to attempt five questions in all by selecting at least two questions each from the section A and B. Section C is compulsory.

SECTION A

Introduction: Open Source vs Closed Source , Examples of OSS. What is Joomla? Features of Joomla Understanding WAMP Installing & Configuring Joomla:Installing WampServer ,Creating a Website Folder , Copy the Joomla Files ,Configuring the Joomla Web Installer Understanding The Frontend and Backend of Joomla, Login as a Super User,The Joomla Control Panel Creating Content: Creating Categories , Creating Categorized or Uncategorized Articles , Inserting Images/Graphics Into Articles , Inserting the Read More Option into Articles , Filtering & Sorting Articles, Featuring Articles on the Home Page ,Viewing Your Website , Setting the Options for Articles

SECTION B

Adding Menu Items: Adding a Single Article Menu Item, Adding a List All Categories Menu Item , Changing the Layout From Blog Layout , Adding a Category List Menu Item ,Changing the Menu Order, Joomla Extension Types: What is a Component? What is a Module? What is a Plugin? What is a Template? What is Language? Adding Modules:Enabling Module Position Viewing, Viewing the Module Positions, Changing Module Positions ,Logging in From the Frontend to Edit Content , Adding the Search Module, Creating an HTML Module Joomla Templates: Viewing Joomla Templates, Types of Templates, Default Joomla Templates, Changing the Default Template for a Website, Previewing a Joomla Template, Installing a Template, Changing the Logo/Header, Installing a Photo Gallery Component Creating Folders for the Photos Uploading the Photos, Adding a Gallery Menu Item About Akeeba Backup Installing, Akeeba Backup Configuring Akeeba Backup Creating a Backup, Copy of Your Website, Downloading Your Backup Archives

Reference Books:

1. Jennifer Marriott and Elin Waring, The Official Joomla! Book Addison-Wesley Professional.
2. Ric Shreves, Joomla! Bible, Wiley.

BVSD-223 COMPUTER NETWORKS

Time allowed: 3 hours	**Max Marks: 100**
Number of Lectures: 60	**External Marks : 70 marks**
Pass Marks: 35%	**Internal Assessment: 30 marks**
(CREDITS: 4.5)	

Instructions for the paper setter

The question paper will consist of ***three sections A, B and C.*** Section A and B will have four questions from the respective section of the syllabus carrying 10.5 marks for each question. Section C will consist of 5-10 short answer type questions carrying a total of 28 marks , which will cover the entire syllabus uniformly. Candidates are required to ***attempt five questions in all by selecting at least two questions each from the section A and B. Section C is compulsory.***

Instructions for the candidates

Candidates are required to attempt five questions in all by selecting at least two questions each from the section A and B. Section C is compulsory.

SECTION A

Computer Networks: Uses of Computer Network, Structure of Computer Network: Point-to-point structure, Broadcast structure. Classification of networks-LAN, MAN and WAN, Line Configuration: Topologies, full Duplex, and Half Duplex. **Reference models:** OSI model, Layers of OSI Model, TCP/IP model, Comparison of TCP/IP and OSI models **Medium Access Sub layer:** Static and dynamic channel allocation, Multiple access protocols-ALOHA, CSMA,CSMA/CD, Collision Free protocol, **Internet protocols:** How networks differ, internetworking devices, concatenated virtual circuits, connectionless inter-networking.

SECTION B

Data Link Layer: Design issues, Services to network layer, Framing, Error control, Flow control, Elementary data link protocols-unrestricted simplex protocol, simplex stop and wait protocol, simplex protocol for a noisy channel. **Network layer:** Design issues, Services to the transport layer, Routing algorithms-Static/ non-adaptive and dynamic/adaptive algorithms. Congestion control algorithms –the leaky bucket algorithm, the token bucket algorithm. **Transport layer:** design issues, connection management-addressing, establishing and releasing connection, transport layer protocols-TCP, UDP. **Application layer:** The DNS Name Space, Electronic Mail, The World Wide Web, **Network security:** Introduction to cryptography, substitution cipers, transposition cipers, one-time pads, two fundamental cryptographic principles, public-key algorithms (RSA), digital signatures, message digests.

TextBook:

1.Andrew S. Tanenbaum, “Computer Networks”, Third Edition, PHI Publications.

References:

1.Data & Computer Communications by William Stallings, Pearson Education.
2.D.E. Corner, “Computer Networks and Internets’, Second Edition, Addison-Wesley Publication
3.Computer Networks by Forouzan, Tata McGrawhill Publications.

BVSD-224 Relational Database Management System

Time allowed: 3 hours	**Max Marks: 100**
Number of Lectures: 60	**External Marks : 70 marks**
Pass Marks: 35%	**Internal Assessment: 30 marks**
(CREDITS: 4.5)	

Instructions for the paper setter

The question paper will consist of ***three sections A, B and C.*** Section A and B will have four questions from the respective section of the syllabus carrying 10.5 marks for each question. Section C will consist of 5-10 short answer type questions carrying a total of 28 marks , which will cover the entire syllabus uniformly. Candidates are required to ***attempt five questions in all by selecting at least two questions each from the section A and B. Section C is compulsory.***

Instructions for the candidates

Candidates are required to attempt five questions in all by selecting at least two questions each from the section A and B. Section C is compulsory.

SECTION-A

Introduction to RDBMS Product and their Features, Difference between DBMS and RDBMS, Relationship among application programs, RDBMS, Basic File Operations: Opening Files, Closing Files, Reading and Writing, Seeking

File Organization: Field and Record structure in file, Record Types, Types of file organization, Sequential, Indexed, and Hashed.

Transaction Management: Transaction Concept, Properties, Transaction States, Concurrent Execution, Serializability, Conflict Serializability, View Serializability, Recoverability, Recoverable Schedule, Cascadless Schedule

Concurrency Control: Lock Based Protocol, Locks, Granting of Locks, Two Phase Locking Protocol, Timestamp Based Protocol, Timestamp, Timestamp ordering protocol, Thomas's Write Rule, Validation Based Protocol, Deadlock Handling, Deadlock Prevention, Deadlock Detection, Deadlock Recovery

SECTION-B

Recovery System: Failure Classification, Transaction Failure, System Crash, Disk Failure, Storage Structures, Storage Types, Data Access, Recovery & Atomicity, Log based Recovery, Deferred Database Modification, Immediate Database Modification, Checkpoints, Recovery with Concurrent Transaction, Transaction Rollback, Restart Recovery, Remote Backup System

Relational Query Language: DDL, DML, DCL.

Introduction to Oracle: Oracle as client/server architecture, getting started, creating, modifying, dropping databases. Inserting, updating, deleting data from databases, SELECT statement, Data constraints (Null values, Default values, primary, unique and foreign key concepts)

Computing expressions, renaming columns, logical operators, range searching, pattern matching, Oracle functions, grouping data from tables in SQL, manipulating dates.

Working with SQL: triggers, use of data base triggers, database triggers Vs. SQL*forms, types of triggers, how to apply database triggers, BEFORE vs. AFTER triggers, combinations, syntax for creating and dropping triggers.

Text Book :

1. B.P. Desai, “Database management system” BPB publications, New Delhi.

Reference Books:

1. C.J. Date, "An Introduction to Data Base Systems”, Narosa Publishers
2. Jeffrey D. Ullman, "Principles of Database Systems", Galgotia Pub.
3. D. Kroenke., "Database Processing", Galgotia Publications.
4. Henry F. Korth, “Database System Concepts”, McGraw Hill. Inc.
5. Naveen Prakash, “Introduction to Database Management”, TMH

BVSD -225 SOFTWARE LAB – VI(Based on BVSD-221 & BVSD-222)

Time allowed: 3 hours	**Max Marks: 100**
Number of Lectures: 30	**External Marks : 70 marks**
Pass Marks: 35%	**Internal Assessment: 30 marks**
Credits: 4	

This laboratory course will comprise as exercises to supplement what is learnt under paper BVSD-221: Web Development using PHP and MYSQL and BVSD-222: Content Management System. Students are required to do followings:

Lab Assignments - Installing and Configuring PHP on Windows, Installing web site on web server-Apache, WAMP. HTML tag based, Advanced HTML based, Database, Simple PHP, Advanced PHP, HTML-DBMS-PHP, Dynamic Web Pages/Sites.
Creation of Web pages using HTML, DHTML.
Creation of Web pages using JavaScript.
Creating web pages using PHP.

Programs:

1. Write a program to print any text in PHP.
2. Write a program to print the data types of PHP i.e. using String, Integer, Floating point numbers, Boolean, Array, Object, NULL.
3. Write a program of arithmetic operators.
4. Write any program of using conditional Statements.
5. Write a program to implement switch case in PHP.
6. Write a program to add two numbers using functions.
7. Write a program to implement while loop .
8. Print different values using for each loop.
9. Create a Date From a String With PHP strtotime() function
10. Write a program to open, read and close file in PHP.
11. Write a function to connect and create database using PHP.
12. Write a program to implement mail function.
13. Write a program to implement WHERE clause in php MySQL?
14. Write a program to implement file upload using PHP.
15. Write a program to start, store and delete session variable.

Reference Books:

1. WAMP Tools, LAMP Tools,
2. Apache Web Server, PHP compiler

BVSD -226 SOFTWARE LAB – VII (Based on BVSD-224)

Time allowed: 3 hours	**Max Marks: 100**
Number of Lectures: 60	**External Marks : 70 marks**
Pass Marks: 35%	**Internal Assessment: 30 marks**
Credits: 4	

This laboratory course will comprise as exercises to supplement what is learnt under paper BVSD-224: Relational Database Management System.

Students are required to practices writing SQL statements for

1. Creating the Table
2. Querying the record using order by clause
3. Querying the record using group by clause
4. Querying the record using multiple conditions
5. Create Synonyms
6. Create Sequences
7. Create Views
8. Create Indexes
9. Create triggers
10. Create cursors for procedures

BVSD -227 PROJECT -I(IN HOUSE INDUSTRIAL TRAINING)

Max Marks: 100 **Maximum Time: 3 Hrs.**
External Marks : 50 marks **Internal Assessment: 50 marks**
Min Pass Marks: 35%
Credits: 4

In This course student will have to do Industrial training on live project for 3 Months. The Industry should be ISO certified. In Last Student have to Submit Project Report of their training to the supervisor.

a.	Project Report	25 Marks
b.	Viva Voce	25 Marks

Note:

1. The committee also recommends to continue the syllabus of Punjabi University, Patiala for BVoc(SD)-IIIrd Year.

Members of Board of Studies

1. Mr. Surender Kumar **2. Dr. Dharamveer Sharma** **3. Dr. Major Singh Gorya**

4. Dr. Navdeep Singh **5. Mr. Sandeep Sharma** **6. Mr. Rakesh Kumar**

7. Mrs. Tajinder Kaur **8. Mrs. Paramjit Kaur** **9. Mrs. Amandeep Kaur**

(B. A (COMPUTER APPLICATION))
SYLLABUS
FOR
COURSE: B.A. (COMPUTER APPLICATION)
PART-I
(SEMESTER: I &II)
SESSION: 2020–2021
FACULTY OF SCIENCE
P.G. DEPARTMENT OF COMPUTER SCIENCE

SRI GURU TEG BAHADUR KHALSA COLLEGE

Sri Anandpur Sahib
An Autonomous College
Affiliated to Punjabi University, Patiala

B.A. Part-I(COMPUTER APPLICATION)
(Semester I)
BA(COM)-108

Credits: 4
External Marks: 45 **Maximum Time: 3 Hrs.**
Minimum Pass Marks: 35% **Lectures to be delivered: 45-55**
Internal Assessment: 25

A) Instructions for paper-setter

The question paper will consist of three sections A, B & C. Sections A &B will have four questions from the respective sections of the syllabus and will carry 40% marks each. Section C will have 6-12 short answer type questions which will cover the entire syllabus uniformly and will carry 20% marks in all.

B) Instructions for candidates

1. Candidates are required to attempt two questions each from sections A & Bof the question paper and the entire section C.

SECTION A

Computer Fundamentals: Block diagram of a computer, characteristics of computers and generations of computers. Categories of Computers - Supercomputer, mainframe computer, network server, Workstation, Desktop computers, notebook computer, Tablet PC, handheld PC, smart phone.

Input Devices: Keyboard, Mouse, Joy tick, Track Ball, Touch Screen, Light Pen, Digitizer, Scanners, Speech Recognition Devices, Optical Recognition devices – OMR, OBR, OCR

Output Devices: Monitors, Impact Printers - Dot matrix, Character and Line printer, Non Impact Printers – DeskJet and Laser printers, Plotter.

Memories: Memory Hierarchy, Primary Memory – RAM, ROM, Cache memory. Secondary Storage Devices - Hard Disk, Compact Disk, DVD, Flash memory.

Software: Types of Software- System Software, Application Software, Firmware. Type of System Software: Operating Systems, Language Translators, Utility Programs, Communications Software. **Commonly Used Application Software**: Word Processor, Spreadsheet, Database, Education, Entertainment Software.

Computer Languages: Machine language, assembly language, high level language, 4GL.

SECTION B

Number System: Non-positional and positional number systems, Base conversion, Concept of Bit and Byte, binary, decimal, hexadecimal, and octal systems, conversion from one system to the other. Binary Arithmetic: Addition, subtraction and multiplication, 1’s complement, 2’s complement, subtraction using 1’s complement and 2’s complement.

Computer Codes: weighted and non-weighted code, BCD, EBCDIC, ASCII, Unicode.

Computer Network: Network types, network topologies.

Internet Related Concepts: Internet, World Wide Web, Hypertext, Uniform Resource Locator, Web Browsers, IP Address, Domain Name, Internet Services Providers, Internet

Security, Web Search Engine, Net Surfing, web portal, Wiki, Blog.

Advanced Trends in IT : Mobile Internet, GPS, 3G, 4G, Wi-Fi, Bluetooth, Cloud Technology, Virtual LAN Technology, Firewall, E-Commerce, M-Commerce, Nanotechnology, Virtual Reality, BPO and KPO, Online shopping, Social Media - YouTube, FaceBook, Linkedin, Twitter, Google+.

Applications of IT: IT in Business and Industry, IT in Education & training, IT in Science and Technology, IT and Entertainment, Current Trends in IT Application - AI, Virtual Reports, voice recognition, Robots, Multimedia Technology.

Reference Books:

1. Peter Nortorn, Introduction to Computers, Seventh Edition
2. V. Rajaraman, Fundamentals of Computers, PHI.
3. Larry E. Long and Nancy Long, Computers: Information Technology in Perspective, PHI.
4. N. Subramanian, Introduction to Computers, Tata McGraw-Hill.
5. D.H. Sanders, Computers Today, McGraw- Hill.

PAPER BA(COM)-108 P
PRACTICAL BASED ON PAPER BA(COM)-108

Credits: 2
Maximum Marks: 30 **Maximum Time: 3 Hrs.**
Minimum Pass Marks: 35% **Practical Units to be conducted:45-55Hrs**

The laboratory course will comprise of Activities related to Windows and exercise to what is learnt under Paper BA(COM)-108 such as:

Windows

Activity 1: Windows (latest version)Installation and Software & Drivers installation.
Activity 2: Basic components of Window-Desktop, Icons, Taskbar, Status Bar, Wallpapers, Screen Saver
Activity 3: Start Menu: Accessories- Notepad, Calculator, Clock, Date and Time, Disk Defragmentation, Working with Control Panel.
Activity 4: Taskbar properties - Maximize Minimize, Restore, and Close.
Activity 5: Creating Files, Folders, Shortcuts, Moving folders (right click options)

Internet

Activity 1: Connecting through Wi-fi, Blue tooth and Hot Spot.
Activity 2: Web Surfing, searching contents through Search Engines.
Activity 3: Creating and maintaining Web Blogs and Web portals

Social Media

Activity 1: Creating account, linking accounts, setting profiles and preferences.
Activity 2: Posting messages, replying, forwarding, tagging contents.
Activity 3: Online shopping, comparing prices etc.
Activity 4: Creating and maintaining social profiles at Linkedin, FaceBook, Twitter etc.

The breakup of marks for the practical will be as under:

Lab Record	:	05 Marks
Viva Voce	:	10 Marks
Program Development And Execution	:	15 Marks

B.A. Part-I(COMPUTER APPLICATION)
(Semester II)
BA (COM)-208
MS-OFFICEAUTOMATION TOOLS

Credits: 4

External Marks: 45 **Maximum Time: 3 Hrs.**

Minimum Pass Marks: 35% **Lectures to be delivered: 45-55**

Internal Assessment: 25

A) Instructions for paper-setter

The question paper will consist of three sections A, B & C. Sections A & B will have four questions from the respective sections of the syllabus and will carry 40% marks each. Section C will have 6-12 short answer type questions which will cover the entire syllabus uniformly and will carry 20% marks in all.

B) Instructions for candidates

1. Candidates are required to attempt two questions each from sections A & B of the question paper and the entire section C.

SECTION A

MS-OFFICE: Basic layout, components, Office Characteristics, Common Office Controls and shortcuts for Home, Insert, Page Layout, Mailing, Review and View

MS Word 2010: Introduction to Word Processing, Toolbars, Ruler, Menus, Keyboard Shortcut. Previewing documents, Printing documents, Formatting documents, Checking the grammar and spelling, Formatting via find and replace, Using the Thesaurus, using Auto Correct, word count, Hyphenating, Mail merge, mailing Labels Wizards and Templates, Handling Graphics, tables as Converting a word document into various formats.

MS PowerPoint 2010: Introduction, Elements of Power Point Package, Starting and exploring Power Point menus (Insert, Format, Tools, Slide Show, Window, Help options and all of their features, Options and sub options etc.), Creating, inserting, deleting and formatting slides, Formatting and enhancing text, Slides with graphs, Giving Animation to slides, Transfer of files between Power Point and other word processors and software packages.

SECTION B

MS-EXCEL 2010: Creating worksheet, entering data into worksheet, Entering data into worksheet, Entering, data, dates, alphanumeric, values, saving & quitting worksheet, Opening and moving and existing worksheet, Toolbars and Menus, keyboard shortcut. Working with single and multiple workbooks, working with formulation & cell referencing, formatting of worksheet.

MS-ACCESS 2010: Introduction to MS-ACCESS-2010 working with databases and tables, queries in Access. Introduction to forms, sorting and filtering, controls. Creating reports, Using Macro

Reference Books:

1. Rob Tindrow, Jim Boyce, Jeffrey R. Shapiro, Windows 10 Bible, Wiley.

PAPER B.A. - BA(COM)-208 P
PRACTICAL BASED ON PAPER BA(COM)-208

Credits: 2
Maximum Marks: 30 **Maximum Time: 3 Hrs.**
Minimum Pass Marks: 35% **Practical Units to be conducted:45-55 Hrs**

The laboratory course will comprise of Activities related to MS-OFFICE and exercise to what is learnt under Paper BA(COM)-208 such as:

MS-Word

Activity 1:

- i. Create, open, save and close a document.
- ii. Typing, copying, moving and deleting data in word document.
- iii. Perform Save and Save as, Cut and Copy, Paste and Paste Special.

Activity 2:

Formatting of data in word Document:-

- i. Text formatting (font size, font style, font color, subscript, superscript, upper/lower case etc.)
- ii. Text Alignment and character spacing
- iii. Indention and line spacing
- iv. Border and shading
- v. Bullets and Numbering

Activity 3:

- i. Find and replace and data sorting in a document.
- ii. Protect your document.
- iii. Add chart in word document. Create different types of Charts in word.
- iv. Set a size, margin, orientation of page, Hyphenation, Columns and Line Numbers in MS-Word.

Activity 4:

- i. Set Page Color, Page Border, Themes, and Watermarks in MS-Word
- ii. Adding Tables, header/footers, pictures, page numbers and special symbols, Text Box in your word document.
- iii. Showing Ruler, Gridlines, Document Map, Thumbnails, Inserting Word Art, Drop Cap, Hyperlink, Equation etc. in word document

Activity 5:

- i. Arranging, splitting windows in MS-word
- ii. Perform Mail-merge in MS-word
- iii. Create and run Macros in MS-Word
- iv. Set the print properties of a word document

PowerPoint

Activity 1:

- i. Create, open, save and close a Presentation

ii. Typing, copying, moving and deleting data in presentation.
iii. New Slide, understanding Slide Layout, adding and deleting slides.

Activity 2:

Formatting of data in slides:-

i. Text formatting (font size, font style, font color, subscript, superscript, upper/lower case etc.)
ii. Text Alignment and character spacing
iii. Indention and line spacing
iv. Border and shading
v. Bullets and Numbering

Activity 3:

i. Set a size, margin, orientation of slides in PowerPoint.
ii. Adding Tables, header/footers, pictures, page numbers and special symbols, Text Box etc. in your presentation

Activity 4:

i. Adding Animation and Transition Effects in Slides, Understanding Slide Show
ii. Presentation Views, Understanding Formatting commands in PowerPoint

Activity 5:

i. Create and run Macros in PowerPoint
ii. Arranging, splitting windows in MS-PowerPoint.

MS-Excel

Activity 1:

i. Create, open, save and close workbook?
ii. Create a new worksheet, renaming and moving sheet.
iii. Entering, copying, moving and deleting data in cells and worksheets.
iv. Insert and delete cells, columns and rows in MS-Excel.

Activity 2:

i. Formatting of data in cells:-
ii. Text formatting (font size, font style, font color, Cell border etc.)
iii. Text Alignment
iv. Text Orientation, Text Direction, Text Control.

Activity 3:

i. Find and replace data in a sheet
ii. Perform data sorting and data filtering in MS-Excel
iii. Protect your Worksheet and Workbook?
iv. Enter and perform some basic formulas in ms-excel.

Activity 4:

i. Perform some basic Functions in MS-Excel.
ii. Create a chart in MS-Excel.
iii. Create different types of Charts in excel.
iv. Set a size, margin, orientation of page in Ms-Excel.
v. The print properties of worksheet in MS-Excel.

Activity 5:

- i. Hide and unhide row and column in MS-Excel
- ii. Set column width and row height in MS-Excel.
- iii. Adding text Box, header/footers, pictures and special symbols in your worksheet.
- iv. Arranging, splitting and hiding windows in MS-Excel. And also freezing panes.
- v. Create and run Macros in MS-Excel.

MS-Access 2010

Activity 1:

- i. Creating with databases and tables
- ii. Linking various Tables
- iii. Queries in Access

Activity 2:

- i. Creating forms
- ii. Filling information in forms
- iii. Saving forms

Activity 3:

- i. Sorting data
- ii. Filtering Data

Activity 4:

- i. Creating reports,
- ii. Using Macro

The breakup of marks for the practical will be as under:

Lab Record	:	05 Marks
Viva Voce	:	10 Marks
Practical Work	:	15 Marks

(P.G. DEPARTMENT OF COMPUTER SCIENCE)

OUTLINES OF TESTS,
SYLLABI AND COURSES OF READING

FOR

BACHELOR OF COMPUTER APPLICATIONS (B.C.A)
(SEMESTER SYSTEM)
FIRST YEAR (Semester I & II)
(2020-21, 2021-22 and 2022-23 Sessions)

FACULTY OF COMPUTING SCIENCES

SRI GURU TEG BAHADUR KHALSA COLLEGE
Sri Anandpur Sahib
An Autonomous College
Affiliated to Punjabi University, Patiala

SYLLABI, OUTLINES OF PAPERS AND TESTS FOR BACHELOR OF COMPUTER APPLICATIONS (B.C.A)

BCA-PART I (SEMESTER-I)

For Session 2020-21, 2021-22, 2022-23

PAPER CODE	NAME OF SUBJECT	HOURS PER WEEK				EXAMINATION SCHEME MARKS				
		L	T	P	TOTAL	Internal	External	Practical	Total	Credits
BCA-111	General English-I	4	--	--	4	15	35	--	50	4
BSP-101 A,B	General Punjabi-I OR Mudhla Gyan-I	4	--	--	4	30	70	--	100	4
BCA-113	Fundamentals of Information Technology	4	--	--	4	30	70	--	100	4
BCA-114	Web Designing Using HTML	4	--	--	4	30	70	--	100	4
BCA-115	GE-I*	5	1	--	6	30	70	--	100	6
BCA-116	Software Lab-I (Based on BCA-113)	--	--	4	4	30	--	70	100	2
BCA-117	Software Lab-II (Based on BCA-114)	--	--	4	4	30	--	70	100	2
BCA-118 (SAE 1.1)	Drug Abuse: Problem, Management & Preventions (Qualifying)	--	--	--	--	15	35	--	50	--
TOTAL		**21**	**1**	**8**	**30**	**195**	**315**	**140**	**650**	**26**

GE-I*: Any one of the following papers may be opted:

BCA-115 (E1)	**e-Commerce**
BCA-115 (E2)	**Principles & Practices of Management**

1. **The breakup of marks for the practical will be as under:**

i.	Internal Assessment	30 Marks
ii.	Viva Voce (External Evaluation)	40 Marks
iii.	Practical Performance & write up (External Evaluation)	30 Marks

2. **The breakup of marks for the internal assessment for theory Subjects will be as under:**

Mid semester test – I	10 Marks
Mid semester test – II	10 Marks
Attendance	5 Marks
Assignment	5 Marks

***Only those students who have not studied Punjabi up to matriculation can opt MudhlaGyan. Other students will study General Punjabi I.**

SYLLABI, OUTLINES OF PAPERS AND TESTS FOR BACHELOR OF COMPUTER APPLICATIONS (B.C.A)

BCA-PART I (SEMESTER-II)

For Session 2020-21, 2021-22, 2022-23

PAPER CODE	NAME OF SUBJECT	HOURS PER WEEK				EXAMINATION SCHEME MARKS				
		L	T	P	TOTAL	Internal	External	Practical	Total	Credits
BCA-121	General English-II	4	--	--	4	15	35	--	50	4
BSP-201A,B	General Punjabi-II OR Mudhla Gyan-II	4	--	--	4	30	70	--	100	4
BCA-123	Programming Fundamentals Using C	4	--	--	4	30	70	--	100	4
BCA-124	Operating Systems	4	--	--	4	30	70	--	100	4
BCA-125	GE-II**	5	1	--	6	30	70	--	100	6
BCA-126	Software Lab-III (Based on BCA-123)	--	--	4	4	30	--	70	100	2
BCA-127	Software Lab-IV (Based on BCA-124)	--	--	4	4	30	--	70	100	2
BCA-128 (SAE 1.2)	Environmental and Road Safety Awareness	4	--	--	4	30	70	--	100	4
TOTAL		25	1	8	34	225	385	140	750	30

GE-II: Students can opt any one of the following papers:**

BCA-125 (E1)	**Computer System Architecture**
BCA-125 (E2)	**System Analysis & Design**

1. The breakup of marks for the practical will be as under:

i.	Internal Assessment	30 Marks
ii.	Viva Voce (External Evaluation)	40 Marks
iii.	Practical Performance & write up (External Evaluation)	30 Marks

3. The breakup of marks for the internal assessment for theory Subjects will be as under:

Mid semester test – I	10 Marks
Mid semester test – II	10 Marks
Attendance	5 Marks
Assignment	5 Marks

***Only those students who have not studied Punjabi up to matriculation can opt MudhlaGyan. Other students will study General Punjabi I.**

2020-21, 2021-22, 2022-23

BCA Sem –I (Semester I&II)
GNERAL ENGLISH I
BCA-111
Credits-4

Time Allowed: 3 hours **Max Marks: 50**
Number of Lectures: 60 **External Assessment: 35**
Pass Marks: 35% **Internal Assessment: 15**

English

Text Prescribed Text - A Choice of Short Stories Shakti Batra (1-5) Stories.

Testing

Unit – 1

Q 1 (1)One easy type question with internal alternative based on character , summary ,significance of the title . 5

Q(2) Short answer questions to be attempted five out of the given eight in about 50-60 words each. 5

Unit – II

Grammar

Prescribed Text – Living English Structure, The Student Companion Edition, 1995.

Q 1 Tenses and its uses : Present ,Past ,Future (Attempt any five). 5

Q 2 Conversion among various types of sentence: affirmative, interrogative, negative , exclamations (Attempt any five out of eight). 5

Unit -III

Vocabulary

Q3. (a) Change the number (Attempt any five out of eight).

(b) Change the gender (Attempt any five out of eight). 5

(3) One word substitute Words Pertaining to Marriage, Opposites. (Attempt any five out of any eight) 5

Unit IV

Q4. Letter Writing : Personal and Business letters along with resume . 5

ਬੀ.ਐਸ.ਸੀ.(ਮੈਡੀਕਲ / ਨਾਨ ਮੈਡੀਕਲ) ,ਬੀ.ਸੀ.ਏ.,ਬੀ.ਐਸ.ਸੀ.ਆਰਟੀਫੀਸ਼ਲ ਇੰਟੈਲੀਜੈਂਸ ਐਂਡ
ਡਾਟਾ ਸਾਇੰਸ,ਬੀ.ਵਾਕ ਸਾਫ਼ਟਵੇਅਰ ਡਿਵੈਲਪਮੈਂਟ ਅਤੇ ਬੀ.ਵਾਕ ਫੂਡ ਪ੍ਰੋਸੈਸਿੰਗ,
ਭਾਗ ਪਹਿਲਾ,ਸਮੈਸਟਰ ਪਹਿਲਾ
ਪੇਪਰ-ਪੰਜਾਬੀ ਲਾਜ਼ਮੀ,ਪੇਪਰ ਕੋਡ:**BSP-101A**
2020-21,2021-22 ਸੈਸ਼ਨ ਲਈ

ਕੁੱਲ ਅੰਕ :100	ਵਿਸ਼ੇ ਵਿਚੋਂ ਪਾਸ ਅੰਕ : 35
ਬਾਹਰੀ ਪਰੀਖਿਆ:70 ਅੰਕ	ਬਾਹਰੀ ਪਰੀਖਿਆ ਵਿਚੋਂ ਪਾਸ ਅੰਕ: 25
ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ :30 ਅੰਕ	ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਵਿਚੋਂ ਪਾਸ ਅੰਕ:10
ਸਮਾਂ:3 ਘੰਟੇ	ਕ੍ਰੈਡਿਟ-04, ਕੁੱਲ ਲੈਕਚਰ:60

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼:

1.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਸਾਹਿਤ ਪੜ੍ਹਨ ਲਈ ਪ੍ਰੇਰਿਤ ਕਰਨਾ।
2.ਮਾਤ ਭਾਸ਼ਾ ਵਿੱਚ ਉਚੇਰੀ ਸਿੱਖਿਆ ਗ੍ਰਹਿਣ ਕਰਨ ਦੀ ਜਾਗ ਲਾਉਣਾ।
3.ਵਿਆਕਰਨਕ ਪੱਖਾਂ ਨਾਲ ਰਾਬਤਾ ਕਾਇਮ ਕਰਵਾਉਣਾ।
4.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਚਿੱਠੀ-ਪੱਤਰ ਲਿਖਣਾ ਸਿਖਾਉਣਾ।

ਪੇਪਰ ਸੈੱਟਰ ਅਤੇ ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਹਦਾਇਤਾਂ

1.ਭਾਗ-ੳ: ਵਿਚੋਂ ਨਿਬੰਧ ਦਾ ਵਿਸ਼ਾ-ਵਸਤੂ ਜਾਂ ਸਾਰ	(ਤਿੰਨ ਵਿਚੋਂ ਇੱਕ)10 ਅੰਕ
2.ਭਾਗ-ੳ: ਵਿਚੋਂ ਪੁਸਤਕ ਵਿਚਲੇ ਵਿਚਾਰਾਂ ਸੰਬੰਧੀ ਪ੍ਰਸ਼ਨ	(ਪੰਜ ਵਿਚੋਂ ਤਿੰਨ) 4+4+4=12 ਅੰਕ
3.ਭਾਗ-ਅ:1 ਵਿਚੋਂ ਚਿੱਠੀ-ਪੱਤਰ	(ਤਿੰਨ ਵਿਚੋਂ ਇੱਕ) 08 ਅੰਕ
4.ਭਾਗ-ਅ:2 ਵਿਚੋਂ ਵਿਆਕਰਨ ਨਾਲ ਸੰਬੰਧਿਤ ਵਰਣਾਤਮਕ ਪ੍ਰਸ਼ਨ	(ਦੋ ਵਿਚੋਂ ਇੱਕ) 10 ਅੰਕ

5. ਭਾਗ-ੲ ਵਿਚ ਨਿਬੰਧ ਅਤੇ ਵਿਆਕਰਨ ਵਿੱਚੋਂ ਕੁੱਲ 15(8+7) ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਲਾਜ਼ਮੀ ਪ੍ਰਸ਼ਨ।ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਜ਼ਰੂਰੀ ਹਨ । ਹਰੇਕ ਪ੍ਰਸ਼ਨ 2 ਅੰਕਾਂ ਦਾ ਹੋਵੇਗਾ ।

ਪਾਠਕ੍ਰਮ ਅਤੇ ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਦੀ ਰੂਪ-ਰੇਖਾ

ਭਾਗ-ੳ

ੳ -ਜੀਵਨ-ਵਿਹਾਰ (ਵਾਰਤਕ-ਸੰਗ੍ਰਹਿ),ਮੁੱਖ ਸੰਪਾ.ਡਾ.ਜਸਵੀਰ ਸਿੰਘ,ਸੰਪਾ.ਡਾ.ਅਵਤਾਰ ਸਿੰਘ ,
ਡਾ.ਗੁਰਪ੍ਰੀਤ ਕੌਰ,ਪ੍ਰੋ.ਸੁਖਵਿੰਦਰ ਸਿੰਘ,ਸ੍ਰੀ ਗੁਰੂ ਤੇਗ਼ ਬਹਾਦਰ ਖ਼ਾਲਸਾ ਕਾਲਜ,
ਸ੍ਰੀ ਅਨੰਦਪੁਰ ਸਾਹਿਬ ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ

ਭਾਗ-ਅ

ਅ-1: ਦਫ਼ਤਰੀ ਚਿੱਠੀ- ਪੱਤਰ
ਅ-2: ਵਿਆਕਰਨ
- **(i)** ਭਾਸ਼ਾ ਦਾ ਟਕਸਾਲੀ ਰੂਪ
- **(ii)** ਭਾਸ਼ਾ ਅਤੇ ਉਪਭਾਸ਼ਾ ਦਾ ਅੰਤਰ
- **(iii)** ਪੂਰਬੀ ਪੰਜਾਬ ਦੀਆਂ ਉਪਭਾਸ਼ਾਵਾਂ ਦੇ ਪਛਾਣ- ਚਿੰਨ੍ਹ
- **(iv)** ਸ਼ਬਦ :ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਵਰਗੀਕਰਣ
- **(v)** ਵਧੇਤਰ

ਭਾਗ-ੲ

ਨਿਬੰਧ ਅਤੇ ਵਿਆਕਰਨ ਵਿਚੋਂ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਪ੍ਰਸ਼ਨ

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1. ਬੂਟਾ ਸਿੰਘ ਬਰਾੜ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਸ੍ਰੋਤ ਤੇ ਸਰੂਪ,ਵਾਰਿਸ਼ ਸ਼ਾਹ ਫਾਂਊਡੇਸ਼ਨ ਅੰਮ੍ਰਿਤਸਰ,2012
2. ਬੂਟਾ ਸਿੰਘ ਬਰਾੜ, ਪੰਜਾਬੀ ਵਿਆਕਰਨ ਸਿਧਾਂਤ ਅਤੇ ਵਿਹਾਰ,ਚੇਤਨਾ ਪ੍ਰਕਾਸ਼ਨ ,ਲੁਧਿਆਣਾ,2008
3. ਬਲਦੇਵ ਸਿੰਘ ਚੀਮਾ, ਪੰਜਾਬੀ ਵਿਆਕਰਨ ਤੇ ਭਾਸ਼ਾ ਵਿਗਿਆਨ,ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ ਦਾ ਵਿਸ਼ਾ ਕੋਸ਼,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ,2009
4.ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨਕ ਭਾਗ **I**,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991

5.ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨਕ ਭਾਗ **II**,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991
6.ਗਿਆਨੀ ਲਾਲ ਸਿੰਘ ਤੇ ਹਰਕੀਰਤ ਸਿੰਘ ,ਕਾਲਜ ਪੰਜਾਬੀ ਵਿਆਕਰਣ ,ਪੰਜਾਬ ਸਟੇਟ ਯੂਨੀ.ਟੈਕਸਟ ਬੁੱਕ ਬੋਰਡ,ਚੰਡੀਗੜ੍ਹ
7.ਸੰਤ ਸਿੰਘ ਸੇਖੋਂ,ਸਾਹਿਤਆਰਥ,ਲਾਹੌਰ ਬੁੱਕ ਸ਼ਾਪ,ਲੁਧਿਆਣਾ
8.ਬਲਵੀਰ ਸਿੰਘ ਦਿਲ, ਪੰਜਾਬੀ ਨਿਬੰਧ :ਸਰੂਪ, ਸਿਧਾਂਤ ਅਤੇ ਵਿਕਾਸ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ, ਪੰਜਾਬੀ,ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।
9.ਖੋਜ ਪੱਤ੍ਰਿਕਾ, ਨਿਬੰਧ ਅੰਕ–29,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ, ਪੰਜਾਬੀ,ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।

ਬੀ.ਐਸ.ਸੀ.(ਮੈਡੀਕਲ / ਨਾਨ ਮੈਡੀਕਲ) ,ਬੀ.ਸੀ.ਏ.,ਬੀ.ਐਸ.ਸੀ.ਆਰਟੀਫੀਸ਼ਲ ਇੰਟੈਲੀਜੈਂਸ ਐਂਡ ਡਾਟਾ ਸਾਇੰਸ,ਬੀ.ਵਾਕ ਸਾਫ਼ਟਵੇਅਰ ਡਿਵੈਲਪਮੈਂਟ ਅਤੇ ਬੀ.ਵਾਕ ਫੂਡ ਪ੍ਰੋਸੈਸਿੰਗ

ਭਾਗ ਪਹਿਲਾ(ਸਮੈਸਟਰ-ਪਹਿਲਾ)

ਪੇਪਰ-ਪੰਜਾਬੀ ਮੁੱਢਲਾ ਗਿਆਨ,ਪੇਪਰ ਕੋਡ:**BSP-101B**

2020-21,2021-22 ਸੈਸ਼ਨ ਲਈ

ਕੁੱਲ ਅੰਕ :100 ਵਿਸ਼ੇ ਵਿਚੋਂ ਪਾਸ ਹੋਣ ਲਈ ਅੰਕ : 35
ਬਾਹਰੀ ਪਰੀਖਿਆ:70 ਅੰਕ ਬਾਹਰੀ ਪਰੀਖਿਆ ਵਿਚੋਂ ਪਾਸ ਹੋਣ ਲਈ ਅੰਕ: 25
ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ :30 ਅੰਕ ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਵਿਚੋਂ ਪਾਸ ਹੋਣ ਲਈ ਅੰਕ:10
ਸਮਾਂ:3 ਘੰਟੇ ਕ੍ਰੈਡਿਟ-04, ਕੁੱਲ ਲੈਕਚਰ:60

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼:

1.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਸਾਹਿਤ ਪੜ੍ਹਨ ਲਈ ਪ੍ਰੇਰਿਤ ਕਰਨਾ।
2.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੀ ਜਾਣਕਾਰੀ ਦੇਣਾ।
3.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਪੰਜਾਬੀ ਪੜ੍ਹਨਾ ਅਤੇ ਲਿਖਣਾ ਸਿਖਾਉਣਾ।

ਪੇਪਰ ਸੈਂਟਰ ਅਤੇ ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਹਦਾਇਤਾਂ:

1.ਭਾਗ-ੳ: ਵਿਚੋਂ ਵੱਡੇ ਪ੍ਰਸ਼ਨ (ਦੋ ਵਿਚੋਂ ਇੱਕ)10 ਅੰਕ
2.ਭਾਗ-ੳ ਵਿਚੋਂ ਛੇ ਛੋਟੇ ਪ੍ਰਸ਼ਨ (ਛੇ ਵਿਚੋਂ ਤਿੰਨ) 5+5+5=15 ਅੰਕ
3.ਭਾਗ-ਅ ਵਿਚੋਂ ਵੱਡੇ ਪ੍ਰਸ਼ਨ (ਦੋ ਵਿਚੋਂ ਇੱਕ)10 ਅੰਕ
4.ਭਾਗ-ਅ ਵਿਚੋਂ ਛੇ ਛੋਟੇ ਪ੍ਰਸ਼ਨ (ਛੇ ਵਿਚੋਂ ਤਿੰਨ) 5+5+5=15 ਅੰਕ
5.ਭਾਗ-ੲ ਵਿਚ ਭਾਗ ੳ ਅਤੇ ਭਾਗ ਅ ਵਿਚੋ ਕੁੱਲ 10 ਆਬਜੈਕਟਿਵ ਪ੍ਰਸ਼ਨ।ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਲਾਜ਼ਮੀ ਹਨ । ਹਰੇਕ ਪ੍ਰਸ਼ਨ 2 ਅੰਕਾਂ ਦਾ ਹੋਵੇਗਾ । **(10X2=20** ਅੰਕ)

ਪਾਠਕ੍ਰਮ ਅਤੇ ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਦੀ ਰੂਪ-ਰੇਖਾ

ਭਾਗ-ੳ

ੳ -1.ਵਿਰੋਧੀ ਸ਼ਬਦ,ਸਮਾਨਾਰਥਕ ਸ਼ਬਦ
2.ਲਿੰਗ,ਵਚਨ,ਕਾਲ ਅਤੇ ਪੁਰਖ
3.ਸ਼ਬਦ ਸ਼੍ਰੇਣੀਆਂ(ਨਾਂਵ,ਪੜਨਾਂਵ ਅਤੇ ਕਿਰਿਆ):ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਉਦਾਹਰਣਾਂ
4.ਵਿਸ਼ਰਾਮ ਚਿੰਨ੍ਹਾਂ ਦੀ ਵਰਤੋਂ

ਭਾਗ-ਅ

ਅ -ਲੇਖ ਰਚਨਾ(200 ਸ਼ਬਦਾਂ ਵਿੱਚ):ਮੇਰਾ ਅਧਿਆਪਕ,ਮੇਰਾ ਕਾਲਜ ਅਤੇ ਦੀਵਾਲੀ
2. ਚਿੱਠੀ ਪੱਤਰ:ਫ਼ੀਸ ਮੁਆਫ਼ੀ ਅਤੇ ਬਿਮਾਰੀ ਕਾਰਨ ਛੁੱਟੀ ਲੈਣ ਸੰਬੰਧੀ
3.ਦੇਸੀ ਅਤੇ ਅੰਗਰੇਜ਼ੀ ਮਹੀਨਿਆਂ ਦੇ ਨਾਂ
4. ਇੱਕ ਤੋਂ ਸੌ ਤੱਕ ਗਿਣਤੀ

ਭਾਗ-ੲ

ਭਾਗ ੳ ਅਤੇ ਅ ਵਿਚੋਂ ਆਬਜੈਕਟਿਵ ਪ੍ਰਸ਼ਨ

ਨੋਟ:ਵਿਦਿਆਰਥੀ ਗੁਰਮੁਖੀ ਸਿੱਖ ਰਹੇ ਹਨ।ਇਸ ਲਈ ਵਿਦਿਆਰਥੀਆਂ ਦੇ ਪੱਧਰ ਨੂੰ ਧਿਆਨ ਵਿੱਚ ਰੱਖਦੇ ਹੋਏ ਸਰਲ ਅਤੇ ਸਪੱਸ਼ਟ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣ।

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1.ਸਤਿਨਾਮ ਸਿੰਘ ਸੰਧੂ,ਆਓ ਪੰਜਾਬੀ ਸਿੱਖੀਏ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ,2009
2. ਸਤਿਨਾਮ ਸਿੰਘ ਸੰਧੂ,ਗੁਰਮੁਖੀ ਸਿੱਖੋ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ,2011
3.ਸੀਤਾ ਰਾਮ ਬਾਹਰੀ, ਪੰਜਾਬੀ ਸਿੱਖੀਏ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ,2002
4.ਪੰਜਾਬੀ ਗਿਆਨ ਸੀ.ਡੀ.(ਕੰਪਿਊਟਰ ਐਪਲੀਕੇਸ਼ਨ ਟੂ-ਲਰਨ ਐਂਡ ਟੀਚ ਪੰਜਾਬੀ), ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ
5. ਚਰਨ ਪੁਆਧੀ,ਆਓ ਪੰਜਾਬੀ ਸਿੱਖੀਏ,ਸੰਗਮ ਪਬਲੀਕੇਸ਼ਨ,ਪਟਿਆਲਾ

BCA 113: FUNDAMENTALS OF INFORMATION TECHNOLOGY

4Credits: (4L)

Time: 3hours **Maximum Marks: 100**
Pass Marks: 35% **Internal Assessment: 30 marks**
Number of Lectures: 60 **External: 70 marks**

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will consist of three sections A, B & C. Section A and B will have four questions each from respective unit of the syllabus carrying 10.5 marks for each question. Section C will have5-10 short answer type questions, carrying 28 marks in total, which will cover the entire syllabus uniformly.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from the Sections A & B of the question paper and the entire Section-C.

SECTION–A

Computer Fundamentals: Block diagram of Computer, Characteristics and Types of Computers.
Input/output Devices: Keyboard & Mouse, Trackball, Joystick, Scanner (OCR, OMR, MICR) Displays-CRT, LCD, LED, Plotter, Printer-Impact & Non-Impact Printers, Speakers
Memories: Types, Units of Memory, Primary Storage-RAM, ROM, Cache, Virtual Memory. Secondary Storage -Drives – CD, DVD(R/W), Hard Disk, Pen Drive.
Languages: Machine, Assembly, High-Level, Translators (Assembler, Compiler & Interpreter), Algorithm & Flow Charts, Hardware, Software, Application Software & System Software.
Number System: Non-Positional & Positional Number Systems, Concept of Bit and Byte, binary, decimal, hexadecimal, and octal systems, Base Conversion from one system to another system, Binary Arithmetic: Addition, Subtraction and Multiplication, 1’s Complement, 2’s Complement, Subtraction using 1’s Complement & 2’s Complement.
Computer Codes: Weighted & Non-Weighted Codes, BCD, EBCDIC, ASCII, Unicode.

SECTION-B

Applications of IT: IT in Business and Industry, IT in Education and Training, IT in Science and Technology, IT and Entertainment.
Advanced Trends in IT: Mobile Internet, GPS, 3G, 4G, Wi-Fi, Bluetooth, Cloud Technology, Virtual LAN Technology, Firewall, e-Commerce, M-Commerce, Nanotechnology, Virtual Reality, BPO, KPO, Online Shopping, Social Media: YouTube, Facebook, Linkedin, Twitter, Google+.
MS-WORD: Introduction Basic Editing, Formatting, Templates, Working with Graphics and Pictures, Tables, Desktop Publishing, Mail Merge, Proofing, Printing, and Publishing, Comparing, Merging, and Protecting Documents.
MS-POWERPOINT: Introduction, Using Themes and Layouts, Inserting Text and Using WordArt,

Inserting Graphics (Tables, Charts, Shapes, Clip-Art), Working with Videos, Movie-Clips, Animations, and Transitions, Sounds, Editing, Saving, Printing and Publishing Tools, Help.

MS-EXCEL: Introduction, Worksheets and Workbooks, Entering Information into MS Excel, formatting a Worksheet, Adding Elements to a Workbook, Charts, Formulas and Calculations, Statistical functions and financial functions.

Suggested Readings:

1. P.K. Sinha and P. Sinha, "Computer Fundamentals”, BPB.
2. N. Subramanian, Introduction to Computers, Tata McGraw-Hill.
3. Edward G. Martin, "Discovering Microsoft Office 2016”, Wiley Custom Learning Solutions.
4. Kate Shoup, “Teach Yourself Visually Office 2010”, Visual.
5. V. Rajaraman, “Computer fundamentals”, PHI.

BCA 114: WEB DESIGNING USING HTML

4 Credits: (4L)

Time: 3hours	**Maximum Marks: 100**
Pass Marks: 35%	**Internal Assessment: 30 marks**
Number of Lectures: 60	**External: 70 marks**

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will consist of three sections A, B & C. Section A and B will have four questions each from respective unit of the syllabus carrying 10.5 marks for each question. Section C will have 5-10 short answer type questions, carrying 28 marks in total, which will cover the entire syllabus uniformly.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from sections A and B of the question paper and the entire section C.

SECTION-A

Introduction to HTML: Basic HTML concepts, an overview of HTML markup.
What is good Web design, the process of Web publishing, implementation, the phases of Web site development, HTML's role in the Web, and issues facing HTML and the Web?
HTML overview: the structure of HTML documents; document types, the <HTML>element; the <HEAD> element, the <BODY> element.
Links and Addressing: Linking basics, what are URLs; linking in HTML, anchor attributes, images and anchors, image maps; semantic linking with the <LINK> element, meta-information.
HTML and Images: The role of images on the Web, image preliminaries; image downloading issues, obtaining images, HTML image basics, images as buttons; and image maps.
Introduction to Layout: Backgrounds, Colors, and Text**,** Design requirements, HTML approach to Web design, fonts, colors in HTML, document-wide color attributes for <BODY>, and background images.

SECTION-B

Introduction to Lists: Different types of list tags, Nested Lists, type attribute.
Tables: Basic Table tags, Setting table borders, Inserting Rows & Columns in Table, Including background colors and images in tables, Spanning Rows & Columns, Cell Spacing & Padding, Advantages & Disadvantages of using Tables.
Frames: Creating Framed documents, <Frameset> & <Frame> tags, Elastic & Nested Frames, Formatting Frames, Scroll Bars, <Noframe> tag, Advantages & Disadvantages of using Frames.
Basic Interactivity and HTML: Forms form preliminaries; the <FORM> element; formcontrols.
Style Sheets: style sheets basics, style sheet example, style sheet properties, positioning with style sheets.

Suggested Readings:

1. Thomas A. Powell , “HTML: The Complete Reference”, Osborne/McGraw-Hill
2. Deitel, Deitel and Nieto : Internet & WWW. How to program, 2nd Edition, Pearson Education Asia.
3. E Stephen Mack, JananPlatt : HTML 4.0 , No Experience Required, 1998, BPB Publications.
4. "HTML Complete" by Sybex, BPB Publications, 2001.
5. Bayross, "Web Enabled Commercial Applications Development Using HTML, DHTML, Java Script, Perl CGI," Third Edition, BPB Publications.

BCA-115 (E1) e-Commerce

6Credits: (5L+1T)

Time: 3hours	**Maximum Marks: 100**
Pass Marks: 35%	**Internal Assessment: 30 marks**
Number of Lectures: 60	**External: 70 marks**

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will consist of three sections A, B & C. Section A and B will have four questions each from respective unit of the syllabus carrying 10.5 marks for each question. Section C will have 5-10 short answer type questions, carrying 28 marks in total, which will cover the entire syllabus uniformly.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from the Sections A & B of the question paper and the entire section-C.

SECTION – A

Introduction to E-commerce: Definition of E-commerce, Advantages and disadvantages of E-commerce, E-commerce versus traditional commerce.

Internet and WWW: Electronic commerce framework, Electronic commerce and media convergence, The anatomy of E-commerce applications.

Architectural framework for E-commerce: World Wide Web as the architecture, Web background: Hypertext publishing, Security and the Web.

Consumer-oriented E-commerce: Consumer-oriented applications, Mercantile Process Models – consumer's perspective, Merchant's perspective.

SECTION-B

Advertising and Marketing on the Internet: The new age information-based marketing, Advertising on the Internet – Active or push-based advertising models, Passive or pull-based advertising models. Guidelines for Internet advertising. On-line marketing process.

Types of Electronic Payment Systems: Digital token-based electronic payment systems, Smart cards and electronic payment systems, Credit card-based electronic payment systems, Risk and electronic payment systems.

Electronic Data Interchange and its applications in business. Legal, Ethical and other public policy issues related to e-commerce.

Text Book:

1. Ravi Kalakota, Andrew B. Whinston: Frontiers of Electronic Commerce, Addison Wesley.

References:

1. EfraimTurbon, Jae Le, David King, Chung: Electronic Commerce- Amanagerial perspective, Prentice-HallInternational.
2. Gary P. Schneider, James T. Perry: ElectronicCommerce

BCA-115 (E2) PRINCIPLES AND PRACTICES OF MANAGEMENT

6 Credits: (5L+1T)

Time: 3hours	**Maximum Marks: 100**
Pass Marks: 35%	**Internal Assessment: 30 marks**
Lecture Delivered : 75	**External: 70 marks**

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will consist of three sections A, B & C. Section A and B will have four questions each from respective unit of the syllabus carrying 10.5 marks for each question. Section C will have 5-10 short answer type questions, carrying 28 marks in total, which will cover the entire syllabus uniformly.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from the Sections A & B of the question paper and the entire Section-C.

SECTION-A

Management: Meaning, definitions, nature and scope, functions of management. Managerial roles and skills. Forms of different organizations: sole proprietorship, partnership and Joint Stock Company.

Evolution of management thoughts: classical and new classical systems, contingency approaches, Scientific management.

Planning: nature, purpose and functions, types of plan, Management by Objective (MBO), steps in planning.

Decision Making: Meaning, Steps in Decision Making, Techniques of Decision Making.

Strategic planning – concepts, process, importance and limitations; Growth strategies-Internal and external.

SECTION-B

Organizing: Concept, formal and informal organizations, task force, bases of departmentation, different forms of organizational structures, avoiding organizational inflexibility. Teamwork – meaning, types and stages of team building.

Concept of staffing- Recruitment and election.

M**otivation** – concept, importance and theories.

Authority: definition, types, responsibility and accountability, delegation, decentralization v/s centralization, determinants of effective decentralization. Line and staff authority.

Control: function, process and types of control, nature, process, significance and span of control. Direct control v/s preventive control.

Trends and challenges of management in global scenario.

Emerging issues in management: Introduction to Total Quality Management (TQM), Just in Time (JIT).

Suggested Text Books:

1. Principles and practices of management: L. M. PRASAD (S. Chand publishers)
2. EssentialsofManagement:KoontzH.&WeihrichH.(TataMcGrawHillPublishers)

Suggested Reference Books

1. Management: Stephen Robbins (Pearson publishers**)**
2. VSP Rao & V H Krishna, Management, Excel books

BCA 116: SOFTWARE LAB-I
(Based on Paper BCA-113)
2 Credits: (4P)

Time: 3hours **Maximum Marks: 100**
Pass Marks: 35% **Internal Assessment: 30 marks**
Number of Lectures: 60 **External: 70 marks**

This laboratory course will comprise of exercises to supplement what is learnt under paper BCA-113 Fundamentals of Information Technology.

The breakup of marks for the practical will be as under: -

i. Internal Assessment	30 Marks
ii. Viva Voce(External Evaluation)	40Marks
iii. Lab Record, Program Development and Execution(External Evaluation)	30Marks

Students are required to perform following activities:

I. MS-Word

Activity 1:

i. Create, open, save and close a document.
ii. Typing, copying, moving and deleting data in word document.
iii. Perform Save and Save as, Cut and Copy, Paste and Paste Special.

Activity 2:

Formatting of data in word Document: -
i. Text formatting (font size, font style, font color, subscript, superscript, upper/lower case etc.)
ii. Text Alignment and character spacing.
iii. Indention and line spacing.
iv. Border and shading.
v. Bullets and Numbering

Activity3:

i. Find and replace and data sorting in a document.
ii. Protect your document.
iii. Add chart in word document. Create different types of Charts in word.
iv. Set a size, margin, orientation of page, Hyphenation, Columns and Line Numbers in MS-Word.

Activity4:

i. Set Page Color, Page Border, Themes, and Watermarks in MS-Word.
ii. Adding Tables, header/footers, pictures, page numbers and special symbols, Text Box in your word document.
iii. Showing Ruler, Gridlines, Document Map, Thumbnails, Inserting Word Art, Drop Cap, Hyperlink, Equation etc. in word document

Activity 5:

i. Arranging, splitting windows in MS-word?
ii. Perform Mail-merge in MS-word.
iii. Create and run Macros in MS-Word.
iv. Set the print properties of a word document.

II. PowerPoint

Activity1:

i. Create, open, save and close a Presentation.
ii. Typing, copying, moving and deleting data in presentation.
iii. New Slide, understanding Slide Layout, adding and deleting slides.

Activity 2:

Formatting of data in slides: -

i. Text formatting (font size, font style, font color, subscript, superscript, upper/lower case etc.)
ii. Text Alignment and character spacing.
iii. Indention and line spacing.
iv. Border and shading.
v. Bullets and Numbering

Activity3:

i. Set a size, margin, orientation of slides in PowerPoint.
ii. Adding Tables, header/footers, pictures, page numbers and special symbols, Text Box etc. in your presentation.

Activity4:

i. Adding Animation and Transition Effects in Slides, Understanding Slide Show
ii. Presentation Views, Understanding Formatting commands in PowerPoint

Activity5:

i. Create and run Macros in PowerPoint.
ii. Arranging, splitting windows in MS-PowerPoint.

III. MS-Excel

Activity 1

i. Create, open, save and close workbook.
ii. Create a new worksheet, renaming and moving sheet.
iii. Entering, copying, moving and deleting data in cells and worksheets.
iv. Insert and delete cells, columns and rows in MS-Excel.

Activity 2:

Formatting of data in cells: -

i. Text formatting (font size, font style, font color, Cell border etc.)
ii. Text Alignment.
iii. Text Orientation, Text Direction, Text Control.

Activity3:

i. Find and replace data in a sheet.
ii. Perform data sorting and data filtering in MS-Excel.
iii. Protect your Worksheet and Workbook?
iv. Enter and perform some basic formulas in MS-excel.

Activity4:

i. Perform some basic Functions in MS-Excel.
ii. Create different types of Charts in excel.
iii. Set a size, margin, orientation of page in MS-Excel.
iv. The print properties of a worksheet in MS-Excel.

Activity5:

i. Hide and unhide row and column in MS-Excel.
ii. Set column width and row height in MS-Excel.
iii. Adding text Box, header/footers, pictures and special symbols in your worksheet.
iv. Arranging, splitting and hiding windows in MS-Excel. And also freezing panes Create and run Macros in MS-Excel.

BCA 117: SOFTWARE LAB-II

(Based on Paper BCA -114)

2Credits: (4P)

Time: 3hours	**Maximum Marks: 100**
Pass Marks: 35%	**Internal Assessment: 30 marks**
Number of Lectures: 60	**External: 70 marks**

This laboratory course will comprise of exercises to supplement what is learnt under paper BCA 114 Web Designing Using HTML.

The breakup of marks for the practical will be as under: -

i. Internal Assessment	30 Marks
ii. Viva Voce(External Evaluation)	40 Marks
iii. Lab Record, Program Development and Execution(External Evaluation)	30 Marks

Students are required to develop the following programs:

1) Create a web page to show the structure of HTML.
2) Show the use of formatting tags in HTML.
3) Write HTML code to show the use of absolute and relative URL with anchor tag.
4) Show the use of image tag and show images as buttons.
5) Create a web page to show the use of image maps.
6) Create a table in which colspan and rowspan elements are used.
7) Create a webpage to show the use of different lists available in HTML.
8) Create a webpage to show the use of frame tag in HTML.
9) Create admission form for a college.

BCA-118 (SAE-1.1) DRUG ABUSE: PROBLEM, MANAGEMENT & PREVENTIONS

Time Allowed: 3 hours **Maximum Marks: 50**

Pass Marks: 35% **Internal Assessment: 15 Marks**

External: 35 marks

I

INSTRUCTIONS FOR THE PAPER SETTERS

The question paper will consist of three sections A, B and C. Each of sections A and B will have four questions from the respective sections of the syllabus. Each question shall carry 7 marks. Section C will consist of 14 short answer type of 2 marks each.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt any three questions from section A and any three questions from section B. Section C is compulsory.

SECTION-A

UNIT: I – Problem of Drug Abuse: Concept and Overview; Types of Drug Often Abused

a. Concept and Overview

What are drugs and what constitutes Drug Abuse?

Prevalence of menace of Drug Abuse

How drug Abuse is different from Drug Dependence and Drug Addiction?

Physical and psychological dependence- concepts of drug tolerance

b. Introduction to drugs of abuse: Short Term, Long term effects & withdrawal symptoms

Stimulants: Amphetamines, Cocaine, Nicotine

Depressants: Alcohol, Barbiturates- Nembutal, Seconal, Phenobarbital Benzodiazepines–

Diazepam, Alprazolam, Flunitrazepam

Narcotics: Opium, morphine, heroin

Hallucinogens: Cannabis & derivatives (marijuana, hashish, hash oil)

Steroids

Inhalants

UNIT: II –Nature of the Problem

Vulnerable Age Groups

Signs and symptoms of Drug Abuse

(a)- Physical indicators

(b)- Academic indicators

(c)- Behavioral and Psychological indicators

SECTION B

UNIT: III – Causes and Consequences of Drug Abuse

a. Causes

Physiological
Psychological
Sociological

b. Consequences of Drug Abuse

For individuals
For families
For society & Nation

Unit: IV- Management & Prevention of Drug Abuse

Management of Drug Abuse
Prevention of Drug Abuse
Role of Family, School, Media, Legislation & Deaddiction Centers

Suggested Readings:

1. Kapoor.T. (1985) Drug Epidemic among Indian Youth, New Delhi: Mittal Pub
2. Modi, Ishwar andModi, Shalini (1997) Drugs: Addiction and Prevention, Jaipur: Rawat Publication.
3. Ahuja, Ram,(2003),Social Problems in India, Rawat Publications: Jaipur
4. 2003 National Household Survey of Alcohol and Drug Abuse. New Delhi, Clinical Epidemiological Unit, All India Institute of Medical Sciences, 2004.
5. World Drug Report 2011, United Nations Office of Drug and Crime.
6. World Drug Report 2010, United Nations Office of Drug and Crime.
7. Extent, Pattern and Trend of Drug Use in India, Ministry of Social Justice and Empowerment, Government of India, 2004.
8. The Narcotic Drugs and Psychotropic Substances Act, 1985, (New Delhi: Universal, 2012)

2020-21, 2021-22, 2022-23

B.C.A Sem II

General English II

BCA-121

Credits-4

Time allowed: 3 hours	**Max Marks: 50**
Number of Lectures: 60	**External Assessment: 35**
Pass Marks: 35%	**Internal Assessment: 15**

Text Prescribed: Flights of Fancy By Bakhshish Singh Edition, 2011.

Texts prescribed: Living English Structure.

Poems Prescribed: *Sonnet 116, On His Blindness, The Clod and the Pebble, The World is Too Much With Us, Lucy Gray, My Native Land*

Testing

Unit-I

Q1. One essay type question with internal choice based on summary and theme. (5)

Q2. Five short answer questions to be attempted out of eight. (5)

Unit –II

Vocabulary:

Prescribed Text – The Living Structure.

Q3. (a) Fill up using suitable part of speech (Attempt any five out of eight). (5)

(b) Antonyms and Synonyms (Attempt any five out of eight). (5)

Unit-III

Grammar and Composition

Q4.(a) Conversion between direct / indirect speech . (Attempt any five out of eight) (5)

(b) Conversion between Active/ Passive voice . (Attempt any five out of eight) (5)

Q5.Composition on a given topic/ title based on any current social, environment, health issues. Students will be asked to attempt any one out of four options with word limit 150-175. (5)

ਬੀ.ਐਸ.ਸੀ.(ਮੈਡੀਕਲ / ਨਾਨ ਮੈਡੀਕਲ),ਬੀ.ਸੀ.ਏ.,ਬੀ.ਵਾਕ (ਸਾਫ਼ਟਵੇਅਰ ਡਿਵੈਲਪਮੈਂਟ) ਅਤੇ ਬੀ.ਵਾਕ (ਫੂਡ ਪ੍ਰੋਸੈਸਿੰਗ)ਭਾਗ ਪਹਿਲਾ , ਸਮੈਸਟਰ ਦੂਜਾ

ਪੇਪਰ-ਪੰਜਾਬੀ ਲਾਜ਼ਮੀ,ਪੇਪਰ ਕੋਡ:**BSP-201A,** ਕ੍ਰੈਡਿਟ-04

2020-21,2021-22 ਸੈਸ਼ਨ ਲਈ

ਕੁੱਲ ਅੰਕ :100	ਵਿਸ਼ੇ ਵਿਚੋਂ ਪਾਸ ਅੰਕ : 35
ਬਾਹਰੀ ਪਰੀਖਿਆ:70 ਅੰਕ	ਬਾਹਰੀ ਪਰੀਖਿਆ ਵਿਚੋਂ ਪਾਸ ਅੰਕ: 25
ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ :30 ਅੰਕ	ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਵਿਚੋਂ ਪਾਸ ਅੰਕ:10
ਸਮਾਂ:3 ਘੰਟੇ	ਕੁੱਲ ਲੈਕਚਰ:60

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼:

1.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਸਾਹਿਤ ਪੜ੍ਹਨ ਲਈ ਪ੍ਰੇਰਿਤ ਕਰਨਾ।
2.ਮਾਤ ਭਾਸ਼ਾ ਵਿੱਚ ਉਚੇਰੀ ਸਿੱਖਿਆ ਗ੍ਰਹਿਣ ਕਰਨ ਦੀ ਜਾਗ ਲਾਉਣਾ।
3.ਵਿਆਕਰਨਕ ਪੱਖਾਂ ਨਾਲ ਰਾਬਤਾ ਕਾਇਮ ਕਰਵਾਉਣਾ।
4.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਚਿੱਠੀ-ਪੱਤਰ ਲਿਖਣਾ ਸਿਖਾਉਣਾ।

ਪੇਪਰ ਸੈੱਟਰ ਅਤੇ ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਹਦਾਇਤਾਂ

1.ਭਾਗ-ੳ: ਵਿਚੋਂ ਨਿਬੰਧ ਦਾ ਵਿਸ਼ਾ-ਵਸਤੂ ਜਾਂ ਸਾਰ (ਤਿੰਨ ਵਿਚੋਂ ਇੱਕ)10 ਅੰਕ
2.ਭਾਗ-ੳ: ਵਿਚੋਂ ਪੁਸਤਕ ਵਿਚਲੇ ਵਿਚਾਰਾਂ ਸੰਬੰਧੀ ਪ੍ਰਸ਼ਨ (ਪੰਜ ਵਿਚੋਂ ਦੋ) 5+5=10ਅੰਕ
3.ਭਾਗ-ਅ:1 ਵਿਚੋਂ ਚਿੱਠੀ-ਪੱਤਰ (ਤਿੰਨ ਵਿਚੋਂ ਇੱਕ) 10 ਅੰਕ
4.ਭਾਗ-ਅ:2 ਵਿਚੋਂ ਵਿਆਕਰਨ ਨਾਲ ਸੰਬੰਧਿਤ ਵਰਣਾਤਮਕ ਪ੍ਰਸ਼ਨ (ਦੋ ਵਿਚੋਂ ਇੱਕ) 10 ਅੰਕ
5. ਭਾਗ-ੲ ਵਿਚ ਨਿਬੰਧ ਦੀ ਪਾਠ-ਪੁਸਤਕ ਅਤੇ ਵਿਆਕਰਨ ਵਿੱਚੋਂ ਕੁੱਲ 15(8+7) ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਲਾਜ਼ਮੀ ਪ੍ਰਸ਼ਨ।ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਲਾਜ਼ਮੀ ਹਨ ।ਹਰੇਕ ਪ੍ਰਸ਼ਨ 02ਅੰਕਾਂ ਦਾ ਹੋਵੇਗਾ ।

15X2=30 ਅੰਕ

ਪਾਠਕ੍ਰਮ ਅਤੇ ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਦੀ ਰੂਪ-ਰੇਖਾ

ਭਾਗ-ੳ

ੳ -ਜੀਵਨ-ਵਿਹਾਰ (ਵਾਰਤਕ-ਸੰਗ੍ਰਹਿ),ਮੁੱਖ ਸੰਪਾ.ਡਾ.ਜਸਵੀਰ ਸਿੰਘ,ਸੰਪਾ.ਡਾ.ਅਵਤਾਰ ਸਿੰਘ, ਡਾ.ਗੁਰਪ੍ਰੀਤ ਕੌਰ,ਪ੍ਰੋ.ਸੁਖਵਿੰਦਰ ਸਿੰਘ,ਸ੍ਰੀ ਗੁਰੂ ਤੇਗ਼ ਬਹਾਦਰ ਖ਼ਾਲਸਾ ਕਾਲਜ, ਸ੍ਰੀ ਅਨੰਦਪੁਰ ਸਾਹਿਬ ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ

ਭਾਗ-ਅ

ਅ1:ਦਫ਼ਤਰੀ ਚਿੱਠੀ -ਪੱਤਰ

ਅ-2:ਵਿਆਕਰਨ

- **(i)** ਭਾਸ਼ਾ ਦਾ ਟਕਸਾਲੀ ਰੂਪ
- **(ii)** ਭਾਸ਼ਾ ਅਤੇ ਉਪਭਾਸ਼ਾ ਦਾ ਅੰਤਰ
- **(iii)** ਪੂਰਬੀ ਪੰਜਾਬ ਦੀਆਂ ਉਪਭਾਸ਼ਾਵਾਂ ਦੇ ਪਛਾਣ- ਚਿੰਨ੍ਹ
- **(iv)** ਸ਼ਬਦ :ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਵਰਗੀਕਰਨ
- **(v)** ਵਧੇਤਰ

ਭਾਗ-ੲ

ਭਾਗ-ੳ ਅਤੇ ਵਿਆਕਰਨ ਵਾਲੇ ਭਾਗ ਵਿਚੋਂ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਪ੍ਰਸ਼ਨ

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1. ਬੂਟਾ ਸਿੰਘ ਬਰਾੜ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਸ੍ਰੋਤ ਤੇ ਸਰੂਪ,ਵਾਰਿਸ਼ ਸ਼ਾਹ ਫਾਂਊਡੇਸ਼ਨ ਅੰਮ੍ਰਿਤਸਰ,2012
2. ਬੂਟਾ ਸਿੰਘ ਬਰਾੜ, ਪੰਜਾਬੀ ਵਿਆਕਰਨ ਸਿਧਾਂਤ ਅਤੇ ਵਿਹਾਰ,ਚੇਤਨਾ ਪ੍ਰਕਾਸ਼ਨ ,ਲੁਧਿਆਣਾ,2008
3. ਬਲਦੇਵ ਸਿੰਘ ਚੀਮਾ, ਪੰਜਾਬੀ ਵਿਆਕਰਨ ਤੇ ਭਾਸ਼ਾ ਵਿਗਿਆਨ,ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ ਦਾ ਵਿਸ਼ਾ ਕੋਸ਼, ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ,2009

4. ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨਕ ਭਾਗ I,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991
5. ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨਕ ਭਾਗ II,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991
6. ਗਿਆਨੀ ਲਾਲ ਸਿੰਘ ਤੇ ਹਰਕੀਰਤ ਸਿੰਘ ,ਕਾਲਜ ਪੰਜਾਬੀ ਵਿਆਕਰਣ ,ਪੰਜਾਬ ਸਟੇਟ ਯੂਨੀ.ਟੈਕਸਟ ਬੁੱਕ ਬੋਰਡ,ਚੰਡੀਗੜ੍ਹ
7. ਸੰਤ ਸਿੰਘ ਸੇਖੋਂ,ਸਾਹਿਤਆਰਥ,ਲਾਹੌਰ ਬੁੱਕ ਸ਼ਾਪ,ਲੁਧਿਆਣਾ
8. ਬਲਵੀਰ ਸਿੰਘ ਦਿਲ, ਪੰਜਾਬੀ ਨਿਬੰਧ :ਸਰੂਪ, ਸਿਧਾਂਤ ਅਤੇ ਵਿਕਾਸ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ, ਪੰਜਾਬੀ,ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।
9. ਖੋਜ ਪੱਤ੍ਰਿਕਾ, ਨਿਬੰਧ ਅੰਕ-29,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ, ਪੰਜਾਬੀ,ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।

ਬੀ.ਐਸ.ਸੀ.(ਮੈਡੀਕਲ / ਨਾਨ ਮੈਡੀਕਲ),ਬੀ.ਸੀ.ਏ.,ਬੀ.ਵਾਕ ਸਾਫ਼ਟਵੇਅਰ ਡਿਵੈਲਪਮੈਂਟ ਅਤੇ ਬੀ.ਵਾਕ ਫੂਡ ਪ੍ਰੋਸੈਸਿੰਗ

ਭਾਗ ਪਹਿਲਾ , ਸਮੈਸਟਰ ਦੂਜਾ

ਪੇਪਰ-ਪੰਜਾਬੀ ਮੁੱਢਲਾ ਗਿਆਨ

ਪੇਪਰ ਕੋਡ:**BSP-201B,** ਕ੍ਰੈਡਿਟ-04

2020-21,2021-22 ਸੈਸ਼ਨ ਲਈ

ਕੁੱਲ ਅੰਕ :100 ਵਿਸ਼ੇ ਵਿਚੋਂ ਪਾਸ ਅੰਕ : 35
ਬਾਹਰੀ ਪਰੀਖਿਆ:70 ਅੰਕ ਬਾਹਰੀ ਪਰੀਖਿਆ ਵਿਚੋਂ ਪਾਸ ਅੰਕ: 25
ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ :30 ਅੰਕ ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਵਿਚੋਂ ਪਾਸ ਅੰਕ:10
ਸਮਾਂ:3 ਘੰਟੇ ਕੁੱਲ ਲੈਕਚਰ:60

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼:

1.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਸਾਹਿਤ ਪੜ੍ਹਨ ਲਈ ਪ੍ਰੇਰਿਤ ਕਰਨਾ।
2.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੀ ਜਾਣਕਾਰੀ ਦੇਣਾ।
3.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਪੰਜਾਬੀ ਪੜ੍ਹਨਾ ਅਤੇ ਲਿਖਣਾ ਸਿਖਾਉਣਾ।

ਪੇਪਰ ਸੈਂਟਰ ਅਤੇ ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਹਦਾਇਤਾਂ:

1.ਭਾਗ-ੳ: ਵਿਚੋਂ ਵੱਡੇ ਪ੍ਰਸ਼ਨ	(ਦੋ ਵਿਚੋਂ ਇੱਕ)10 ਅੰਕ
2.ਭਾਗ-ੳ ਵਿਚੋਂ ਛੇ ਛੋਟੇ ਪ੍ਰਸ਼ਨ	(ਛੇ ਵਿਚੋਂ ਚਾਰ) 5+5+5+5=20ਅੰਕ
3.ਭਾਗ-ਅ ਵਿਚੋਂ ਵੱਡੇ ਪ੍ਰਸ਼ਨ	(ਦੋ ਵਿਚੋਂ ਇੱਕ)10 ਅੰਕ
4.ਭਾਗ-ਅ ਵਿਚੋਂ ਛੇ ਛੋਟੇ ਪ੍ਰਸ਼ਨ	(ਛੇ ਵਿਚੋਂ ਚਾਰ) 5+5+5+5=20 ਅੰਕ

5.ਭਾਗ-ੲ ਵਿਚ ਭਾਗ ੳ ਅਤੇ ਅ ਵਿਚੋਂ ਕੁੱਲ 10 ਆਬਜੈਕਟਿਵ ਪ੍ਰਸ਼ਨ।ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਲਾਜ਼ਮੀ ਹਨ । ਹਰੇਕ ਪ੍ਰਸ਼ਨ 01 ਅੰਕ ਦਾ ਹੋਵੇਗਾ । **(10X1=10** ਅੰਕ)

ਪਾਠਕ੍ਰਮ ਅਤੇ ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਦੀ ਰੂਪ-ਰੇਖਾ

ਭਾਗ-ੳ

ੳ -1.ਵਿਰੋਧੀ ਸ਼ਬਦ,ਸਮਾਨਾਰਥਕ ਸ਼ਬਦ
2.ਲਿੰਗ,ਵਚਨ,ਕਾਲ ਅਤੇ ਪੁਰਖ
3.ਸ਼ਬਦ ਸ਼੍ਰੇਣੀਆਂ(ਨਾਂਵ,ਪੜਨਾਂਵ ਅਤੇ ਕਿਰਿਆ):ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਉਦਾਹਰਣਾਂ
4.ਵਿਸ਼ਰਾਮ ਚਿੰਨ੍ਹਾਂ ਦੀ ਵਰਤੋਂ

ਭਾਗ-ਅ

ਅ -ਲੇਖ ਰਚਨਾ(200 ਸ਼ਬਦਾਂ ਵਿੱਚ):ਮੇਰਾ ਅਧਿਆਪਕ,ਮੇਰਾ ਕਾਲਜ ਅਤੇ ਦੀਵਾਲੀ
2. ਚਿੱਠੀ ਪੱਤਰ:ਫ਼ੀਸ ਮੁਆਫ਼ੀ ਅਤੇ ਬਿਮਾਰੀ ਕਾਰਨ ਛੁੱਟੀ ਲੈਣ ਸੰਬੰਧੀ
3.ਦੇਸੀ ਅਤੇ ਅੰਗਰੇਜ਼ੀ ਮਹੀਨਿਆਂ ਦੇ ਨਾਂ
4. ਇੱਕ ਤੋਂ ਸੌ ਤੱਕ ਗਿਣਤੀ

ਭਾਗ-ੲ

ਭਾਗ ੳ ਅਤੇ ਅ ਵਿਚੋਂ ਆਬਜੈਕਟਿਵ ਪ੍ਰਸ਼ਨ

ਨੋਟ:ਵਿਦਿਆਰਥੀ ਗੁਰਮੁਖੀ ਸਿੱਖ ਰਹੇ ਹਨ।ਇਸ ਲਈ ਵਿਦਿਆਰਥੀਆਂ ਦੇ ਪੱਧਰ ਨੂੰ ਧਿਆਨ ਵਿੱਚ ਰੱਖਦੇ ਹੋਏ ਸਰਲ ਅਤੇ ਸਪੱਸ਼ਟ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣ।

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1.ਸਤਿਨਾਮ ਸਿੰਘ ਸੰਧੂ,ਆਓ ਪੰਜਾਬੀ ਸਿੱਖੀਏ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ,2009
2. ਸਤਿਨਾਮ ਸਿੰਘ ਸੰਧੂ,ਗੁਰਮੁਖੀ ਸਿੱਖੋ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ,2011

3.ਸੀਤਾ ਰਾਮ ਬਾਹਰੀ, ਪੰਜਾਬੀ ਸਿੱਖੀਏ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ,2002
4.ਪੰਜਾਬੀ ਗਿਆਨ ਸੀ.ਡੀ.(ਕੰਪਿਊਟਰ ਐਪਲੀਕੇਸ਼ਨ ਟੂ-ਲਰਨ ਐਂਡ ਟੀਚ ਪੰਜਾਬੀ), ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ
5. ਚਰਨ ਪੁਆਧੀ,ਆਓ ਪੰਜਾਬੀ ਸਿੱਖੀਏ,ਸੰਗਮ ਪਬਲੀਕੇਸ਼ਨ,ਪਟਿਆਲਾ

BCA 123: PROGRAMMING FUNDAMENTALS USING C

4 Credits: (4L)

Time: 3hours	**Maximum Marks: 100**
Pass Marks: 35%	**Internal Assessment: 30 marks**
Number of Lectures: 60	**External: 70 marks**

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will consist of three sections A, B & C. Section A and B will have four questions each from respective unit of the syllabus carrying 10.5 marks for each question. Section C will have 5-10 short answer type questions, carrying 28 marks in total, which will cover the entire syllabus uniformly.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from the Sections A & B of the question paper and the entire Section-C.

SECTION-A

Programming Process: Problem definition, Algorithm development, Flowchart, Coding, Compilation and debugging.

Basic structure of C program: History of C, Structure of a C program, Character set, Identifiers and keywords, constants, variables, data types.

Operators and expressions: Arithmetic, Unary, Logical, Relational operators, assignment operators, Conditional operators, Hierarchy of operations type conversion.

Control statements: branching statements (if, if else, switch), loop statements (for, while and do-while), jump statements (break, continue, goto), nested control structures.

Functions: Library functions and user defined functions, prototype, definition and call, formal and actual arguments, local and global variables, methods of parameter passing to functions, recursion.

I/O functions: formatted & unformatted console I/O functions

SECTION-B

Storage Classes: automatic, external, static and register variables.

Arrays: – One dimensional and two-dimensional arrays

Declaration, initialization, reading values into an array, displaying array contents

Strings: input/output of strings, string handling functions (strlen, strcpy, strcmp, strcat & strrev), table of strings.

Structures and unions: using structures and unions, comparison of structure with arrays and union.

Pointers: pointer data type, pointer declaration, initialization, accessing values using pointers, pointers and arrays.

Introduction to Files in C: opening and closing files. Basic I/O operation on files.

Reference Books:

1. E. Balagurusamy, Programming in C, Tata McGraw-Hill.
2. Kernighan and Ritchie, The C Programming Language, PHI.
3. Byron Gotfried, Programming in C.
4. Kamathane, Programming in C, Oxford University Press.

BCA 124: OPERATING SYSTEMS

4 Credits: (4L)

Time: 3hours **Maximum Marks: 100**
Pass Marks: 35% **Internal Assessment: 30 marks**
Number of Lectures: 60 **External: 70 marks**

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will consist of three sections A, B & C. Section A and B will have four questions each from respective unit of the syllabus carrying 10.5 marks for each question. Section C will have 5-10 short answer type questions, carrying 28 marks in total, which will cover the entire syllabus uniformly.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from the Sections A & B of the question paper and the entire Section-C.

SECTION-A

Operating System – Definition, Need, Services, Types of operating systems: simple batch system, multi programmed batch system, time sharing system, parallel system, distributed system, real time system, personal computer system. Operating system components, operating system services, system calls.

Process Management – Process definition, Process state, Process scheduling, Operations on processes, Basic concepts of thread, Difference between process and thread.

CPU Scheduling – Basic concepts, Scheduling Criteria, Scheduling Algorithms – FCFS, SJF, Round Robin and Multilevel Queue Scheduling.

SECTION-B

Deadlocks – Characteristics of deadlocks, methods for handling deadlocks, deadlock prevention, deadlock avoidance

Memory Management – Logical versus Physical address space, swapping, contiguous allocation, Paging, Concept of Virtual memory, Implementation by Demand Paging, Page replacement algorithms – FIFO, Optimal, LRU, Concept of thrashing.

File Management – Allocation methods: Contiguous allocation, Linked allocation and Indexed allocation;

Device Management – Disk Scheduling: FCFS, SSTF, SCAN, C-SCAN, LOOK.

Text Book:

1. Abraham Silberschatz, Peter B. Galvin, Operating System Concepts, Addison – Wesley Publishing Co. Engineering, Third Edition 2005,Pankaj Jalote, Narosa Publications. 5th Edition.

BCA 125 (E1): COMPUTER SYSTEM ARCHITECTURE

6 Credits: (5L+1T)

Time: 3hours	**Maximum Marks: 100**
Pass Marks: 35%	**Internal Assessment: 30 marks**
Number of Lectures: 75	**External: 70 marks**

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will consist of three sections A, B & C. Section A and B will have four questions each from respective unit of the syllabus carrying 10.5 marks for each question. Section C will have 5-10 short answer type questions, carrying 28 marks in total, which will cover the entire syllabus uniformly.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from the Sections A & B of the question paper and the entire Section-C.

SECTION-A

Digital Logic Circuits: Basic Logic Gates, Boolean Algebra, Map Simplifications: SOP and POS Forms, Don’t Care Conditions.

Combinational Logic Design: Half-adder, Full adder, Parallel adder.

Sequential Circuits : Concepts, Flip-Flops (SR, D, JK, JK-Master-Slave, T), Counters (Ripple, Asynchronous, Synchronous, Decade, Mod-5).

Register Transfer and Micro-Operations: Register Transfer Language, Arithmetic, Logic and Shift micro-operations, Arithmetic Logic Shift unit.

SECTION-B

Basic Computer Organization & Design: Basic Computer Architecture, Functional Organization, Register Organization, Arithmetic and Logic Unit, Timing and Control Unit, Instruction Cycle. **Central Processing Unit**: Instruction Formats, Addressing Modes, Data Transfer and Manipulation, Interrupt, RISC/CISC Architecture.

Input /Output Organization: Peripheral devices, I/O interface, Modes of data transfer: Programmed I/O, Interrupt initiated I/O, Direct Memory Access (DMA),I/O processor.

Memory organization: Memory Hierarchy, Memory types: Main Memory, Auxiliary Memory, Associative Memory, Cache Memory.

Text Books

1. Modern Digital Electronics by R.P. Jain, Fourth Edition, TMH.
2. M.M. Mano, “Computer System Architecture”, Third Edition, Prentice Hall of India, 2002.
3. A.S. Tannenbaum, “Structured Computer Organization”, Prentice- Hall of India, 1999.
4. William Stallings, “Computer Organization and Architecture”, 6th edition, Pearson Education, 2000.

BCA 125 (E2): SYSTEM ANALYSIS AND DESIGN
6 Credits: (5L+1T)

Time: 3hours	**Maximum Marks: 100**
Pass Marks: 35%	**Internal Assessment: 30 marks**
Number of Lectures: 75	**External: 70 marks**

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will consist of three sections A, B & C. Section A and B will have four questions each from respective unit of the syllabus carrying 10.5 marks for each question. Section C will have 5-10 short answer type questions, carrying 28 marks in total, which will cover the entire syllabus uniformly.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from the Sections A & B of the question paper and the entire Section-C.

SECTION-A

Systems concepts: Definition and Characteristics of a System, Elements of a System, Types of Systems.

The system development life cycle: Introduction to various phases.

The Role of the Systems Analyst: Qualifications of a systems analyst, various roles of the systems analyst.

Systems Analysis: Initial investigation, needs identification, determining the user’s information requirements, Information-gathering tools.

SECTION-B

Structured Analysis Tools: Data flow diagram, Data dictionary, Decision tree, Structured English, Decision tables.

Feasibility study: Feasibility considerations, Steps in Feasibility analysis.

Systems Design: The process and stages of systems design, Input/output and forms design, Database design.

Implementation and Software Maintenance: Conversion, Post-implementation review.

Software Maintenance: Maintenance or enhancement, Primary activities of a maintenance procedure.

Hardware and Software Selection: Procedure and major phases in selection.

Text Book:

1. E. M. Awad: Systems Analysis and Design, Galgotia Publications (P)Ltd.

Reference Books:

1. Systems Analysis and Design: Techniques, Methodologies, Approaches, And Architectures1st Edition **Author:** Hardgrave Bill C. , SiauKeng, Chiang RogerH.L. **Publisher:** M.E. Sharpe.

BCA 126: SOFTWARE LAB-III
(Based on Paper BCA-123)
2 Credits: (4P)

Time: 3hours	**Maximum Marks: 100**
Pass Marks: 35%	**Internal Assessment: 30 marks**
Number of Lectures: 60	**External: 70 marks**

This laboratory course will comprise of exercises to supplement what is learnt under paper BCA123 Programming Fundamentals Using C.

The breakup of marks for the practical will be as under: -

i. Internal Assessment	30 Marks
ii. Viva Voce(External Evaluation)	40 Marks
iii. Lab Record, Program Development and Execution(External Evaluation)	30Marks

Students are required to develop the following programs:

1. **Operators and data types in C**
   a. Write a program to print the size of all the data types supported by C and its range.
   b. Write a program to convert temperature from Fahrenheit to Celsius.
   c. Write a program to find simple interest and compound interest.
2. **Control statements**
   a. Write a program to check whether the given number is a even number or not.
   b. Write a program to accept three numbers and find the largest among them.
   c. Write a program to count the different vowels in a line of text using switch.
   d. Write a program to accept two numbers and perform various arithmetic operations (+, -, *, /) based on the symbol entered.
   e. Write a program to find factorial of a number.
   f. Write a program to check whether a number is prime or not.
   g. Write a program to print all prime numbers between any 2 given limits.
   h. Write a program to check whether a number is palindrome or not.
   i. Write a program to print all the Armstrong numbers between any 2 given limits.
3. **Arrays and strings**
   a. Write a program to find largest element in an array.
   b. Write a program to find sum and average of numbers stored in an array.
   c. Write a program to check whether a string is a Palindrome.
   d. Write a program to perform matrix addition.
   e. Write a program to perform matrix multiplication.
4. **Functions and recursion**
   a. Write a program to find the roots of a quadratic equation using function.
   b. Write a recursive program to find the factorial of a number.
   c. Write a recursive program to find the nth Fibonacci number.

5. **Structures and unions**
    1. Create an employee structure and display the same.
    2. Create a student database storing the roll no, name, class etc. and sort by name.
6. **Pointers**
    1. Write a function to swap two numbers using pointers.
    2. Write a program to access an array of integers using pointers.
7. **Files**
    1. Create a file and store some records in it. Display the contents of the same. Count numbers of characters, words and lines in the file.

BCA 127: SOFTWARE LAB-IV

(Based on Paper BCA-124)

2 Credits: (4P)

Time: 3hours	**Maximum Marks: 100**
Pass Marks: 35%	**Internal Assessment: 30 marks**
Number of Lectures: 60	**External: 70 marks**

This laboratory course will comprise of exercises to supplement what is learnt under paper BCA124 Operating Systems.

The breakup of marks for the practical will be as under: -

i. Internal Assessment	30 Marks
ii. Viva Voce(External Evaluation)	40 Marks
iii. Lab Record, Program Development and Execution(External Evaluation)	30Marks

Students are required to practice the following activities:

1. Installation of Windows Operating System
2. Working with Files: Saving & Closing a File
3. Mouse Mechanisms: Click, Double Click, Drag & Drop Method
4. Installation of New Software
5. Control Panel
6. Accessories
7. Network Neighborhood
8. System Tools
9. Recycle Bin
10. Files & Directory Management under Windows

BCA 128(SAE-1.2): Environmental and Road Safety Awareness

4 Credits: (4L)

Time Allowed: 3hours	**Maximum Marks: 100**
Pass Marks: 35%	**Internal Assessment: 30 marks**
	External: 70 marks

INSTRUCTIONS FOR THE PAPER SETTERS

The question paper will consist of three sections A, B and C. Each of sections A and B will have four questions from the respective sections of the syllabus. Each question shall carry 7 marks. Section C will consist of 7 short answer type questions of 1 mark each.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt any two questions from each section A and B. Section C is compulsory.

SECTION-A

INTRODUCTION TO ENVIRONMENTAL STUDIES: The multidisciplinary nature of environmental studies. Definition, scope and importance, Concept of Biosphere – Lithosphere, Hydrosphere, Atmosphere.

ECOSYSTEM & BIODIVERSITY CONSERVATION

Ecosystem and its components, Types of Ecosystems

Biodiversity - Definition and Value, Threats to biodiversity and its conservation

Level of biological diversity: genetic, species and ecosystem diversity; bio-geographic zones of India; biodiversity patterns and global biodiversity hot spots.

India as Mega-biodiversity nation; Endangered and endemic species of India.

Ecosystem and biodiversity services: Ecological, economic, social, ethical, aesthetic and informational value.

NATURAL RESOURCES–RENEWABLE AND NON-RENEWABLE RESOURCES

Land resources and land use change; land degradation, soil erosion and desertification.

Deforestation: causes and impacts due to mining, dam building on environment, Forests, Biodiversity and tribal populations.

Water: Use and over-exploitation of surface and ground water, Floods, droughts, conflicts over water (international & inter-state)

Energy resources: renewable and nonrenewable energy sources, use of alternate energy sources, growing energy needs, case studies.

SECTION-B

ENVIRONMENTAL POLLUTION

Environmental Pollution: types, causes, effects and controls; Air, water, soil, chemical and noise pollution, Nuclear hazards and human health risks, Solid waste management: Control measures of urban and industrial waste, Pollution case studies.

ENVIRONMENTAL POLICIES AND PRACTICES

Climate change, global warming, ozone layer depletion, acid rain and impacts on human communities and agriculture.

Environment Laws : Environment Protection Act; Air (Prevention & Control of Pollution) Act; Water (Prevention and control of Pollution) Act; Wildlife Protection Act; Forest Conservation Act; International agreements; Montreal and Kyoto protocols and conservation on Biological Diversity (CBD). The Chemical Weapons Convention (CWC), Nature reserves, tribal population and rights, and human, wildlife conflicts in Indian context.

Human Communities and the Environment: Human population growth: Impacts on environment, human health and welfare, Sanitation & Hygiene. Resettlement and rehabilitation of project affected persons; case studies. Disaster management: floods, earthquake, cyclones and landslides. Environment movements: Chipko, Silent valley, Bishnois of Rajasthan. Environmental ethics: Role of Indian and other religions and cultures in environmental conservation for a Clean-green pollution free state.

Environmental communication and public awareness, case studies (e.g., CNG vehicles in Delhi)

Suggested Readings:

1. Carson, R. *2002. Silent Spring.* Houghton Mifflin Harcourt.
2. Gadgil, M., & Guha, R.1993. This *Fissured Land:* An Ecological History of India. Univ. of California Press.
3. Gleeson,B. and Low, N. (eds.) 1999. Global Ethics and Environment, London, Routledge.
4. Gleick, P.H. 1993. Water in *Crisis*. Pacific Institute for Studies in Dev., Environment & Security. Stockholm Env. Institute, Oxford Univ. Press.
5. Groom, Martha J. Gary K. Meffe, and Carl Ronald carroll. *Principles of Conservation Biology.* Sunderland: Sinauer Associates, 2006.
6. Grumbine, R. Edward, and Pandit, M.K. 2013. Threats from India's Himalaya dams. Science, 339: 36-37.
7. McCully, P.1996. *Rivers no more: the environmental effects of dams*(pp. 29-64). Zed Books.
8. McNeil, John R. 2000. Something New Under the Sun: An Environmental History of the Twentieth Century.

9. Odum, E.P., Odum, h.T. & Andrews, J.1971. *Fundamentals of Ecology.* Philadelphia: Saunders.
10. Pepper, I.L., Gerba, C.P. & Brusseau, M.L. 2011. Environmental and Pollution Science. Academic Press.
11. Rao, M.N. & Datta, A.K. 1987. *Waste Water Treatement.* Oxford and IBH Publishing Co. Pvt. Ltd.
12. Raven, P.H., Hassenzahl, D.M. & Berg, L.R. 2012. *Environment.* 8th edition. John Wiley & Sons.
13. Rosencranz, A., Divan, S., & Noble, M.L. 2001. *Environmental law and policy in India.* Tripathi 1992.
14. Sengupta, R. 2003.*Ecology and economics:* An approach to sustainable development. OUP.
15. Singh, J.S., Singh, S.P. and Gupta, S.R. 2014. *Ecology, Environmental Science and Conservation.* S. Chand Publishing, New Delhi.
16. Sodhi, N.S., Gibson, L. & Raven, P.H. (eds). 2013. *Conservation Biology: Voices from the Tropics.* John Wiley & Sons.
17. Thapar, V. 1998. *Land of the Tiger: A Natural History of the Indian Subcontinent.*
18. Warren, C.E. 1971. *Biology and Water Pollution Control.* WB Saunders.
19. Wilson, E.O. 2006. *The Creation: An appeal to save life on earth.* New York: Norton.
20. World Commission on environment and Development. 1987. *Our Common Future.* Oxford University Press.
21. www.nacwc.nic.in
22. www.opcw.org

Note:

1. **The committee also recommends to continue the syllabus of Punjabi University, Patiala for BCA-III^rd^ Year.**
2. **Credits are exceeded due to Credits given to Course work of Punjabi Compulsory as per Punjab State Policy.**

Members of Board of Studies

1. Mr. Surender Kumar

2. Dr. Dharamveer Sharma

3. Dr. Major Singh Gorya

4. Dr. Navdeep Singh

5. Mr. Sandeep Sharma

6. Mr. Rakesh Kumar

7. Mrs. Tajinder Kaur

8. Mrs. Paramjit Kaur

9. Mrs. Amandeep Kaur

(P.G. DEPARTMENT OF COMPUTER SCIENCE)

OUTLINES OF TESTS,
SYLLABI AND COURSES OF READING

FOR

BACHELOR OF COMPUTER APPLICATIONS (B.C.A)

(SEMESTER SYSTEM)

SECOND YEAR (Semester III & IV)

(2020-21, 2021-22 and 2022-23 Sessions)

FACULTY OF COMPUTING SCIENCES

SRI GURU TEG BAHADUR KHALSA COLLEGE

Sri Anandpur Sahib
An Autonomous College
Affiliated to Punjabi University, Patiala

SYLLABI, OUTLINES OF PAPERS AND TESTS FOR
BACHELOR OF COMPUTER APPLICATIONS (B.C.A)
Second Year - Third Semester Examinations
For Session 2020-21, 2021-22, 2022-23

PAPER CODE	NAME OF SUBJECT	HOURS PER WEEK				EXAMINATION SCHEME MARKS				
		L	T	P	TOTAL	Internal	External	Practical	Total	Credits
BCA-201	Object Oriented Programming using C++	4	--	--	4	30	70	--	100	4
BCA-202	Data Structure	4	--	--	4	30	70	--	100	4
BCA-203	Relational Database Management System with Oracle	4	--	--	4	30	70	--	100	4
BCA-204	Software Engineering	4	--	--	4	30	70	--	100	4
BCA-205	GE-III*	5	1	--	6	30	70	--	100	6
BCA-206	Software Lab-V (Based on Paper BCA-201)	--	--	4	4	30	--	70	100	2
BCA-207	Software Lab-VI (Based on Paper BCA-202)	--	--	4	4	30	--	70	100	2
BCA-208	Software Lab-VII (Based on Paper BCA-203)	--	--	4	4	30	--	70	100	2
PBCA-301 A,B	General Punjabi-III OR Mudhla Gyan - III	2	--	--	2	15	35	--	50	2
TOTAL		**23**	**1**	**12**	**36**	**255**	**385**	**210**	**850**	**30**

GE-III*: Any one of the following papers may be opted:

BCA-205 (E1)	Basic Mathematics
BCA-205 (E2)	Quantitative Aptitude

1. **The breakup of marks for the practical will be as under:**

i.	Internal Assessment	30 Marks
ii.	Viva Voce (External Evaluation)	40 Marks
iii.	Practical Performance & write up (External Evaluation)	30 Marks

2. **The breakup of marks for the internal assessment for theory Subjects will be as under:**

Mid semester test – I	10 Marks
Mid semester test – II	10 Marks
Attendance	5 Marks
Assignment	5 Marks

SYLLABI, OUTLINES OF PAPERS AND TESTS FOR
BACHELOR OF COMPUTER APPLICATIONS (B.C.A)
Second Year - Fourth Semester Examinations
For Session 2020-21, 2021-22, 2022-23

PAPER CODE	NAME OF SUBJECT	HOURS PER WEEK				EXAMINATION SCHEME MARKS				
		L	T	P	TOTAL	Internal	External	Practical	Total	Credits
BCA-211	Computer Networks	5	1	--	6	30	70	--	100	6
BCA-212	Programming using Java	4	--	--	4	30	70	--	100	4
BCA-213	System Software	5	1	--	6	30	70	--	100	6
BCA-214	Workshop on Adobe Photoshop	--	--	4	4	50	--	50	100	4
BCA-215	GE-IV**	5	1	--	6	30	70	--	100	6
BCA-216	Software Lab-VIII (Based on Paper BCA-212)	--	--	4	2	30	--	70	100	2
PBCA-401 A,B	General Punjabi-IV OR Mudhla Gyan –IV	2	--	--	2	15	35	--	50	2
TOTAL		**21**	**3**	**8**	**30**	**215**	**315**	**120**	**650**	**30**

GE-IV: Students can opt any one of the following papers:**

BCA-215 (E1)	Digital Electronics
BCA-215 (E2)	Computer Oriented Statistical Methods

3. **The breakup of marks for the practical will be as under:**

i.	Internal Assessment	30 Marks
ii.	Viva Voce (External Evaluation)	40 Marks
iii.	Practical Performance & write up (External Evaluation)	30 Marks

4. **The breakup of marks for the internal assessment for theory Subjects will be as under:**

Mid semester test – I	10 Marks
Mid semester test – II	10 Marks
Attendance	5 Marks
Assignment	5 Marks

BCA-201: Object Oriented Programming using C++
4Credits: (4L)

Teaching Hours per week: 4 **Maximum Marks: 100**
Pass Marks: 35% **Internal Assessment: 30 marks**
External: 70 marks

A) INSTRUCTION FOR THE PAPER SETTER

The question paper will consist of three sections A, B and C. Section A and B will have four questions from the respective section of the syllabus carrying 10.5 marks for each question. Section C will consist of 5-10 short answer type questions carrying a total of 28 marks, which will cover the entire syllabus uniformly. Candidates are required to attempt five questions in all by selecting at least two questions each from the section A and B. Section C is compulsory.

B) INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all by selecting at least two questions each from the section A and B. Section C is compulsory.

SECTION-A

Evolution of OOP : Procedure Oriented Programming, OOP Paradigm, Advantages and disadvantages of OOP over its predecessor paradigms.
Characteristics of Object Oriented Programming : Abstraction, Encapsulation, Data hiding, Inheritance, Polymorphism, code Extensibility and Reusability, User defined Data Types.
Introduction to C++ : Identifier and keywords, Constants, Operators
Pointers: Pointer Operations, Pointer Arithmetic, Pointers and Arrays, Multiple indirections, Pointer to functions.
Function : Prototyping, Definition and Call, Scope Rules, Parameter Passing Value, by address and by reference, Functions returning references, Const Functions, recursion, function overloading, Default Arguments, Const Arguments.
Classes, Objects and Members : Class Declaration and Class Definition, Defining member functions, Defining Object, making functions inline, Members access control, Nested Classes, This Pointer.

SECTION-B

Object as function arguments, array of objects, functions returning objects, const members and member functions. Static data members and static member functions, Friend functions and Friend classes.
Constructors : Properties, types of constructors (Default, parameterized and copy), Dynamic constructors, Multiple constructors in classes.
Destructors : Properties, Virtual destructors, Destroying objects, Rules for constructors and destructors, Array of objects.
Dynamic memory allocation using new and delete operators.
Inheritance : Defining derived classes, inheriting private members, single inheritance, types of derivation, function, function redefining, constructors in derived class.
Types of inheritance: Single, Multiple, Multi level and Hybrid,
Types of base classes: Direct, Indirect, Virtual, Abstract, Code Reusability.
Polymorphism : Methods of achieving polymorphic behavior. Polymorphism with pointers, virtual functions, late binding, pure virtual functions and abstract base class.Difference between function overloading, redefining and overriding.
Operator overloading: Overloading binary operator, overloading unary operators, rules for operator overloading, operator overloading using friend function. Function overloading, early binding.

Open/ Close Files commands. Read/write operations on files.
Reference Books:

1. Herbert Schildt, The Complete Reference C++, Tata McGraw-Hill.
2. Deitel and Deital, C++ How to program, Pearson Education.
3. Robert Lafore, *Object Oriented Programming in Turbo C++*, Galgotia Publications.
4. Bajane Stautrup, *The C++ Programming Language*, Addition,-Wesley Publication Co.
5. Stanley B. Lippman, Losee Lajoic, C++. Primer; Pearson Education.
6. E. Balagurusamy, *Object-Oriented Programming with C++*, Tata McGraw-Hill.
7. D. Ravichandran, Programming with C++ , Tata McGraw-Hill Publishing Company Ltd.

BCA-202: DATA STRUCTURES

4Credits: (4L)

Teaching Hours per week: 4	**Maximum Marks: 100**
Pass Marks: 35%	**Internal Assessment: 30 marks**
	External: 70 marks

A) INSTRUCTION FOR THE PAPER SETTER

The question paper will consist of three sections A, B and C. Section A and B will have four questions from the respective section of the syllabus carrying 10.5 marks for each question. Section C will consist of 5-10 short answer type questions carrying a total of 28 marks, which will cover the entire syllabus uniformly. Candidates are required to attempt five questions in all by selecting at least two questions each from the section A and B. Section C is compulsory.

B) INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all by selecting at least two questions each from the section A and B. Section C is compulsory.

SECTION A

Basic concepts and notations: Types of data structures, Data structure operations, Mathematical notations and functions, Algorithmic complexity, Big 'O' notation, Time and space trade off.

Arrays: Linear array, representation of array in memory, traversing linear array, insertion and deletion in an array, Two-dimensional array, row major and column major orders, sparse matrix.

Stacks: Representation of stacks in memory (linked and sequential), operations on stacks, Applications of stacks: string reversal, parentheses matching.

Queues: Representation of queues in memory (linked and sequential), operations on queues, insertion in rear, deletion from front.

SECTION B

Linked list: Representation of linked list using static and dynamic data structures, insertion and deletion of a node from linked list, searching in link list, searching in sorted link list.

Trees: Definition and basic concepts, linked representation and representation in contiguous storage, binary tree, binary tree traversal, Binary search tree, searching, insertion and deletion in binary search tree.

Searching and sorting algorithms: Linear and binary search, bubble sort, insertion sort, selection sort, quick sort, merge sort.

Reference Books

1. Seymour Lipschutz, Theory and Practice of Data Structures, McGraw-Hill.
2. Vishal Goyal, LalitGoyal, Pawan Kumar, A Simplified Approach to Data Structures, Shroff Publications.
3. Y. L. Tenenbaum, and A. J. Augenstein, Data Structures using C and C++, PHI.
4. Robert Sedgewick, Algorithms in C, Pearson Education.

BCA-203: Relational Database Management System with Oracle
4Credits: (4L)

Teaching Hours per week: 4 **Maximum Marks: 100**

Pass Marks: 35% **Internal Assessment: 30 marks**

External: 70 marks

A) INSTRUCTION FOR THE PAPER SETTER

The question paper will consist of three sections A, B and C. Section A and B will have four questions from the respective section of the syllabus carrying 10.5 marks for each question. Section C will consist of 5-10 short answer type questions carrying a total of 28 marks, which will cover the entire syllabus uniformly. Candidates are required to attempt five questions in all by selecting at least two questions each from the section A and B. Section C is compulsory.

B) INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all by selecting at least two questions each from the section A and B. Section C is compulsory.

SECTION-A

Introduction to RDBMS Product and their Features, Difference between DBMS and RDBMS, Relationship among application programs, RDBMS, Basic File Operations: Opening Files, Closing Files, Reading and Writing, Seeking

File Organization: Field and Record structure in file, Record Types, Types of file organization, Sequential, Indexed, and Hashed.

Transaction Management: Transaction Concept, Properties, Transaction States, Concurrent Execution, Serializability, Conflict Serializability, View Serializability, Recoverability, Recoverable Schedule, Cascadless Schedule

Concurrency Control: Lock Based Protocol, Locks, Granting of Locks, Two Phase Locking Protocol, Timestamp Based Protocol, Timestamp, Timestamp ordering protocol, Thomas's Write Rule, Validation Based Protocol, Deadlock Handling, Deadlock Prevention, Deadlock Detection, Deadlock Recovery

SECTION-B

Recovery System: Failure Classification, Transaction Failure, System Crash, Disk Failure, Storage Structures, Storage Types, Data Access, Recovery & Atomicity, Log based Recovery, Deferred Database Modification, Immediate Database Modification, Checkpoints, Recovery with Concurrent Transaction, Transaction Rollback, Restart Recovery, Remote Backup System

Relational Query Language: DDL, DML, DCL.

Introduction to Oracle: Oracle as client/server architecture, getting started, creating, modifying, dropping databases. Inserting, updating, deleting data from databases, SELECT statement, Data constraints (Null values, Default values, primary, unique and foreign key concepts)

Computing expressions, renaming columns, logical operators, range searching, pattern matching, Oracle functions, grouping data from tables in SQL, manipulating dates.

Working with SQL: triggers, use of data base triggers, database triggers Vs. SQL*forms, types of triggers, how to apply database triggers, BEFORE vs. AFTER triggers, combinations, syntax for creating and dropping triggers.

Text Book :

1. B.P. Desai, "Database management system" BPB publications, New Delhi.

Reference Books:

1. C.J. Date, "An Introduction to Data Base Systems", Narosa Publishers

2. Jeffrey D. Ullman, "Principles of Database Systems", Galgotia Pub.
3. D. Kroenke., "Database Processing", Galgotia Publications.
4. Henry F. Korth, “Database System Concepts”, McGraw Hill. Inc.
5. Naveen Prakash, “Introduction to Database Management”, TMH

BCA-204: SOFTWARE ENGINEERING

4Credits: (4L)

Teaching Hours per week: 4 **Maximum Marks: 100**
Pass Marks: 35% **Internal Assessment: 30 marks**
External: 70 marks

A) INSTRUCTION FOR THE PAPER SETTER

The question paper will consist of three sections A, B and C. Section A and B will have four questions from the respective section of the syllabus carrying 10.5 marks for each question. Section C will consist of 5-10 short answer type questions carrying a total of 28 marks, which will cover the entire syllabus uniformly. Candidates are required to attempt five questions in all by selecting at least two questions each from the section A and B. Section C is compulsory.

B) INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all by selecting at least two questions each from the section A and B. Section C is compulsory.

SECTION – A

Introduction – The Problem Domain, Software Engg.Challenges, Software Engg.Approach. Software development life cycle, its phases**, Software development process models :**Waterfall, Prototyping, Iterative; **Software Process-** Characteristics of software process, Project management process, Software configuration management process.**Project Planning** – activities, COCOMO model.**Software Metrics** – Definition, Importance, Categories of metrics. **Software Quality** – Attributes,Cyclomatic complexity metric.

Software Requirements Analysis – Need for SRS, Data flow diagrams, Data Dictionary, entity relationship diagram, Characteristics and components of SRS, validation, metrics

SECTION-B

Software Design – Design principles, Module-level concepts, Structure Chart and Structured Design methodology,, verification, metrics : network metrics, information flow metrics.

Coding – Programming Principles and Guidelines, Verification- code inspections, static analysis.**Software Testing** – testing fundamentals, Black Box Testing : Equivalence class partitioning, Boundary value analysis, cause-effect graphing; White Box Testing : Control flow and Data flow based testing, mutation testing; levels of testing, test plan, test case specification, test case execution and analysis,**Software maintenance** – Categories of maintenance.**Software Reliability** – Definition, uses of reliability studies

Text Book:

1. An Integrated approach to Software Engineering, Third Edition 2005,PankajJalote, Narosa Publications.

References:

1. Software Engineering , Revised Second Edition , K.K. Aggarwal, Yogesh Singh, New Age International Publishers.
2. Software Engineering – A Practitioner’s Approach, Fifth Edition, Roger. S. Pressman, McGraw Hill

BCA-205(E1): Basic Mathematics

6Credits: (5L + 1T)

Teaching Hours per week: 6	**Maximum Marks: 100**
Pass Marks: 35%	**Internal Assessment: 30 marks**
	External: 70 marks

A) INSTRUCTION FOR THE PAPER SETTER

The question paper will consist of three sections A, B and C. Section A and B will have four questions from the respective section of the syllabus carrying 10.5 marks for each question. Section C will consist of 5-10 short answer type questions carrying a total of 28 marks, which will cover the entire syllabus uniformly. Candidates are required to attempt five questions in all by selecting at least two questions each from the section A and B. Section C is compulsory.

B) INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all by selecting at least two questions each from the section A and B. Section C is compulsory.

SECTION A

Matrices: Types of Matrices, Addition, Subtraction, Multiplication, Transpose, Conjugate and their properties, Symmetric, Skew-symmetric, Minor, co-factors, Adjoint, Inverse of matrices, Solution of linear system of equations using matrices.

Determinants: Expansion of determinants ,solution of linear system of equations using Cramer rule.

Basic Number System: Floating point representation of numbers, arithmetic operation with normalised floating point numbers and its consequences, errors in numbers.

Solution of transcendental equations(without convergence): Bi-section method, Regula-falsi method, Newton/Raphson method, Secant method

Solution of simultaneous algebraic equations: Gauss elimination method, pivoting, ill-conditioned equations, Gauss-Seidel iterative method, comparison of direct and iterative method.

SECTION B

Complex Numbers: Complex Numbers in the form of a+ib, Real and Imaginary parts of a complex number, Complex conjugate, algebra of complex numbers, square roots of a complex number, cube roots of unity.

Quadratic Equations: Solutions of Quadratic equations (with real and complex coefficients), Relations between roots and coefficients, Nature of roots, Equations reducible to quadratic equations.

Cartesian System of Rectangular Coordinates: Cartesian coordinate system, distance formula, section formula, centroid and incentre, area of triangle, condition for collinearities of three points in a plane.

Reference Books:

1. NCERT Textbooks of Mathematics for +1 and +2.
2. M K. Jain, S.R.K. Iyengar and R.K. Jain," Numerical Methods for Scientific and Engineering Computation", Wiley.
3. B. S. Grewal, Higher Engineering Mathematics", Khanna Publishers.

BCA-205 (E2): Quantitative Aptitude
6 Credits: (5L+1T)

Teaching Hours per week: 6	**Maximum Marks: 100**
Pass Marks: 35%	**Internal Assessment: 30 marks**
	External: 70 marks

Instructions for Paper Setter/Examiners

The question paper will consist of two sections with multiple choice questions. Section A and B will have 25 multiple choice questions from each respective unit of the syllabus. Candidates are required to attempt all the questions.

Course Objectives:

1. This course provides the students with an understanding of deductive and inductive reasoning
2. To make students understand both Verbal and Non Verbal Reasoning.
3. To practice various quantitative aptitude question.

SECTION A

Verbal Reasoning: Number series, Letter & symbol series, Logical Reasoning problems, Alphabet test, Blood relations, Direction sense test, Input output, Coding-decoding, Number Ranking

Non-verbal Reasoning: Making series/analogy, Classification, Series test, Odd figures.

SECTION B

Quantitative aptitude: whole numbers problems, Problems on Trains, Numbers and Ages, Percentage Problems, Boats and Streams, Ratio & Proportion, Square roots, Averages, Interest, Heights and Distances, Time and distance, Series, Time & Work, Data Interpretation.

References:

1. R.S Aggarwal, “Quantitative aptitude”.
2. R.S Aggarwal , “Verbal and non-verbal Reasoning”.

BCA-206: Software Lab – V
(Based on Paper BCA-201)
2 Credits: 4H(P)

Practical Hours per week: 4	**Maximum Marks: 100**
Pass Marks: 35%	**Internal Assessment: 30 marks**
	External: 70 marks

This laboratory course will comprise of exercises to supplement what is learnt under paper BCA-201: Object Oriented Programming using C++.

The breakup of marks for the practical will be as under: -

i. Internal Assessment	30Marks
ii. Viva Voce(ExternalEvaluation)	40Marks
iii. Lab Record, Program Development and Execution(ExternalEvaluation)	30Marks

Students are required to develop the following programs in C++ language with internal documentation:

1. Write a program to find area of rectangle using the concept of classes & object.
2. Write a program to read 2 integers and perform simple arithmetic operations using pointer technique. (Use new and delete operators)
3. Write a program to show the use of friend function.
4. Write a program to show the use of constructor overloading.
5. Write a program to show the use of copy constructor.
6. Write a program to show the use of destructors.
7. Write a program to show the use of virtual function.
8. Write a program to implement the concept of multilevel inheritance.
9. Write a program to implement the concept of multiple inheritance.
10. Write a program of unary operator overloading.
11. Write a program of Binary operator overloading.
12. Develop an Object Oriented program in C++ to read emp name, emp code, designation, experience and age. Construct the database with suitable member functions for initializing and destroying the data using constructor and destructor and dynamic memory allocation operators new and delete.
13. Write a program in C++ to prepare mark sheet of an University exam by reading stuname, rollno, subname, subcode, internal marks, external marks. Design a base class consisting data members such as student name, roll no, sub name. Derived class consists data members such as sub code, internal marks, external marks, construct oops data to search for a record i.e. be printed.

BCA-207: Software Lab – VI
(Based on Paper BCA- 202)
2 Credits: 4H(P)

Practical Hours per week: 4	**Maximum Marks: 100**
Pass Marks: 35%	**Internal Assessment: 30 marks**
	External: 70 marks

This laboratory course will comprise of exercises to supplement what is learnt under paper BCA-202: Data Structure.

The breakup of marks for the practical will be as under: -

i. Internal Assessment	30Marks
ii. Viva Voce(ExternalEvaluation)	40Marks
iii. Lab Record, Program Development and Execution(ExternalEvaluation)	30Marks

Students are required to develop the following programs in C++ language with internal documentation:

1. Program to insert and delete an element from an array.
2. Write a program to find largest and smallest elements in an array.
3. Write a program using to add and subtract two matrices.
4. Write a program using to Multiply and Transpose two matrices.
5. Program to apply various operations on stack.
6. Program for parenthesis matching using stack.
7. Program for String reversal using stack.
8. Program to insert and delete nodes in a queue.
9. Program to insert and delete nodes in a linked list.
10. Program to search a node in a linked list.
11. Program to insert or delete node in a binary tree.
12. Program to traverse binary tree.
13. Write a program using ADT to perform linear search.
14. Write a program using ADT to perform binary search.
15. Write a program in C++ to implement Bubble sort and Selection Sort
16. Write a program in C++ to implement Quick Sort.
17. Program for implementing Insertion sort.
18. Program for implementing Merge sort.

BCA-208: Software Lab – VII
(Based on Paper BCA-203: Relational Database Management System)
2 Credits: 4H (P)

Practical Hours per week: 4	**Maximum Marks: 100**
Pass Marks: 35%	**Internal Assessment: 30marks**
	External: 70 marks

This laboratory course will comprise of exercises to supplement what is learnt under paper BCA-203 (Relational Database Management System).

The breakup of marks for the practical will be as under: -

i.	Internal Assessment	30Marks
ii.	Viva Voce(ExternalEvaluation)	40Marks
iii.	Lab Record, Program Development and Execution(ExternalEvaluation)	30Marks

This laboratory course will comprise of exercises to supplement what is learnt under paper BCA-203: Relational Database Management System.

Students are required to practices writing SQL statements for:

1. Creating the Table
2. Querying the record using order by clause
3. Querying the record using group by clause
4. Querying the record using multiple conditions
5. Create Synonyms
6. Create Sequences
7. Create Views
8. Create Indexes
9. Create triggers
10. Create cursors for procedures

ਬੀ.ਸੀ.ਏ. ਭਾਗ ਦੂਜਾ ,ਸਮੈਸਟਰ ਤੀਜਾ
ਪੇਪਰ- ਪੰਜਾਬੀ ਲਾਜ਼ਮੀ
ਪੇਪਰ ਕੋਡ:**PBCA-301A**,ਕ੍ਰੈਡਿਟ-02
2020-21,2021-22,2022-23 ਸੈਸ਼ਨ ਲਈ

ਕੁੱਲ ਅੰਕ :50	ਵਿਸ਼ੇ ਵਿਚੋਂ ਪਾਸ ਅੰਕ :17
ਬਾਹਰੀ ਪਰੀਖਿਆ:35 ਅੰਕ	ਬਾਹਰੀ ਪਰੀਖਿਆ ਵਿਚੋਂ ਪਾਸ ਅੰਕ:12
ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ :15 ਅੰਕ	ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਵਿਚੋਂ ਪਾਸ ਅੰਕ:05
ਸਮਾਂ:3 ਘੰਟੇ	ਕੁੱਲ ਲੈਕਚਰ:30

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼:

1.ਵਿਦਿਆਰਥੀਆਂ ਵਿਚ ਸਾਹਿਤ ਪੜ੍ਹਨ ਦੀ ਰੁਚੀ ਪੈਦਾ ਕਰਨਾ।
2.ਮਾਤ ਭਾਸ਼ਾ ਵਿੱਚ ਉਚੇਰੀ ਸਿੱਖਿਆ ਗ੍ਰਹਿਣ ਕਰਨ ਦੀ ਜਾਗ ਲਾਉਣਾ।
3.ਵਿਆਕਰਨਕ ਪੱਖਾਂ ਨਾਲ ਰਾਬਤਾ ਕਾਇਮ ਕਰਵਾਉਣਾ।
4.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਨੈਤਿਕ ਕਦਰਾਂ-ਕੀਮਤਾਂ ਬਾਰੇ ਜਾਣਕਾਰੀ ਦੇਣਾ।

ਪੇਪਰ ਸੈੱਟਰ ਅਤੇ ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਹਦਾਇਤਾਂ

1.ਭਾਗ-ੳ ਵਿਚੋਂ ਕਹਾਣੀ ਦਾ ਵਿਸ਼ਾ-ਵਸਤੂ/ ਸਾਰ (ਤਿੰਨ ਵਿਚੋਂ ਇੱਕ)08 ਅੰਕ
2.ਭਾਗ ੳ ਵਿਚੋਂ ਪਾਤਰ-ਚਿਤਰਨ (ਤਿੰਨ ਵਿਚੋਂ ਇੱਕ)04 ਅੰਕ
3.ਭਾਗ ਅ-1 ਵਿੱਚ ਦਿੱਤੇ ਪੈਰ੍ਹੇ ਦਾ ਸਿਰਲੇਖ ਦੱਸ ਕੇ ਸੰਖੇਪ ਰਚਨਾ (ਦੋ ਵਿਚੋਂ ਇੱਕ) 2+3 ਅੰਕ
4.ਭਾਗ-ਅ ਵਿਚੋਂ ਵਿਆਕਰਨ ਨਾਲ ਸੰਬੰਧਿਤ ਵਰਣਾਤਮਕ ਪ੍ਰਸ਼ਨ (ਦੋ ਵਿਚੋਂ ਇੱਕ) 08 ਅੰਕ
5.ਭਾਗ-ੲ ਵਿਚ ਕਹਾਣੀਆਂ ਅਤੇ ਵਿਆਕਰਨ ਵਿੱਚੋਂ ਕੁੱਲ 10(6+4) ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਲਾਜ਼ਮੀ ਪ੍ਰਸ਼ਨ।ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਜ਼ਰੂਰੀ ਹਨ । ਹਰੇਕ ਪ੍ਰਸ਼ਨ01 ਅੰਕ ਦਾ ਹੋਵੇਗਾ। **10X1=10** ਅੰਕ

ਪਾਠਕ੍ਰਮ ਅਤੇ ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਦੀ ਰੂਪ-ਰੇਖਾ

ਭਾਗ-ੳ

ੳ – ਕਥਾ ਰੰਗ(ਕਹਾਣੀ-ਸੰਗ੍ਰਹਿ) ਸੰਪਾ.ਵਰਿਆਮ ਸਿੰਘ ਸੰਧੂ ਅਤੇ ਡਾ.ਬਲਦੇਵ ਸਿੰਘ ਚੀਮਾ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ।

ਭਾਗ-ਅ

ਅ -1.ਸੰਖੇਪ ਰਚਨਾ
ਅ-2. ਵਿਆਕਰਨ

(i) ਵਾਕ:ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਵਰਗੀਕਰਨ
(ii) ਉਪਵਾਕ:ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਵਰਗੀਕਰਨ

ਭਾਗ-ੲ

ਕਹਾਣੀਆਂ ਅਤੇ ਵਿਆਕਰਨ ਵਾਲੇ ਭਾਗ ਵਿਚੋਂ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਪ੍ਰਸ਼ਨ

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1. ਜੋਗਿੰਦਰ ਸਿੰਘ ਰਾਹੀ,ਮਸਲੇ ਗਲਪ ਦੇ,ਨਾਨਕ ਸਿੰਘ ਪੁਸਤਕਮਾਲਾ,ਅੰਮ੍ਰਿਤਸਰ,1992
2. ਬਲਦੇਵ ਸਿੰਘ ਧਾਲੀਵਾਲ,ਪੰਜਾਬੀ ਕਹਾਣੀ ਦਾ ਇਤਿਹਾਸ,ਪੰਜਾਬੀ ਅਕਾਦਮੀ,ਦਿੱਲੀ
3. ਬੂਟਾ ਸਿੰਘ ਬਰਾੜ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਸ੍ਰੋਤ ਤੇ ਸਰੂਪ,ਵਾਰਿਸ ਸ਼ਾਹ ਫਾਂਊਡੇਸ਼ਨ ਅੰਮ੍ਰਿਤਸਰ,2012
4.ਬੂਟਾ ਸਿੰਘ ਬਰਾੜ, ਪੰਜਾਬੀ ਵਿਆਕਰਨ ਸਿਧਾਂਤ ਅਤੇ ਵਿਹਾਰ,ਚੇਤਨਾ ਪ੍ਰਕਾਸ਼ਨ ,ਲੁਧਿਆਣਾ,2008
5.ਬਲਦੇਵ ਸਿੰਘ ਚੀਮਾ, ਪੰਜਾਬੀ ਵਿਆਕਰਨ ਤੇ ਭਾਸ਼ਾ ਵਿਗਿਆਨ,ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ ਦਾ ਵਿਸ਼ਾ ਕੋਸ਼,

ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ,2009

6.ਡਾ. ਜਗਜੀਤ ਸਿੰਘ,ਪੰਜਾਬੀ ਵਿਆਕਰਨ:ਸ਼੍ਰੇਣੀਆ ਅਤੇ ਇਕਾਈਆ,ਨਿਊ ਬੁੱਕ ਕੰਪਨੀ,ਚੰਡੀਗੜ੍ਹ।

7.ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨ ਭਾਗ **II**,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991

8.ਗਿਆਨੀ ਲਾਲ ਸਿੰਘ ਤੇ ਹਰਕੀਰਤ ਸਿੰਘ ,ਕਾਲਜ ਪੰਜਾਬੀ ਵਿਆਕਰਣ ,ਪੰਜਾਬ ਸਟੇਟ ਯੂਨੀ.ਟੈਕਸਟ ਬੁੱਕ ਬੋਰਡ,ਚੰਡੀਗੜ੍ਹ

9. ਸੰਤ ਸਿੰਘ ਸੇਖੋਂ,ਸਾਹਿਤਆਰਥ,ਲਾਹੌਰ ਬੁੱਕ ਸ਼ਾਪ,ਲੁਧਿਆਣਾ

ਬੀ.ਸੀ.ਏ. ਭਾਗ ਦੂਜਾ ,ਸਮੈਸਟਰ ਤੀਜਾ

ਪੇਪਰ- ਪੰਜਾਬੀ ਮੁੱਢਲਾ ਗਿਆਨ

ਪੇਪਰ ਕੋਡ:**PBCA-301B**,ਕ੍ਰੈਡਿਟ-02

2020-21,2021-22,2022-23ਸੈਸ਼ਨ ਲਈ

ਕੁੱਲ ਅੰਕ :50	ਵਿਸ਼ੇ ਵਿਚੋਂ ਪਾਸ ਅੰਕ : 17
ਬਾਹਰੀ ਪਰੀਖਿਆ:35 ਅੰਕ	ਬਾਹਰੀ ਪਰੀਖਿਆ ਵਿਚੋਂ ਪਾਸ ਅੰਕ: 12
ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ :15 ਅੰਕ	ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਵਿਚੋਂ ਪਾਸ ਅੰਕ:05
ਸਮਾਂ:3 ਘੰਟੇ	ਕੁੱਲ ਲੈਕਚਰ:30

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼:

1.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਸਾਹਿਤ ਪੜ੍ਹਨ ਲਈ ਪ੍ਰੇਰਿਤ ਕਰਨਾ।
2.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੀ ਜਾਣਕਾਰੀ ਦੇਣਾ।
3.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਸਹਿਤ ਸਿਰਜਣ ਲਈ ਪ੍ਰੇਰਿਤ ਕਰਨਾ।
4.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਸਭਿਆਚਾਰ,ਲੋਕਧਾਰਾ ਅਤੇ ਨੈਤਿਕ ਕਦਰਾਂ -ਕੀਮਤਾਂ ਤੋਂ ਜਾਣੂ ਕਰਵਾਉਣਾ।

ਪੇਪਰ ਸੈੱਟਰ ਅਤੇ ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਹਦਾਇਤਾਂ:

1.ਸਾਰਾ ਸਿਲੇਬਸ 'ਅੱਖਰ ਗਿਆਨ (ਭਾਗ-ਦੂਜਾ)'ਵਿਚੋਂ ਹੀ ਪਾਇਆ ਜਾਵੇ।
2.ਭਾਗ-ੳ: ਵਿਚ ਨਿਬੰਧ ਦਾ ਵਿਸ਼ਾ-ਵਸਤੂ /ਸਾਰ (ਤਿੰਨ ਵਿਚੋਂ ਇੱਕ)07 ਅੰਕ
3.ਭਾਗ-ਅ:1 ਵਿਚ ਅਨੁਵਾਦ ਅੰਗਰੇਜ਼ੀ ਸ਼ਬਦਾਂ ਤੋਂ ਪੰਜਾਬੀ ਸ਼ਬਦਾਂ ਵਿਚ (ਸੋਲਾਂ ਵਿਚੋਂ ਅੱਠ) 04 ਅੰਕ
4.ਭਾਗ-ਅ:2 ਵਿਚ ਸ਼ਬਦ ਜੋੜਾਂ ਦੀ ਸੁਧਾਈ (ਸੋਲਾਂ ਵਿਚੋਂ ਅੱਠ) 04 ਅੰਕ
5.ਭਾਗ-ਅ:3 ਵਿਚ ਵਿਆਕਰਨ ਨਾਲ ਸੰਬੰਧਿਤ ਪ੍ਰਸ਼ਨ (ਦੋ ਵਿਚੋਂ ਇੱਕ) 05 ਅੰਕ
6.ਭਾਗ-ੲ ਵਿਚ ਨਿਬੰਧਾਂ,ਅਨੁਵਾਦ ਅਤੇ ਸ਼ਬਦਾਂ ਦੀ ਸੁਧਾਈ ਵਿਚੋਂ ਕੁੱਲ 15 ਆਬਜੈਕਟਿਵ ਪ੍ਰਸ਼ਨ ।ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਲਾਜ਼ਮੀ ਹਨ । ਹਰੇਕ ਪ੍ਰਸ਼ਨ 01 ਅੰਕ ਦਾ ਹੋਵੇਗਾ । **(15X1=15** ਅੰਕ)

ਪਾਠਕ੍ਰਮ ਅਤੇ ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਦੀ ਰੂਪ-ਰੇਖਾ

ਭਾਗ-ੳ

ੳ -ਅੱਖਰ ਗਿਆਨ(ਭਾਗ-ਦੂਜਾ),ਮੁੱਖ ਸੰਪਾ. ਡਾ.ਜਸਵੀਰ ਸਿੰਘ,ਸੰਪਾ.ਡਾ.ਅਵਤਾਰ ਸਿੰਘ,ਡਾ.ਗੁਰਪ੍ਰੀਤ ਕੌਰ, ਪ੍ਰੋ.ਸੁਖਵਿੰਦਰ ਸਿੰਘ,ਸ੍ਰੀ ਗੁਰੂ ਤੇਗ਼ ਬਹਾਦਰ ਖ਼ਾਲਸਾ ਕਾਲਜ,ਸ੍ਰੀ ਅਨੰਦਪੁਰ ਸਾਹਿਬ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ,ਪੁਸਤਕ ਵਿੱਚੋਂ ਨਿਬੰਧ ਵਾਲਾ ਭਾਗ

ਭਾਗ-ਅ

ਅ-1.ਅਨੁਵਾਦ(ਅੰਗਰੇਜ਼ੀ ਸ਼ਬਦਾਂ ਤੋਂ ਪੰਜਾਬੀ ਸ਼ਬਦਾਂ ਵਿਚ)
ਅ-2 .ਸ਼ਬਦ ਜੋੜਾਂ ਦੀ ਸੁਧਾਈ।
ਅ-3 .ਵਿਸ਼ੇਸ਼ਣ ਅਤੇ ਕਿਰਿਆ ਵਿਸ਼ੇਸ਼ਣ :ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਕਿਸਮਾਂ

ਭਾਗ-ੲ

ਨਿਬੰਧਾਂ,ਅਨੁਵਾਦ ਅਤੇ ਸ਼ਬਦਾਂ ਦੀ ਸੁਧਾਈ ਵਿਚੋਂ ਸਿਲੇਬਸ ਵਿਚੋਂ ਆਬਜੈਕਟਿਵ ਪ੍ਰਸ਼ਨ

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1. ਬਲਦੇਵ ਸਿੰਘ ਚੀਮਾ, ਪੰਜਾਬੀ ਵਿਆਕਰਨ ਤੇ ਭਾਸ਼ਾ ਵਿਗਿਆਨ,ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ ਦਾ ਵਿਸ਼ਾ ਕੋਸ਼, ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ,2009
2. ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨ ਭਾਗ **I**,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991
3. ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨ ਭਾਗ **II**,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991
4.ਬਲਵੀਰ ਸਿੰਘ ਦਿਲ, ਪੰਜਾਬੀ ਨਿਬੰਧ :ਸਰੂਪ, ਸਿਧਾਂਤ ਅਤੇ ਵਿਕਾਸ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ, ਪੰਜਾਬੀ,ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।
5.ਖੋਜ ਪੱਤ੍ਰਿਕਾ, ਨਿਬੰਧ ਅੰਕ-29,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ, ਪੰਜਾਬੀ,ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।

SEMESTER - IV

BCA-211: COMPUTER NETWORKS

6Credits: (5L + 1T)

Teaching Hours per week: 6 **Maximum Marks: 100**
Pass Marks: 35% **Internal Assessment: 30 marks**
External: 70 marks

A) INSTRUCTION FOR THE PAPER SETTER

The question paper will consist of three sections A, B and C. Section A and B will have four questions from the respective section of the syllabus carrying 10.5 marks for each question. Section C will consist of 5-10 short answer type questions carrying a total of 28 marks, which will cover the entire syllabus uniformly. Candidates are required to attempt five questions in all by selecting at least two questions each from the section A and B. Section C is compulsory.

B) INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all by selecting at least two questions each from the section A and B. Section C is compulsory.

SECTION-A

Introduction to Computer networks, Applications, Network hardware and Software (protocol hierarchies, design issues for layers, interfaces and services: connection oriented and connection less), Network structure and architecture- point to point, multicast, broadcast, Classification of networks- LAN, MAN and WAN. Reference models, the OSI reference model, TCP / IP reference model. Comparison between OSI and TCP / IP models.LAN Protocols : CSMA, CSMA/CD, Collision Free protocol, BRAP, MLMA, Binary countdown. Data Link Layer: Design issues, Services to network layer, Framing, Error control, Flow control.

SECTION-B

Network layer: Design issues, Services to the transport layer, Routing algorithms- Static/ non-adaptive and dynamic/adaptive algorithms. Congestion control algorithms – the leaky bucket algorithm, the token bucket algorithm.
Transport layer protocols- TCP, UDP.
Application layer: The DNS Name Space, Electronic Mail, The World Wide Web, Network security: Introduction to cryptography, substitution ciphers, transposition ciphers, one-time pads, two fundamental cryptographic principles, public-key algorithms (RSA, other Public-key algorithms), digital signatures.

Text Book:

1. B Forouzan, Introduction to data communication and networking

Reference Books:

1. A S Tanenbaum, Computer Networks.

BCA-212: PROGRAMMING USING JAVA

4Credits: (4L)

Teaching Hours per week: 4	**Maximum Marks: 100**
Pass Marks: 35%	**Internal Assessment: 30 marks**
	External: 70 marks

A) INSTRUCTION FOR THE PAPER SETTER

The question paper will consist of three sections A, B and C. Section A and B will have four questions from the respective section of the syllabus carrying 10.5 marks for each question. Section C will consist of 5-10 short answer type questions carrying a total of 28 marks, which will cover the entire syllabus uniformly. Candidates are required to attempt five questions in all by selecting at least two questions each from the section A and B. Section C is compulsory.

B) INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all by selecting at least two questions each from the section A and B. Section C is compulsory.

SECTION-A

Introduction to java: evolution, features, comparison with C and C++; Java program structure; tokens, keywords, constants, variables, data types, type casting, statements.**Operators and expressions:** arithmetic, relational, logical, assignment, increment, decrement, conditional, bitwise and special operators. Operator precedence & associativity rules.**Control statements:** if else, switch case, for, while, do while, break, continue, labeled loops.**Class:** syntax, instance variable, class variables, methods, constructors, overloading of constructors and methods.

SECTION B

Inheritance: types of inheritance, use of super, method overriding, final class, abstract class, wrapper classes.Arrays, Strings and Vectors, Packages and Interfaces, visibility controls.**Errors and Exceptions:** Types of errors, Exception classes, Exception handling in java, use of try, catch, finally, throw and throws. Taking user input, Command line arguments.0**Multithreaded Programming:** Creating Threads, Life cycle of thread, Thread priority, Thread synchronization, Inter-thread communication.

Text Book:

1. Patrick Naughton and Herbert Schildt, "*The Complete Reference Java 2*", TMH

References:

2. Horstmann, Cay S. and Gary Cornell, "*Core Java 2: Fundamentals Vol. 1*", Pearson Education.
3. E. Balagurusamy "*Programming with Java*", TMH

BCA-213: System Software

6Credits: (5L+1T)

Teaching Hours per week: 6 **Maximum Marks: 100**

Pass Marks: 35% **Internal Assessment: 30 marks**

External: 70 marks

A) INSTRUCTION FOR THE PAPER SETTER

The question paper will consist of three sections A, B and C. Section A and B will have four questions from the respective section of the syllabus carrying 10.5 marks for each question. Section C will consist of 5-10 short answer type questions carrying a total of 28 marks, which will cover the entire syllabus uniformly. Candidates are required to attempt five questions in all by selecting at least two questions each from the section A and B. Section C is compulsory.

B) INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all by selecting at least two questions each from the section A and B. Section C is compulsory.

SECTION-A

Introduction to System Software: Introduction to System Software and its components.Translators, loaders, interpreters, compiler, assemblers.

Assemblers: Overview of assembly process, design of one pass and two assemblers

Macroprocessors: Macro definition and expansion, concatenation of macro parameters, generations of unique labels, conditional macro expansion, Recursive macro expansion

SECTION-A

Compilers: Phases of Compilation Process, Lexical Analysis, Parsing, Storage Management Optimization, Incremental Compilers, Cross Compilers.

Loaders and Linkage editors: Basic loader functions. Relocation, program linking, linkage, editors, dynamic linking, Bootstrap loaders.

References:

1. Leland L. Beck: System Software, An Introduction to System Programming, Addison Wesley.
2. D.M. Dhamdhere: Introduction to System Software, Tata McGraw Hill.
3. D.M. Dhamdhere: System Software and Operating System, Tata McGraw Hill, 1992.
4. Madrich, Stuarte: Operating Systems, McGraw Hill, 1974.
5. Stern Nancy Assembler Language Programming for IBM and IBM Compatible Computers, John Wiley, 1991.

BCA-214: Workshop on Adobe Photoshop
4 Credits: (4P)

Practical Hours per week: 4 **Maximum Marks: 100**
External :50 Marks
Pass Marks: 35% **Internal Assessment: 50 marks**

Introduction to Photoshop: Basics of Adobe Photoshop. Understanding pixels & resolution.Exploring menus, panels and toolbox. Creating new image files and opening existing files in Photoshop. Understanding and handling different image file formats, changing the resolution, color, greyscales and size of the images. Zooming & panning an image. Working with multiple images, rulers, guides & grids. Creating multicolor images and using brushes, adjusting color using the panel. Cropping, rotating, overlapping and superimposingphotos on a page. Undoing Steps with History

Working with selections, layers and channels: Understanding selection tools, refining the selection and edges. Understanding layers, creating, selecting, editing, locking and grouping layers.Layer styles, consolidating layers.Manipulating layer mask. Understanding color channels, working with channels panel.

Working with filters: Basics of Filters, constructive filters, blur filters, destructive filters, effects filters, render filters, liquify filter and other filters required for artistic effects.

Creating images for the web: understanding web image formats, preparing and slicing images for the web use.Adding transparency to the web, previewing images in a browser.

References:

1. Adobe Photoshop CS6, Bible the comprehensive, tutorial resource – Lisa DanaeDayley, Brad Dayley - WileyIndia
2. Photoshop 7 Savvy – Steve Romaniello – BPBPublications.

BCA-215(E1): DIGITAL ELECTRONICS

6Credits: (5L + 1T)

Teaching Hours per week: 6 **Maximum Marks: 100**
Pass Marks: 35% **Internal Assessment: 30 marks**
External: 70 marks

A) INSTRUCTION FOR THE PAPER SETTER

The question paper will consist of three sections A, B and C. Section A and B will have four questions from the respective section of the syllabus carrying 10.5 marks for each question. Section C will consist of 5-10 short answer type questions carrying a total of 28 marks, which will cover the entire syllabus uniformly. Candidates are required to attempt five questions in all by selecting at least two questions each from the section A and B. Section C is compulsory.

B) INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all by selecting at least two questions each from the section A and B. Section C is compulsory.

SECTION A

Fundamental Concepts: Introduction to Analog and Digital Systems, Digital Signals, Characteristics of Digital IC Basic, Logic gates: AND, OR, NOT, NAND, NOR, XOR and XNOR gates. Number Systems: Positional and Non-positional number systems, Binary, Decimal, Octal and Hexa decimal, Base conversions. Binary Arithmetic: Addition, Multiplication, Division and Subtraction using 1's complement, 2's complement method. Boolean Algebra and Minimization techniques: Simplification of Boolean expressions using Laws, Rules, Duality Principal and Demorgan's Theorems. Canonical SOP and POS Representation of Logic functions, K-Map representation and simplification upto 4 variable expressions, Don't care condition.

SECTION B

Adders and Subtractors: Design of Half adder, Full adder and Binary adder, Design of Half Subtractor and Full Subtractor. Multiplexer and De-multiplexers: Design of Multiplexer (4X1,8X1 and16X1), Design of Demultiplexers (1 to4, 1 to8 and 1to16). Decoders and Encoders: 2X4,3X8, 4X16, BCD to Decimal decoder, BCD to 7 Segment decoder. Encoders:8X3, Decimal to BCD encoder.Parity generator and Parity checker. Flip-Flops: Introduction, Latch, Clocked S-R Flip Flop, Preset and Clear signals, D-Flip Flop, J-K Flip Flop, race-around condition, Master Slave J-K Flip Flop, D-Flip-Flop, Edge Triggered Flip Flops.

Reference Books:

1. NCERT Textbooks of Mathematics for +1 and +2.
2. M K. Jain, S.R.K. Iyengar and R.K. Jain," Numerical Methods for Scientific and Engineering Computation", Wiley.
3. B. S. Grewal, Higher Engineering Mathematics", Khanna Publishers.

BCA-215 (E2): Computer Oriented Statistical Methods
6 Credits: (5L+1T)

Teaching Hours per week: 6 **Maximum Marks: 100**
Pass Marks: 35% **Internal Assessment: 30 marks**
External: 70 marks

A) INSTRUCTION FOR THE PAPER SETTER

The question paper will consist of three sections A, B and C. Section A and B will have four questions from the respective section of the syllabus carrying 10.5 marks for each question. Section C will consist of 5-10 short answer type questions carrying a total of 28 marks, which will cover the entire syllabus uniformly. Candidates are required to attempt five questions in all by selecting at least two questions each from the section A and B. Section C is compulsory.

B) INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all by selecting at least two questions each from the section A and B. Section C is compulsory.

SECTION-A

Introduction: Meaning and Definitions of Statistics, Data and Data Sources, Types of Statistics, Importance of Statistics in computers, an overview of central tendency, Arithmetic Mean, Median, Mode, Relationships of the Mean, Median and Mode.

Dispersion: Meaning and Definition of Dispersion, Significance and Properties of Measuring Variation, Measures of Dispersion, Range, Interquartile Range or Quartile Deviation, Mean Deviation, Standard Deviation.

Correlation Analysis: Definition, Scatter diagram, Correlation Graph, Pearson’s Coefficient of Correlation, Spearman’s Rank Correlation, Limitations of Correlation Analysis.

Regression: Linear Regression, Regression Line of Y on X: Scatter Diagram, Fitting a Straight Line, Regression Line of X on Y, Properties of Regression Coefficients, Regression Lines and Coefficient of Correlation, Correlation Analysis Versus Regression Analysis.

SECTION-B

Computer Arithmetic :Basics of Floating point representation of numbers, arithmetic operation with normalised floating point numbers and its consequences, errors in numbers, binary representation of numbers.

Iterative Methods for finding roots :Bisection, False Position, Regula-falsi method, Secant Method, Newton Raphson, Discuss convergence only without derivation.

Solution of simultaneous algebraic equations: Gauss elimination method, Gauss-Seidel iterative method, Jacobi’s Method, Gauss Jordan Method.

Text Books:

1. V. Rajaraman, "Computer Oriented Numerical Methods”, PHI, New Delhi, 1994
2. Murray R Spiegel, Larry J. Stephens - “Statistics” Schaum's Outlines

Reference Books:

1. J.H. Mathews," Numerical Methods for Computer Science, Engineering and Mathematics", PHI,
2. M K. Jain, S.R.K. Iyengar and R.K. Jain," Numerical Methods for Scientific and Enginerring Computation", Wiley Eastern Limited, New Delhi,
3. S.C. Chopra and R.P.C Anale,”Numarical Methods for Engineers”, McGraw-Hill, New York

BCA-216: SOFTWARE LAB-VIII

(Based on Paper BCA-212)

2 Credits: (4P)

Practical Hours per week: 4 **Maximum Marks: 100**
Pass Marks: 35% **Internal Assessment: 30 marks**
External: 70 marks

This laboratory course will comprise of exercises to supplement what is learnt under paper BCA-212 (Programming using Java).
The breakup of marks for the practical will be as under: -

i. Internal Assessment30Marks
ii. Viva Voce(ExternalEvaluation)
40Marks
iii. Lab Record, Program Development and Execution(ExternalEvaluation)30Marks

Students are required to develop the following programs in Java language with internal documentation:

1. Write a ***Class Date*** that takes day, month, and year while creating an object of this class. Find a new date when the number of days is given.
2. Write a program to implement Boolean AND, OR, XOR, and NOT operations.
3. Write a program to Add, Subtract, Multiply two matrices using switch statement. The program must also validate the sizes of two matrices before performing any operation and should raise exception in case the operation cannot be performed.
4. Write a program to store and then prints sorted names of students according to their length of name using arrays with variable sized rows.
5. Write a program to find the ***area of all types of triangles*** using the principle of ***constructor overloading and Inheritance*** depending on the number of dimensions given in the input parameter list using ***super*** to call the super class constructor.
6. Write a program to find the ***area of rectangle*** using an ***abstract super*** class figure and also ***override*** method use to compute the area of the rectangle.
7. Write a program to implement grow able and shrinkable ***Stack*** that can support operations like-push, pop, and view the top item with concept of dynamic allocation using ***finalize()*** method. The program should also incorporate the concepts of ***private and public*** access methods to avoid accidental manipulations of stack.
8. Write a program to demonstrate ***static variables, methods and blocks***.
9. Write a program to swap two items belonging to an object using ***returning of object*** by a function.
10. Write a program to count the frequency of each vowel in a given string.
11. Demonstrate the use of ***static and non static nested*** classes.
12. Create a package containing a class to print your (name, roll no, marks) and use this package in another program using ***import*** statement.

ਬੀ.ਸੀ.ਏ ਭਾਗ ਦੂਜਾ ,ਸਮੈਸਟਰ ਚੌਥਾ
ਪੇਪਰ-ਪੰਜਾਬੀ ਲਾਜ਼ਮੀ
ਪੇਪਰ ਕੋਡ:**PBCA-401A**,ਕ੍ਰੈਡਿਟ-02
2020-21,2021-22,2022-23 ਸੈਸ਼ਨ ਲਈ

ਕੁੱਲ ਅੰਕ :50	ਵਿਸ਼ੇ ਵਿਚੋਂ ਪਾਸ ਅੰਕ : 17
ਬਾਹਰੀ ਪਰੀਖਿਆ:35 ਅੰਕ	ਬਾਹਰੀ ਪਰੀਖਿਆ ਵਿਚੋਂ ਪਾਸ ਅੰਕ: 12
ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ :15 ਅੰਕ	ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਵਿਚੋਂ ਪਾਸ ਅੰਕ:05
ਸਮਾਂ:3 ਘੰਟੇ	ਕੁੱਲ ਲੈਕਚਰ:30

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼:

1.ਵਿਦਿਆਰਥੀਆਂ ਵਿਚ ਸਾਹਿਤ ਪੜ੍ਹਨ ਦੀ ਰੁਚੀ ਪੈਦਾ ਕਰਨਾ।
2.ਮਾਤ ਭਾਸ਼ਾ ਵਿੱਚ ਉਚੇਰੀ ਸਿੱਖਿਆ ਗ੍ਰਹਿਣ ਕਰਨ ਦੀ ਜਾਗ ਲਾਉਣਾ।
3.ਵਿਆਕਰਨਕ ਪੱਖਾਂ ਨਾਲ ਰਾਬਤਾ ਕਾਇਮ ਕਰਵਾਉਣਾ।
4.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਨੈਤਿਕ ਕਦਰਾਂ-ਕੀਮਤਾਂ ਬਾਰੇ ਜਾਣਕਾਰੀ ਦੇਣਾ।

ਪੇਪਰ ਸੈੱਟਰ ਅਤੇ ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਹਦਾਇਤਾਂ

1.ਭਾਗ-ੳ ਵਿਚੋਂ ਕਵਿਤਾ ਦਾ ਵਿਸ਼ਾ-ਵਸਤੂ / ਸਾਰ /ਲੇਖਕ ਦਾ ਯੋਗਦਾਨ	(ਦੋ ਵਿਚੋਂ ਇੱਕ)08ਅੰਕ
2. ਭਾਗ-ੳ ਵਿਚੋਂ ਕਾਵਿ-ਬੰਦ ਦੀ ਪ੍ਰਸੰਗ ਸਹਿਤ ਵਿਆਖਿਆ	(ਤਿੰਨ ਵਿਚੋਂ ਇੱਕ)04 ਅੰਕ
3.ਭਾਗ ਅ-1 ਵਿਚੋਂ ਅਖ਼ਬਾਰੀ ਰਿਪੋਰਟ	(ਤਿੰਨ ਵਿਚੋਂ ਇੱਕ)05 ਅੰਕ
4.ਭਾਗ-ਅ ਵਿਚੋਂ ਵਿਆਕਰਨ ਨਾਲ ਸੰਬੰਧਿਤ ਵਰਣਾਤਮਕ ਪ੍ਰਸ਼ਨ	(ਦੋ ਵਿਚੋਂ ਇੱਕ) 08ਅੰਕ

5. ਭਾਗ-ੲ ਵਿਚ ਕਵਿਤਾਵਾਂ ਅਤੇ ਵਿਆਕਰਨ ਵਿੱਚੋਂ ਕੁੱਲ 10(6+4) ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਲਾਜ਼ਮੀ ਪ੍ਰਸ਼ਨ।ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਜ਼ਰੂਰੀ ਹਨ । ਹਰੇਕ ਪ੍ਰਸ਼ਨ 01 ਅੰਕ ਦਾ ਹੋਵੇਗਾ ।
10X1=10ਅੰਕ

ਪਾਠਕ੍ਰਮ ਅਤੇ ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਦੀ ਰੂਪ-ਰੇਖਾ
ਭਾਗ-ੳ

ੳ -ਪੰਜਾਬੀ ਕਾਵਿ-ਸੰਗ੍ਰਹਿ(1700 ਈ.ਤੱਕ),ਸੰਪਾ.ਡਾ.ਜਸਵਿੰਦਰ ਸਿੰਘ,ਡਾ.ਮਾਨ ਸਿੰਘ ਢੀਂਡਸਾ ਅਤੇ ਡਾ.ਗੁਰਸ਼ਰਨ ਕੌਰ ਜੱਗੀ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ ਪੁਸਤਕ ਵਿੱਚੋਂ ਸ਼ੇਖ ਫ਼ਰੀਦ(ਸ਼ਬਦ),ਹੀਰ ਦਮੋਦਰ,ਕਾਫ਼ੀਆਂ ਸ਼ਾਹ ਹੁਸੈਨ,ਗੁਰੂ ਤੇਗ਼ ਬਹਾਦਰ,ਗੁਰੂ ਗੋਬਿੰਦ ਸਿੰਘ ਦੀਆਂ ਪਹਿਲੀਆਂ ਪੰਜ-ਪੰਜ ਕਵਿਤਾਵਾਂ

ਭਾਗ-ਅ

ਅ-1.ਅਖ਼ਬਾਰੀ ਰਿਪੋਰਟ

ਅ-2. ਵਿਆਕਰਨ:

i.ਗੁਰਮੁਖੀ ਲਿਪੀ ਦਾ ਇਤਿਹਾਸ
ii.ਗੁਰਮੁਖੀ ਲਿਪੀ ਦੀਆਂ ਵਿਸ਼ੇਸ਼ਤਾਵਾਂ

ਭਾਗ-ੲ
ਭਾਗ-ੳ ਅਤੇ ਵਿਆਕਰਨ ਵਾਲੇ ਭਾਗ ਵਿਚੋਂ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਪ੍ਰਸ਼ਨ

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1.ਪੰਜਾਬੀ ਦੁਨੀਆ,ਗੁਰੂ ਨਾਨਕ ਅੰਕ, ਭਾਸ਼ਾ ਵਿਭਾਗ ਪੰਜਾਬ, ਪਟਿਆਲਾ।
2. ਡਾ.ਤਾਰਨ ਸਿੰਘ ,ਬਾਬਾ ਫਰੀਦ: ਜੀਵਨ ਤੇ ਰਚਨਾ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ।
3. ਬੂਟਾ ਸਿੰਘ ਬਰਾੜ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਸ੍ਰੋਤ ਤੇ ਸਰੂਪ,ਵਾਰਿਸ਼ ਸ਼ਾਹ ਫਾਂਉਡੇਸ਼ਨ ਅੰਮ੍ਰਿਤਸਰ,2012
4. ਬੂਟਾ ਸਿੰਘ ਬਰਾੜ, ਪੰਜਾਬੀ ਵਿਆਕਰਨ ਸਿਧਾਂਤ ਅਤੇ ਵਿਹਾਰ,ਚੇਤਨਾ ਪ੍ਰਕਾਸ਼ਨ ,ਲੁਧਿਆਣਾ,2008
5. ਬਲਦੇਵ ਸਿੰਘ ਚੀਮਾ, ਪੰਜਾਬੀ ਵਿਆਕਰਨ ਤੇ ਭਾਸ਼ਾ ਵਿਗਿਆਨ,ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ ਦਾ ਵਿਸ਼ਾ ਕੋਸ਼,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ,2009
6.ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨਕ ਭਾਗ I,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991
7.ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨਕ ਭਾਗ II,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991
8.ਗਿਆਨੀ ਲਾਲ ਸਿੰਘ ਤੇ ਹਰਕੀਰਤ ਸਿੰਘ ,ਕਾਲਜ ਪੰਜਾਬੀ ਵਿਆਕਰਣ ,ਪੰਜਾਬ ਸਟੇਟ ਯੂਨੀ.ਟੈਕਸਟ ਬੁੱਕ ਬੋਰਡ,ਚੰਡੀਗੜ੍ਹ

9.ਸੰਤ ਸਿੰਘ ਸੇਖੋਂ,ਸਾਹਿਤਆਰਥ,ਲਾਹੌਰ ਬੁੱਕ ਸ਼ਾਪ,ਲੁਧਿਆਣਾ

ਬੀ.ਸੀ.ਏ. ਭਾਗ ਦੂਜਾ,ਸਮੈਸਟਰ ਚੌਥਾ

ਪੇਪਰ- ਪੰਜਾਬੀ ਮੁੱਢਲਾ ਗਿਆਨ

ਪੇਪਰ ਕੋਡ:**PBCA-401B**,ਕ੍ਰੈਡਿਟ-02

2020-21,2021-22,2022-23 ਸੈਸ਼ਨ ਲਈ

ਕੁੱਲ ਅੰਕ :50 — ਵਿਸ਼ੇ ਵਿਚੋਂ ਪਾਸ ਅੰਕ : 17
ਬਾਹਰੀ ਪਰੀਖਿਆ:35 ਅੰਕ — ਬਾਹਰੀ ਪਰੀਖਿਆ ਵਿਚੋਂ ਪਾਸ ਅੰਕ: 12
ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ :15 ਅੰਕ — ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਵਿਚੋਂ ਪਾਸ ਅੰਕ:05
ਸਮਾਂ:3 ਘੰਟੇ — ਕੁੱਲ ਲੈਕਚਰ:30

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼:

1.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਸਾਹਿਤ ਪੜ੍ਹਨ ਲਈ ਪ੍ਰੇਰਿਤ ਕਰਨਾ।
2.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੀ ਜਾਣਕਾਰੀ ਦੇਣਾ।
3.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਸਹਿਤ ਸਿਰਜਣ ਲਈ ਪ੍ਰੇਰਿਤ ਕਰਨਾ।
4.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਸਭਿਆਚਾਰ,ਲੋਕਧਾਰਾ ਅਤੇ ਨੈਤਿਕ ਕਦਰਾਂ -ਕੀਮਤਾਂ ਤੋਂ ਜਾਣੂ ਕਰਵਾਉਣਾ।

ਪੇਪਰ ਸੈਂਟਰ ਅਤੇ ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਹਦਾਇਤਾਂ:

1.ਸਾਰਾ ਸਿਲੇਬਸ 'ਅੱਖਰ ਗਿਆਨ (ਭਾਗ-ਦੂਜਾ)'ਵਿਚੋਂ ਹੀ ਪਾਇਆ ਜਾਵੇ।
2.ਭਾਗ-ੳ: ਵਿਚ ਕਹਾਣੀ ਦਾ ਵਿਸ਼ਾ-ਵਸਤੂ /ਸਾਰ (ਤਿੰਨ ਵਿਚੋਂ ਇੱਕ)08ਅੰਕ
3.ਭਾਗ-ਅ:1 ਵਿਚ ਨਿੱਜੀ ਚਿੱਠੀ-ਪੱਤਰ (ਤਿੰਨ ਵਿਚੋਂ ਇੱਕ) 05 ਅੰਕ
4.ਭਾਗ-ਅ:2 ਵਿਚ ਅੰਗਰੇਜ਼ੀ ਤੋਂ ਪੰਜਾਬੀ ਵਿਚ ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ (ਸੋਲਾ ਵਿਚੋਂ ਅੱਠ) 04 ਅੰਕ
5.ਭਾਗ-ਅ:3 ਵਿਚ ਵਿਆਕਰਨ ਨਾਲ ਸੰਬੰਧਿਤ ਪ੍ਰਸ਼ਨ (ਦੋ ਵਿਚੋਂ ਇੱਕ) 08 ਅੰਕ
6.ਭਾਗ-ੲ ਵਿਚ ਕਹਾਣੀਆਂ,ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ ਅਤੇ ਵਿਆਕਰਨ ਵਿਚੋਂ ਕੁੱਲ 10 ਆਬਜੈਕਟਿਵ ਪ੍ਰਸ਼ਨ।ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਲਾਜ਼ਮੀ ਹਨ । ਇੱਕ ਪ੍ਰਸ਼ਨ 01 ਅੰਕ ਦਾ ਹੋਵੇਗਾ ।
(10X1=10 ਅੰਕ)

ਪਾਠਕ੍ਰਮ ਅਤੇ ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਦੀ ਰੂਪ-ਰੇਖਾ

ਭਾਗ-ੳ

ੳ -ਅੱਖਰ ਗਿਆਨ (ਭਾਗ-ਦੂਜਾ),ਮੁੱਖ ਸੰਪਾ. ਡਾ.ਜਸਵੀਰ ਸਿੰਘ ,ਸੰਪਾ.ਡਾ.ਅਵਤਾਰ ਸਿੰਘ, ਡਾ.ਗੁਰਪ੍ਰੀਤ ਕੌਰ,ਪ੍ਰੋ.ਸੁਖਵਿੰਦਰ ਸਿੰਘ, ਸ੍ਰੀ ਗੁਰੂ ਤੇਗ਼ ਬਹਾਦਰ ਖ਼ਾਲਸਾ ਕਾਲਜ,ਸ੍ਰੀ ਅਨੰਦਪੁਰ ਸਾਹਿਬ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ,ਪੁਸਤਕ ਵਿੱਚੋਂ ਕਹਾਣੀਆਂ ਵਾਲਾ ਭਾਗ

ਭਾਗ-ਅ

ਅ-1.ਨਿੱਜੀ ਚਿੱਠੀ-ਪੱਤਰ
ਅ-2 .ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ
ਅ-3 .ਸੰਬੰਧਕ ਅਤੇ ਯੋਜਕ :ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਕਿਸਮਾਂ

ਭਾਗ-ੲ

ਕਹਾਣੀਆਂ,ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ ਅਤੇ ਵਿਆਕਰਨ ਵਿਚੋਂ ਆਬਜੈਕਟਿਵ ਪ੍ਰਸ਼ਨ

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1.ਬਲਦੇਵ ਸਿੰਘ ਚੀਮਾ, ਪੰਜਾਬੀ ਵਿਆਕਰਨ ਤੇ ਭਾਸ਼ਾ ਵਿਗਿਆਨ,ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ ਦਾ ਵਿਸ਼ਾ ਕੋਸ਼, ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ,2009
2.ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨ ਭਾਗ **I**,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991
3.ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨ ਭਾਗ **II**,ਪੰਜਾਬੀ

ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991

Note:

1. The committee also recommends to continue the syllabus of Punjabi University, Patiala for BCA-IIIrd Year.

2. Credits are exceeded due to Credits given to Course work of Punjabi Compulsory as per Punjab State Policy.

Members of Board of Studies

1. Mr. Surender Kumar 2. Dr. Dharamveer Sharma 3. Dr. Major Singh Gorya

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7. Mrs. Tajinder Kaur 8. Mrs. Paramjit Kaur 9. Mrs. Amandeep Kaur

(B. Sc (COMPUTER APPLICATION))
SYLLABUS
FOR
COURSE: B.Sc. (COMPUTER APPLICATION)
PART-II
(SEMESTER: III &IV)
SESSION: 2020–2021
FACULTY OF COMPUTING SCIENCE
P.G. DEPARTMENT OF COMPUTER SCIENCE

SRI GURU TEG BAHADUR KHALSA COLLEGE
Sri Anandpur Sahib
An Autonomous College
Affiliated to Punjabi University, Patiala

B.Sc. Part-II(COMPUTER APPLICATION)
(Semester III)
BSc(COM)-308 : Programming Fundamentals Using C
(2020-21, 2021-22 and 2022-23 Sessions)

Credits: 4
External Marks: 75 **Maximum Time: 3 Hrs.**
Minimum Pass Marks: 35% **Lectures to be delivered: 45-55**
Internal Assessment: 25

A) Instructions for paper-setter

The question paper will consist of three sections A, B & C. Sections A &B will have four questions from the respective sections of the syllabus and will carry 40% marks each. Section C will have 6-12 short answer type questions which will cover the entire syllabus uniformly and will carry 20% marks in all.

B) Instructions for candidates

1. Candidates are required to attempt two questions each from sections A & Bof the question paper and the entire section C.

SECTION-A

Programming Process: Problem definition, Algorithm development, Flowchart, Coding, Compilation and debugging.

Basic structure of C program: History of C, Structure of a C program, Character set, Identifiers and keywords, constants, variables, data types.

Operators and expressions: Arithmetic, Unary, Logical, Relational operators, assignment operators, Conditional operators, Hierarchy of operations type conversion.

Control statements: branching statements (if, if else, switch), loop statements (for, while and do-while), jump statements (break, continue, goto), nested control structures.

Functions: Library functions and user defined functions, prototype, definition and call, formal and actual arguments, local and global variables, methods of parameter passing to functions, recursion.

I/O functions: formatted & unformatted console I/O functions

SECTION-B

Storage Classes: automatic, external, static and register variables.

Arrays: – One dimensional and two-dimensional arrays Declaration, initialization, reading values into an array, displaying array contents.

Strings: input/output of strings, string handling functions (strlen, strcpy, strcmp, strcat & strrev), table of strings.

Structures and unions: using structures and unions, comparison of structure with arrays and union.

Pointers: pointer data type, pointer declaration, initialization, accessing values using pointers, pointers and arrays.

Reference Books:

1. E. Balagurusamy, Programming in C, Tata McGraw-Hill.
2. Kernighan and Ritchie, The C Programming Language, PHI.
3. Byron Gotfried, Programming in C.
4. Kamathane, Programming in C, Oxford University Press.

PAPER BSc (COM)-308 P
PRACTICAL BASED ON PAPER BSc (COM)-308

Credits: 2
Maximum Marks: 50 **Maximum Time: 3 Hrs**
Minimum Pass Marks: 35% **Practical Units to be conducted:45-55Hrs**
External Evaluation: 50

All the techniques to be implemented in C Language which are taught in theory paper BSc(COM) 308: **Programming Fundamentals Using C**.

Students are required to develop the following programs:

1. **Operators and data types in C**
   a. Write a program to print the size of all the data types supported by C and its range.
   b. Write a program to convert temperature from Fahrenheit to Celsius.
   c. Write a program to find simple interest and compound interest.
2. **Control statements**
   a. Write a program to check whether the given number is a even number or not.
   b. Write a program to accept three numbers and find the largest among them.
   c. Write a program to count the different vowels in a line of text using switch.
   d. Write a program to accept two numbers and perform various arithmetic operations (+, -, *, /) based on the symbol entered.
   e. Write a program to find factorial of a number.
   f. Write a program to check whether a number is prime or not.
   g. Write a program to check whether a number is palindrome or not.
3. **Arrays and strings**
   a. Write a program to find largest element in an array.
   b. Write a program to find sum and average of numbers stored in an array.
   c. Write a program to check whether a string is a Palindrome.
   d. Write a program to perform matrix addition.
   e. Write a program to perform matrix multiplication.
4. **Functions and recursion**
   a. Write a program to find the roots of a quadratic equation using function.
   b. Write a recursive program to find the factorial of a number.
   c. Write a recursive program to find the nth Fibonacci number.
5. **Structures and unions**
   a. Create an employee structure and display the same.
   b. Create a student database storing the roll no, name, class etc. and sort by name.
6. **Pointers**
   a. Write a function to swap two numbers using pointers.
   b. Write a program to access an array of integers using pointers.

The break up of marks for the practical will be as under :
Lab Record : 15 Marks
Viva Voce : 10 Marks
Program DevelopmentAnd Execution : 25 Marks

B.Sc. Part-II(COMPUTER APPLICATION)
(Semester IV)
BSc(COM)-408 : DATABASE MANAGEMENT SYSTEM
(2020-21, 2021-22 and 2022-23 Sessions)

Credits: 4
External Marks: 75 **Maximum Time: 3 Hrs.**
Minimum Pass Marks: 35% **Lectures to be delivered: 45-55**
Internal Assessment: 25

A) Instructions for paper-setter

The question paper will consist of three sections A, B & C. Sections A & B will have four questions from the respective sections of the syllabus and will carry 40% marks each. Section C will have 6-12 short answer type questions which will cover the entire syllabus uniformly and will carry 20% marks in all.

B) Instructions for candidates

1. Candidates are required to attempt two questions each from sections A & B of the question paper and the entire section C.

SECTION A

Traditional file procession system: Characteristics, limitation. Database: Definition, composition,

Database Management System : Definition, Characteristic advantages over traditional file processing system, Implication Database approach, Uses of database, DBA and its responsibilities, Database schema, instance.

DBMS architecture, data independence, mapping between different levels.

Database language : DDL, DML, DCL.

Database utilities, Data Models, Keys : Super, candidate, primary, unique, foreign.

Entity relationship model : concepts, mapping cardinalities, entity relationship diagram, weak sets, strong entity sets, aggregation, generalization, converting ER diagram to tables.

Relational Algebra : Basic operations, additional operations.

SECTION-B

Database design: Functional dependency, decomposition, problem arising out of bad database design, normalization, multi-valued dependency. Database design process, database protection, database integrity, Database concurrency: Problems arising out of concurrency, methods of handling concurrency. Data recovery, database security: Authentication, authorization, methods of implementing security.

MS-Access: Introduction to MS-Access, working with database and tables, queries in Access, Applying integrity constraints, Introduction to forms, sorting and filtering controls, Reports and Macro: Creating reports using Macros.

Text Book:

1. C.J. Date, An Introduction to Database Systems, Narosa Publishers.

Reference Books:

1. Siberscharts, Korth and Sudarshan, "Database Concepts", Mcgraw Hill Publication.
2. Ivan Bayross, “Oracle 7 The complete reference”, BPB Publications.

3. Jeffrey D. Ulliman, "Principles of Database Systems", 2nd Ed., Galgotia Publications.
4. D. Kroenke, "Database Processing", Galgotia Publications.

PAPER B.Sc. - BSc(COM)-408 P

PRACTICAL BASED ON PAPER BSc(COM)-408

Credits: 2
Maximum Marks: 50 **Maximum Time: 3 Hrs**
Minimum Pass Marks: 35% **Practical Units to be conducted:45-55Hrs**
External Evaluation: 50

The laboratory course will comprise of Activities related to **DATABASE MANAGEMENT SYSTEM** and exercise to what is learnt under Paper BSc(COM)-408 such as:

MS-ACCESS: Introduction to MS-ACCESS, working with databases and tables, queries in Access Applying integrity constraints.
Introduction to forms, sorting and filtering, controls.
Reports and Macro: creating reports, using Macros.

The break up of marks for the practical will be as under:

Lab Record : 15 Marks
Viva Voce : 10 Marks
Program Development And Execution : 25 Marks

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AGINF-211: Agri- Informatics

Max. Marks: 50 **Time: 3 Hours**
External Theory: 25 **Pass Marks: 40%**
Internal Assessment: 13 **No. of Lectures: 15**
Credit: 1

INSTRUCTIONS FOR PAPER SETTER

Question paper should be set strictly according to the syllabus.
The language of questions should be straight & simple.
The question paper will consist of three sections A, B and C. Section A and B will have four questions from the respective sections of the syllabus and will carry 5 marks each.
Section C will consist of 5 short-answer type questions of 1 mark each which will cover the entire syllabus uniformly and will carry 5 marks in all.

INSTRUCTIONS FOR CANDIDATES

Candidates are required to attempt two questions from each section A and B and the entire section C.

Theory

Section-A

Introduction to Computers, Operating Systems, definition and types, Applications of MS-Office for document creation & Editing, Data presentation, interpretation and graph creation, statistical analysis, mathematical expressions, Database, concepts and types, uses of DBMS in Agriculture, World Wide Web (WWW): Concepts and components. Introduction to computer programming languages, concepts and standard input/output operations.

Section-B

e-Agriculture, concepts and applications, Use of ICT in Agriculture. Computer Models for understanding plant processes. IT application for computation of water and nutrient requirement of crops, Computer-controlled devices (automated systems) for Agri-input management, Smartphone Apps in Agriculture for farm advises, market price, postharvest management etc; Geospatial technology for generating valuable agri-information. Decision support systems, concepts, components and applications in Agriculture, Agriculture Expert System, Soil Information Systems etc. for supporting Farm decisions. Preparation of contingent crop-planning using IT tools.

AGINF-211: Agri- Informatics

Practical

Internal Practical: 12 **Pass Marks: 40 %**
Credit: 1 **No. of Lectures: 15**

Study of Computer Components, accessories. Introduction of different operating systems such as windows, Unix/ Linux, Creating, Files & Folders, File Management. Use of MS-WORD and MS Power-point for creating, editing and presenting a scientific Document. MS-EXCEL - Creating a spreadsheet, use of statistical tools, writing expressions, creating graphs, analysis of scientific data. MS-ACCESS: Creating Database, preparing queries and reports, demonstration of Agri-information system. Introduction to World Wide Web (WWW). Introduction of programming languages. Hands on Crop Simulation Models (CSM) such as DSSAT/Crop-Info/CropSyst/ Wofost; Computation of water and nutrient requirements of crop using CSM and IT tools. Introduction of Geospatial Technology for generating valuable information for Agriculture. Hands on Decision Support System. Preparation of contingent crop planning

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B.Com. (Hons.): Semester -IV
Paper- BCH 4.3: COMPUTER APPLICATONS IN BUSINESS
6 Credits: 4H(L)+ 4(H)P

Duration: 3 hrs	**Max. Marks: 100**
Pass Marks 35%	**Internal Assessment: 30**
Credits: 6	**External Assessment: 70**

Note: Internal Assessment will be Based on Lab Work and Lab Practical File

INSTRUCTIONS FOR THE PAPER SETTER/ EXAMINERS

The question paper covering the entire course shall be divided into three sections as follows.

SECTION-A

It will consist of essay type questions. Four questions shall be set by the examiner from Unit-I of the syllabus and the candidate shall be required to attempt two. Each question shall carry 10 marks; total weight of the section shall be 20 marks.

SECTION-B

It will consist of essay type questions. Four questions shall be set by the examiner from Unit-II of the syllabus and the candidate shall be required to attempt two. Each question shall carry 10 marks; total weight of the section shall be 20 marks.

SECTION-C

It will consist of 12 very short answer questions with answers to each question up to five lines in length. Candidate is required to attempt any 10 question with up to five lines in length. Each question shall carry three marks; total weight of the section shall be 30 Marks.

Objectives: To provide computer skills and knowledge for commerce students and to enhance the student understands of usefulness of information technology tools for business operations.

UNIT – I

Introduction to word Processing: Word processing concepts, Use of Templates, Working with word document: Editing text, Find and replace text, Formatting, spell check, Autocorrect, Autotext; Bullets and numbering, Tabs, Paragraph Formatting, Indent, Page Formatting, Header and footer, Tables: Inserting, filling and formatting a table; Inserting Pictures and Video; Mail Merge: including linking with Database; Printing documents;

Creating Business Documents using the above facilities

Preparing Presentations: Basics of presentations: Slides, Fonts, Drawing, editing; Inserting: Tables, Images, texts, Symbols, Media; Design; Transition; Animation; and Slideshow. Creating Business Presentations using above facilities

UNIT – II

Spreadsheet and its Business Applications: Spreadsheet concepts, managing worksheets; Formatting, entering data, Editing, and Printing a worksheet; Handling operators in formula, Project involving multiple spreadsheets, Organizing Charts and graphs.

Generally used Spreadsheet functions: Mathematical, Statistical, Financial, Logical, Date and Time, Lookup and reference, Database, and Text functions.

Creating Business Spreadsheet: Creating spreadsheet in the area of: Loan and Lease statement; Ratio Analysis; Payroll statements; Capital Budgeting; Depreciation Accounting; Graphical representation of data; Frequency distribution and its statistical parameters; Correlation and Regression.

Suggested Readings:

1. Office the Complete Reference by Stephen L. Nelson
2. Office 2000 Complete by Amy Ramanoff and Shery Bunnilli

BAF : Semester III
BCAF 3.4: Fundamentals of Computer Applications
6 CREDITS:4H (L) +4H(P)

Duration: 3 hrs **Max. Marks: 100**
Pass Marks 35% **Internal Assessment: 30**
Credits: 6 **External Assessment: 70**
Note: Internal Assessment will be Based on Lab Work and Lab Practical File

INSTRUCTIONS FOR PAPER SETTER/EXAMINERS

The questions paper will consist of three sections A, B and C. Sections A and B will have four questions each from Unit-I and Unit-2 respectively, will carry 10 marks each. Section C will consist of 12 short answer type questions covering entire syllabus and will carry 3 marks each. Total weightage of section-C shall be 30 marks.

INSTRUCTIONS FOR CANDIDATES

Candidates are required to attempt two questions each from Section A and B. In Section C candidates are required to attempt any ten questions.

UNIT-1

Computer Fundamentals: Block diagram of Computer, Characteristics & Generations of **Computer,** Types of computers**.**

Input Devices: Keyboard &Mouse, Trackball, Joystick, Scanner (OCR, OMR, MICR)

Output Devices: Displays-CRT, LCD, LED, Plotter, Printer-Impact & Non-Impact Printer, Speakers

Memory: Types, Units of Memory, Primary Storage-RAM, ROM, Cache, Virtual Memory. Secondary Storage-Drives-CD, DVD(R/W) Floppy, Hard Disk, Pen Drive

Operating System: Definition, Functions of Operating System, Types of OS, Program, Process, Application & System Software**. Window:** Introduction and features of Windows, Installing Windows with set-up, Basic elements of Windows, Starting and Quitting Windows, Windows Explorer, Files, Folders, Flash Drives, Libraries, and CDs, Using Programs and Files in Windows , Finding Lost or Misplaced Files, Folders, and Programs, Printing, Using Media Player, Photos and Movies, Control Panel, Customizing Windows, Connecting to a Network.

UNIT-II

Ms-Word: Introduction to Microsoft Word, Basic Editing, Formatting, Templates, Working with Graphics and Pictures, Tables, Desktop Publishing, Mail Merge, Proofing, Printing, and Publishing, Comparing, Merging, and Protecting Documents.

Ms-Power Point: Introduction to Microsoft Power Point, using Themes and Layouts, Inserting Text and Using Word Art, Inserting Graphics (Tables, Charts, Shapes, Clip-Art), Working with videos, Movie-Clips, Animations, and Transitions, Sounds, Editing, Saving.

Ms-Excel: Introduction to MS Excel, Worksheets and Workbooks, entering data and texts into MS Excel, formatting a Worksheet, Adding Elements to a Workbook, Charts, Formulas and Calculations, Statistical functions, Cell Protection, Charts, Reports, Dashboards and Widgets.

Suggested Readings:

1 P.K. Sinha and P.Sinha, Foundations of Computing, BPB.

2 Turban Mclean and Wetbrete, Information Technology and Management, John Wiley & Sons.

3 Satish Jain, Information Technology,BPB.

4 Microsoft Windows 7 Introductory by Shelly Freund Enger.

B.COM. SEMESTER III
Paper BC3.4: COMPUTER APPLICATIONS IN BUSINESS
4 Credits: 2H(L)+4H(P)

Duration: 3 hrs	**Max. Marks: 100**
Pass Marks 35%	**Internal Assessment: 30**
Credits: 4	**External Assessment: 70**

Note: Internal Assessment will be Based on Lab Work and Lab Practical File

INSTRUCTIONS FOR THE PAPER SETTER/ EXAMINERS

The question paper covering the entire course shall be divided into three sections as follows.

SECTION-A

It will consist of essay type and numerical questions. Four questions shall be set by the examiner from Unit-I of the syllabus and the candidate shall be required to attempt two. Each question shall carry 10 marks; total weight of the section shall be 20 marks

SECTION-B

It will consist of essay type and numerical questions. Four questions shall be set by the examiner from Unit-II of the syllabus and the candidate shall be required to attempt two. Each question shall carry 10 marks; total weight of the section shall be 20 marks

SECTION-C

It will consist of 12 very short answer questions from entire syllabus. Students are required to attempt 10 questions up to five lines in length. Each question shall carry 3 marks total weight of the section shall be 30 marks.

Objectives: To provide computer skills and knowledge for commerce students and to enhance the student understands of usefulness of information technology tools for business operations.

Unit I

Introduction to word Processing, Word processing concepts, Use of Templates, Working with word document: Editing text , Find and replace text , Formatting ,spell check, Auto correct, Autotext; Bullets and numbering, Tabs ,Paragraph Formatting, Indent, Page Formatting, Header and footer, Tables Inserting, filling and formatting a table; Inserting Pictures and Video; Mail Merge: including linking with Database; Printing documents

Creating Business Documents using the above facilities

Unit -II

Basics of presentations: Slides, Fonts, Drawing, Editing; Inserting: Tables, Images, texts, Symbols, Media; Design: Transition; Animation; and Slideshow. Creating Business Presentations using above facilities Spreadsheet and its Business Applications Spreadsheet concepts, Managing worksheets; Formatting, Entering data, Editing, and Printing a worksheet;

Handling operators in formula, Project involving multiple spreadsheets, Organizing Charts and graphs

Generally used Spreadsheets functions: Mathematical, Statistical, Financial, Logical, Date and Time Lookup and reference, Database, and Text functions

Suggested Readings:

1. Edward G. Martin, "Discovering Microsoft Office 2016", Wiley Custom Learning Solutions.
2. Kate Shoup, "Teach Yourself Visually Office 2010", Visual.
3. V. Rajaraman, "Computer fundamentals", PHI.

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(P.G. DEPARTMENT OF COMPUTER SCIENCE)

OUTLINES OF TESTS,

SYLLABI AND COURSES OF READING

FOR

DIPLOMA IN COMPUTER APPLICATIONS (D.C.A)

(SEMESTER SYSTEM)

PART I (Semester I & II)

(2020-21 Session)

FACULTY OF COMPUTING SCIENCES

SRI GURU TEG BAHADUR KHALSA COLLEGE

Sri Anandpur Sahib

An Autonomous College

Affiliated to Punjabi University, Patiala

SYLLABI, OUTLINES OF PAPERS AND TESTS FOR

DIPLOMA IN COMPUTER APPLICATIONS (DCA)

First Year - First Semester Examinations

For Session 2020-21

PAPER CODE	NAME OF SUBJECT	HOURS PER WEEK				EXAMINATION SCHEME MARKS				
		L	T	P	TOTAL	Internal	External	Practical	Total	Credits
DCA-111	Fundamentals of IT	4	--	--	4	30	70	--	100	4
DCA-112	Operating Systems	4	--	--	4	30	70	--	100	4
DCA-113	Workshop on Adobe Photoshop	--	--	4	4	100	--	--	100	2
DCA-114	Software Lab-I (Office Automation)	--	--	4	4	30	70	--	100	2
TOTAL		**08**	**--**	**08**	**16**	**190**	**210**	**--**	**400**	**12**

1. **The breakup of marks for the practical will be as under:**

i.	Internal Assessment	30 Marks
ii.	Viva Voce (External Evaluation)	40 Marks
iii.	Practical Performance & write up (External Evaluation)	30 Marks

2. **The breakup of marks for the internal assessment for theory Subjects will be as under:**

Mid semester test – I	10 Marks
Mid semester test – II	10 Marks
Attendance	5 Marks
Assignment	5 Marks

SYLLABI, OUTLINES OF PAPERS AND TESTS FOR

DIPLOMA IN COMPUTER APPLICATIONS (DCA)

First Year - Second Semester Examinations

For Session 2020-21

PAPER CODE	NAME OF SUBJECT	HOURS PER WEEK				EXAMINATION SCHEME MARKS				
		L	T	P	TOTAL	Internal	External	Practical	Total	Credits
DCA-121	Computer Communication & Internet	4	--	--	4	30	70	--	100	4
DCA-122	RDBMS	4	--	--	4	30	70	--	100	4
DCA-123	Workshop on Corel Draw	--	--	4	4	100	--	--	100	2
DCA-124	Software Lab-II (Oracle)	--	--	4	4	30	70	--	100	2
DCA-125	Software Lab-III (Internet)	--	--	4	4	30	70	--	100	2
TOTAL		**08**	**--**	**12**	**20**	**220**	**280**	**--**	**500**	**14**

1. **The breakup of marks for the practical will be as under:**

i.	Internal Assessment	30 Marks
ii.	Viva Voce (External Evaluation)	40 Marks
iii.	Practical Performance & write up (External Evaluation)	30 Marks

2. **The breakup of marks for the internal assessment for theory Subjects will be as under:**

Mid semester test – I	10 Marks
Mid semester test – II	10 Marks
Attendance	5 Marks
Assignment	5 Marks

FUNDAMENTALS OF INFORMATION TECHNOLOGY

DCA 111

4 CREDITS: 4H (L)

Time Allowed: 3 Hours	**Max. Marks: 100**
Number of Lectures per Week: 4	**External Marks: 70**
Pass Percentage: 35%	**Internal Assessment: 30**

Instructions for the Paper Setter

The question paper will consist of three sections: A, B & C. Sections A& B will have four questions each from the respective sections of the syllabus carrying 10 marks for each question. Section C will have 10 short-answer type questions carrying at total of 30 marks, which will cover the entire syllabus uniformly.

Instructions for the Candidates

Candidates are required to attempt two questions each from the sections A & B of the question paper and the entire section C.

Section A

Computer Fundamentals: Block diagram of Computer, Characteristics and Types of Computers.
Input/output Devices: Keyboard & Mouse, Trackball, Joystick, Scanner (OCR, OMR, MICR) Displays-CRT, LCD, LED, Plotter, Printer-Impact & Non-Impact Printers, Speakers
Memories: Types, Units of Memory, Primary Storage-RAM, ROM, Cache, Virtual Memory. Secondary Storage -Drives – CD, DVD(R/W), Hard Disk, Pen Drive.
Languages: Machine, Assembly, High-Level, Translators (Assembler, Compiler & Interpreter), Algorithm & Flow Charts, Hardware, Software, Application Software & System Software.
Number System: Non-Positional & Positional Number Systems, Concept of Bit and Byte, binary, decimal, hexadecimal, and octal systems, Base Conversion from one system to another system, Binary Arithmetic: Addition, Subtraction and Multiplication, 1’s Complement, 2’s Complement, Subtraction using 1’s Complement & 2’s Complement.
Computer Codes: Weighted & Non-Weighted Codes, BCD, EBCDIC, ASCII, Unicode.

Section-B

Applications of IT: IT in Business and Industry, IT in Education and Training, IT in Science and Technology, IT and Entertainment.
Advanced Trends in IT: Mobile Internet, GPS, 3G, 4G, Wi-Fi, Bluetooth, Cloud Technology, Virtual LAN Technology, Firewall, e-Commerce, M-Commerce, Nanotechnology, Virtual Reality, BPO, KPO, Online Shopping, Social Media: YouTube, Facebook, Linkedin, Twitter, Google+.
MS-WORD: Introduction Basic Editing, Formatting, Templates, Working with Graphics and

Pictures, Tables, Desktop Publishing, Mail Merge, Proofing, Printing, and Publishing, Comparing, Merging, and Protecting Documents.

MS-POWERPOINT: Introduction, Using Themes and Layouts, Inserting Text and Using WordArt, Inserting Graphics (Tables, Charts, Shapes, Clip-Art), Working with Videos, Movie-Clips, Animations, and Transitions, Sounds, Editing, Saving, Printing and Publishing Tools, Help.

MS-EXCEL: Introduction, Worksheets and Workbooks, Entering Information into MS Excel, formatting a Worksheet, Adding Elements to a Workbook, Charts, Formulas and Calculations, Statistical functions and financial functions.

References:

1. P.K. Sinha and P. Sinha, "Computer Fundamentals”,BPB.
2. N. Subramanian, Introduction to Computers, Tata McGraw-Hill.
3. Edward G. Martin, "Discovering Microsoft Office 2016”, Wiley Custom Learning Solutions.
4. Kate Shoup, “Teach Yourself Visually Office 2010”,Visual.
5. V. Rajaraman, “Computer fundamentals”,PHI.

OPERATING SYSTEMS
DCA 112
4 CREDITS: 4H (L)

Time Allowed: 3 Hours	**Max. Marks: 100**
Number of Lectures per Week: 4	**External Marks: 70**
Pass Percentage: 35%	**Internal Assessment: 30**

Instructions for the Paper Setter

The question paper will consist of three sections: A, B & C. Sections A& B will have four questions each from the respective sections of the syllabus carrying 10 marks for each question. Section C will have 10 short-answer type questions carrying at total of 30 marks, which will cover the entire syllabus uniformly.

Instructions for the Candidates

Candidates are required to attempt two questions each from the sections A & B of the question paper and the entire section C.

Section A

Operating System – Definition, Need, Services, Types of operating systems: simple batch system, multi programmed batch system, time sharing system, parallel system, distributed system, real time system, personal computer system. Operating system components, operating system services, system calls.

Process Management – process definition, process state, process scheduling, operations on processes, Basic concepts of thread, Difference between process and thread.

CPU Scheduling – Basic concepts, scheduling criteria, scheduling algorithms – FCFS, SJF, Round Robin and Multilevel queue scheduling.

SECTION-B

Deadlocks – Characteristics of deadlocks, methods for handling deadlocks, deadlock prevention, deadlock avoidance

Memory Management – Logical versus Physical address space, swapping, contiguous allocation, Paging, Concept of Virtual memory, Implementation by Demand Paging, Page replacement algorithms – FIFO, Optimal, LRU, Concept of thrashing .

File Management – Allocation methods: contiguous allocation, linked allocation and indexed allocation;

Device Management – Disk Scheduling: FCFS, SSTF, SCAN, C-SCAN, LOOK.

References:

1. Abraham Silberschatz, Peter B. Galvin, Operating Sytem Concepts, Addison –Wesley Publishing Co. Engineering, Third Edition 2005 ,PankajJalote, Narosa Publications. 5th Edition.

WORKSHOP ON ADOBE PHOTOSHOP
DCA 113
2 CREDITS: 4H (P)

Time Allowed: 3 Hours	**Max. Marks: 100**
Number of Practicals per Week: 4	**Internal Evaluation: 100**
Pass Percentage: 35%	

Section A

Introduction to Photoshop: Basics of Adobe Photoshop. Understanding pixels & resolution. Exploring menus, panels and toolbox. Creating new image files and opening existing files in Photoshop. Understanding and handling different image file formats, changing the resolution, color, greyscales and size of the images. Zooming & panning an image. Working with multiple images, rulers, guides & grids. Creating multicolor images and using brushes, adjusting color using the panel. Cropping, rotating, overlapping and super imposing photos on a page. Undoing Steps with History

Working with selections, layers and channels: Understanding selection tools, refining the selection and edges. Understanding layers, creating, selecting, editing, locking and grouping layers. Layer styles, consolidating layers. Manipulating layer mask. Understanding color channels, working with channels panel.

Working with filters: Basics of Filters, constructive filters, blur filters, destructive filters, effects filters, render filters, liquify filter and other filters required for artistic effects.

Creating images for the web: understanding web image formats, preparing and slicing images for the web use. Adding transparency to the web, previewing images in a browser.

References:

1. Adobe Photoshop CS6, Bible the comprehensive, tutorial resource – Lisa Danae Dayley, Brad Dayley – WileyIndia
2. Photoshop 7 Savvy – Steve Romaniello – BPBPublications.

SOFTWARE LAB-II (BASED ON DCA 111)

DCA 114

2CREDITS:4H (P)

Time Allowed: 3 Hours **Max. Marks: 100**
Number of Practicals per Week: 4 **External Marks: 70**
Pass Percentage: 35% **Internal Assessment: 30**

This laboratory course will comprise of exercises to supplement what is learnt under paper BHM DCA 111: Fundamentals of Information Technology.

COMPUTER COMMUNICATION & INTERNET

DCA 121

4 CREDITS: 4H (L)

Time Allowed: 3 Hours	**Max. Marks: 100**
Number of Lectures per Week: 4	**External Marks: 70**
Pass Percentage: 35%	**Internal Assessment: 30**

Instructions for the Paper Setter

The question paper will consist of three sections: A, B & C. Sections A& B will have four questions each from the respective sections of the syllabus carrying 10 marks for each question. Section C will have 10 short-answer type questions carrying at total of 30 marks, which will cover the entire syllabus uniformly.

Instructions for the Candidates

Candidates are required to attempt two questions each from the sections A & B of the question paper and the entire section C.

Section A

Concepts: Internet, internet and Intranet differences among them

About Internet and Its Working, Business use of Internet, Services Offered by Internet, Evolution of Internet, Internet Service Provider (ISP), Windows Environment for Dial Up Networking (Connecting to internet).

Email: Basic Introduction, Advantages and Disadvantage, Structure of an E-Mail Message, Working of E-Mail (sending & receiving messages), Managing Email (creating new folders, deleting messages, forwarding messages, filtering messages), Configuration of Outlook Express.

SECTION B

Introduction to the Functionality of Web Browsers: Internet Explorer, Netscape Navigator Concept of WWW, surfing through web sites. Web Browsing (opening, viewing, saving a web page and book mark). Searching and downloading of different sites and software.

Introduction to HTML Structure of HTML, Web Page, Head and Body Sections, General structure of HTML tag, its name, attributes, starting and ending a tag, various text formatting tags in HTML, Proper nesting of Tags, Defining Image Map, Formatting information table with row and column spans, Adding images, audio and video objects, Hyper linking.

Using HTML: forms and its elements, working with HTML frames using frameset tag and frame properties.

References:

1. Thomas A.Powell, The Complete Reference HTML & CSS, Tata McGraw-Hill.
2. Khurana, R., HTML, APH Publishing

3. Pascal Press, Internet, Pascal Press.
4. Heathcote, Internet Right From The Start, BPB Publications.

RELATIONAL DATABASE MANAGEMENT SYSTEMS

DCA 122

4 CREDITS: 4H (L)

Time Allowed: 3 Hours	**Max. Marks: 100**
Number of Lectures per Week: 4	**External Marks: 70**
Pass Percentage: 35%	**Internal Assessment: 30**

Instructions for the Paper Setter

The question paper will consist of three sections: A, B & C. Sections A& B will have four questions each from the respective sections of the syllabus carrying 10 marks for each question. Section C will have 10 short-answer type questions carrying at total of 30 marks, which will cover the entire syllabus uniformly.

Instructions for the Candidates

Candidates are required to attempt two questions each from the sections A & B of the question paper and the entire section C.

Section A

Introduction to RDBMS: Product and their Features, Difference between DBMS and RDBMS, Relationship among application programs, RDBMS, Basic File Operations: Opening Files, Closing Files, Reading and Writing, Seeking

File Organization: Field and Record structure in file, Record Types, Types of file organization, Sequential, Indexed, and Hashed.

Transaction Management: Transaction Concept, Properties, Transaction States, Concurrent Execution, Serializability, Conflict Serializability, View Serializability, Recoverability, Recoverable Schedule, Cascadless Schedule

Concurrency Control: Lock Based Protocol, Locks, Granting of Locks, Two Phase Locking Protocol, Timestamp Based Protocol, Timestamp, Timestamp ordering protocol, Thomas's Write Rule, Validation Based Protocol, Deadlock Handling, Deadlock Prevention, Deadlock Detection, Deadlock Recovery

Section B

Recovery System: Failure Classification, Transaction Failure, System Crash, Disk Failure, Storage Structures, Storage Types, Data Access, Recovery & Atomicity, Log based Recovery, Deferred Database Modification, Immediate Database Modification, Checkpoints, Recovery with Concurrent Transaction, Transaction Rollback, Restart Recovery, Remote Backup System

Relational Query Language: DDL, DML, DCL.

Introduction to Oracle: Oracle as client/server architecture, getting started, creating, modifying, dropping databases. Inserting, updating, deleting data from databases, SELECT statement, Data constraints (Null values, Default values, primary, unique and foreign key concepts)

Computing expressions, renaming columns, logical operators, range searching, pattern matching, Oracle functions, grouping data from tables in SQL, manipulating dates.

Working with SQL: triggers, use of data base triggers, database triggers Vs. SQL*forms, types of triggers, how to apply database triggers, BEFORE vs. AFTER triggers, combinations, syntax for creating and dropping triggers.

References:

1. B.P. Desai, “Database management system” BPB publications, New Delhi.
2. C.J. Date, "An Introduction to Data Base Systems”, Narosa Publishers
3. Jeffrey D. Ullman, "Principles of Database Systems", Galgotia Pub.
4. D. Kroenke., "Database Processing", Galgotia Publications.
5. Henry F. Korth, “Database System Concepts”, McGraw Hill. Inc.
6. Naveen Prakash, “Introduction to Database Management”, TMH

WORKSHOP ON COREL DRAW

DCA 123

2 CREDITS: 4H (P)

Time Allowed: 3 Hours **Max. Marks: 100**

Number of Practicals per Week: 4 **Internal Evaluation: 100**

Pass Percentage: 35%

Section A

Introduction to Corel draw: Creating your first New Document , Exploring the user interface of Corel Draw, Device Central, working with Templates, Import, Export, Tools of Corel draw, pick tool, crop tool, text tool, freehand tool, rectangular tool(circle, star, Polygon), Interactive tool, Eyedropper tool, outline tool, Fill tool, interactive Fill tool.

Working with text and lines in Corel draw, Artistic text, Formatting text, changing shape of the text, Paragraph text, Working with Lines, Fitting text to a path, Applying effects to text.

Working with shapes: Creating Rectangle and Squares, Creating Circles and Ellipse, DrawingPolygons, Creating Star, Rotating shapes, Selecting fill and outline color

Working with object: Handling Objects in Corel draw, Positioning objects, Aligning and distributingobjects, sizing and scaling objects, rotating and mirroring objects, combining and breaking objects, Grouping, Creating Graphical special effects.

Section B

Working with curves: Drawing with Freehand Tool, Drawing Closed Curves, Bezier tool, Drawing with the Artistic Media tool, Pen tool, 3-Point Curve tool, Special Effect of corel draw, Blending tool, Contouring the Object, Distorting Objects, Envelope tool, Extruding of the Object, Drop Shadow, Applying Transparency Effect.

Working with Colors and Bitmaps: Color Slider, Color viewers, Fixed Pallets, Color Pallete Browser Docker, Using Color style Dockers, Converting Objects to Bitmap, 3D Effect, Art Effect,Blur Effect, Color Transformation Effect, Contour Effect, Creative Effect, Distort Effect, Noise Effect

Working with tables: Selecting, moving and navigating table components, Inserting and deleting table rows and columns, Resizing table cells, rows, and columns, formatting tables and cells, working with text in tables, Merging and splitting tables and cells, Corel Draw and Web, Saving the file as webpage, publishing your drawing as a webpage, Creating Rollover Buttons.

References:

1. Corel Draw X5 in simple steps by Kogent Learning Solutions.
2. Corel Draw X5 The Official Guide by Tata McGraw Hill written by Gary David Bouton.

SOFTWARE LAB-II (ORACLE)

DCA 124

2 CREDITS: 4H (P)

Time Allowed: 3 Hours	**Max. Marks: 100**
Number of Practicals per Week: 4	**External Marks: 70**
Pass Percentage: 35%	**Internal Assessment: 30**

This laboratory course will comprise of exercises to supplement what is learnt under paper DCA-122: Relational Database Management System.

Students are required to practices writing SQL statements for:

1. Creating the Table
2. Querying the record using order by clause
3. Querying the record using group by clause
4. Querying the record using multiple conditions
5. Create Synonyms
6. Create Sequences
7. Create Views
8. Create Indexes
9. Create triggers
10. Create cursors for procedures

SOFTWARE LAB-III (INTERNET)

DCA 125

2 CREDITS: 4H (P)

Time Allowed: 3 Hours	**Max. Marks: 100**
Number of Practicals per Week: 4	**External Marks: 70**
Pass Percentage: 35%	**Internal Assessment: 30**

WEB BROWSERS: Surfing, Searching and Downloading through Web Browsers like Internet Explorer and Netscape Navigator. Their various options and sub options like: File, Edit, View, Go, Bookmark/Favourites, Options, and Tools etc.

EMAIL: Creating accounts on mail servers, Working of E-Mail (sending & receiving messages), Managing Email (creating new folders, deleting messages, forwarding messages, filtering messages).

HTML: Creating basic HTML pages using various HTML tags, Adding Images, Audio, Video objects, Designing HTML Forms for feedback, mail etc., working with multiple pages using

Members of Board of Studies

1. **Mr. Surender Kumar**
2. **Dr. Dharamveer Sharma**
3. **Dr. Major Singh Gorya**
4. **Dr. Navdeep Singh**
5. **Mr. Sandeep Sharma**
6. **Mr. Rakesh Kumar**
7. **Mrs. Tajinder Kaur**
8. **Mrs. Paramjit Kaur**
9. **Mrs. Amandeep Kaur**

(P.G. DEPARTMENT OF COMPUTER SCIENCE)

OUTLINES OF TESTS,
SYLLABI AND COURSES OF READING

FOR

M. Sc. (IT)/ M.Sc.(IT)(LE)
(SEMESTER SYSTEM)
SECOND YEAR (Semester III & IV)
(2020-21 and 2021-22 Sessions)

FACULTY OF COMPUTING SCIENCES

SRI GURU TEG BAHADUR KHALSA COLLEGE
Sri Anandpur Sahib
An Autonomous College
Affiliated to Punjabi University, Patiala

SYLLABI, OULINES OF PAPERS AND TESTS
M.Sc. (IT) / M.Sc.(IT)(LE)
Part-2
(2020-21 and 2021-22 Sessions)

Semester-III

Paper Code	Name of Subject	Contact hours per week				Examination scheme marks				Credit
		L	T	P	Total	Internal	External	Practical	Total	
MS-211	Web Technology	5			5	30	70		100	5
MS-212	Java Programming	5			5	30	70		100	5
MS-213	Computer Networks	4	1		5	30	70		100	5
MS-214	Modern Information Systems	4	1		5	30	70		100	5
MS-215	Programming Lab-IV (Web Technology)			4	4	30		70	100	2
MS-216	Programming Lab-V (Java Programming)			4	4	30		70	100	2
MS-217	CBC-III Workshop on Python Programming			2	2	50			50	2
	Total	**18**	**2**	**10**	**30**	**230**	**280**	**140**	**650**	**26**

Semester-IV

Paper Code	Name of Subject	Contact hours per week				Examination scheme marks				Credit
		L	T	P	Total	Internal	External	Practical	Total	
MS-221	Computer Graphics	5			5	30	70		100	5
MS-222	Linux Administration	5			5	30	70		100	5
MS-223	Research Methodology	4	1		5	30	70		100	5
MS-224	Artificial Intelligence	4	1		5	30	70		100	5
MS-225	Programming Lab-VI (Computer Graphics)			4	4	30		70	100	2
MS-226	Programming Lab-VII (LINUX Administration)			4	4	30		70	100	2
MS-227	Minor Project			2	2	50			50	2
	Total	**18**	**2**	**10**	**30**	**230**	**280**	**140**	**650**	**26**

NOTE:

The Break-up of Marks for Practical exams (External) will be as under:

1. Viva Voce (External examination)	20 Marks
2. Program Development and Execution	20 Marks
3. File Record	30 Marks

The breakup of marks for Workshop Examination will be as under

1. Practical file Evolution	15 Marks
2. Viva Voce	15 Marks
3. Program Development and Execution	20 Marks

Internal Assessment of **30%** will be based on Continuous Comprehensive Assessment (CCA) pattern and the breakup of **30%** will be as under:

Mid Semester Tests-I	25%
Mid Semester Tests-II	25%
Attendance	15%
Seminars / Projects	35%

MS-211 : Web Technology
5 CREDITS: 5H(L)

Teaching Hours per week: 5		**Internal Assessment:**	**30 Marks**
Time Allowed: 3 Hrs.		**External Marks:**	**70 Marks**
Pass Marks: 35%			

A) INSTRUCTIONS FOR THE PAPER SETTER

The question paper will consist of three Sections: A, B and C. Sections A and B will have four questions each from the respective section of the syllabus and will carry 10.5 marks for each question. Section C will consist of 7-15 short answer type questions covering the entire syllabus uniformly and will carry a total of 28 marks.

B) INSTRUCTIONS FOR THE CANDIDATES

1. Candidates are required to attempt five questions in all, selecting two questions each from Section A and Section B and compulsory question of Section C.
2. Use of non-programmable scientific calculator is allowed.

SECTION A

Introductory: Internet Basics: Networks, Protocols, TCP/IP, Internet Addresses, Ports, Sockets, Name Resolution, Firewalls, Protocol Tunneling, Proxy Servers, Internet Standards, governing the web HTTP, MIME, Inside URLs, Web applications, Overview of clients/servers web communication, comparison of web servers, Common Gateway Interface CGI.

Web Page Designing: Introduction to markup languages; HTML: list, table, images, frames, forms, pages style sheets CSS;

XML: DTD, XML Namespaces, XML schemes, Presenting XML with CSS and XSLT, XML-DOM, What is XHTML?

SECTION B

Client Side Scripting: Java script: Introduction, documents, forms, statements, functions, objects; Event and event handling; Browsers and the DOM, JQuery: Syntax, Selectors, Events and AJAX methods.

Server Side Programming: PHP: Introduction, requirements, PHP syntax, data type, variables, strings, operators, if-else, control structure, switch, array, function, file handling, form, sending email, file upload, session/state management, error and exception, PHP Database for dynamic Web pages.

Reference Books :

1. Jeffrey C Jackson, “Web Technology – A computer Science perspective”, Persoson Education, 2007.
2. Chris Bates, “Web Programming – Building Internet Applications, “Wiley India, 2006.
3. Xavier, C, “ Web Technology and Design” , New Age International
4. Ivan Bayross,” HTML, DHTML, Java Script, Perl & CGI”, BPB Publication.
5. Ramesh Bangia, “Internet and Web Design” , New Age International
6. Bhave, “Programming with Java”, Pearson Education
7. Ullman, “PHP for the Web: Visual QuickStart Guide”, Pearson Education
8. Deitel, “Java for programmers”, Pearson Education
9. Dustin R. Callaway, “Inside Servlets” Pearson Education.

MS-212 : Java Programming
5 CREDITS: 4H(L)

Teaching Hours per week: 5		**Internal Assessment:**	**30 Marks**
Time Allowed: 3 Hrs.		**External Marks:**	**70 Marks**
Pass Marks: 35%			

A) INSTRUCTIONS FOR THE PAPER SETTER

The question paper will consist of three Sections: A, B and C. Sections A and B will have four questions each from the respective section of the syllabus and will carry 10.5 marks for each question. Section C will consist of 7-15 short answer type questions covering the entire syllabus uniformly and will carry a total of 28 marks.

B) INSTRUCTIONS FOR THE CANDIDATES

1. Candidates are required to attempt five questions in all, selecting two questions each from Section A and Section B and compulsory question of Section C.
2. Use of non-programmable scientific calculator is allowed.

SECTION A

Introduction to Java, Why java is important to the Internet, Object Oriented Programming, Data types, Variables, Arrays, the Simple types, Floating Point Types, Operators, Arithmetic Operators. The Bit wise operators, Relational Operator's, Boolean, Logical Operators, Control Statements.

Introducing Classes : Class fundamentals, declaring objects, Assigning object Reference, Variables, Introducing Methods, Constructors, this keyword, Garbage collection, Overloading Using Objects and parameters, Argument Passing, Returning Objects, Recursion, Access Control, Static, Nested & Inner Classes. Exploring String class using command line Arguments. Inheritance.

SECTION B

Packages : Defining a package, CLASSPATH, Access protection, Importing Packages, Defining an interface, Implementing Interface. Exception handling fundamentals, Exception types, using try & catch, throw, throws, Java's Built in Exceptions, Creating your own Exception subclasses.

Threading, Multithreading, Applets, Event handling, Introduction of AWT.

Reference Books :

1. Patrick Naughton and Herbert Schildt, “The Complete Reference Java 2”, Tata McGraw Hill, 1999.
2. Lemay, L. : Teach yourself Java in 21 days, Tech.
3. Griffith : 1001 Java Programming Tips.
4. Sulalman : Java Programmers Library.

MS-213 : Computer Networks
5 CREDITS: 4H(L) + 1H(T)

Teaching Hours per week: 5	**Internal Assessment: 30 Marks**
Time Allowed: 3 Hrs.	**External Marks: 70 Marks**
Pass Marks: 35%	

A) INSTRUCTIONS FOR THE PAPER SETTER

The question paper will consist of three Sections: A, B and C. Sections A and B will have four questions each from the respective section of the syllabus and will carry 10.5 marks for each question. Section C will consist of 7-15 short answer type questions covering the entire syllabus uniformly and will carry a total of 28 marks.

B) INSTRUCTIONS FOR THE CANDIDATES

1. Candidates are required to attempt five questions in all, selecting two questions each from Section A and Section B and compulsory question of Section C.
2. Use of non-programmable scientific calculator is allowed.

SECTION A

Computer networks: uses of computer networks, Goals and applications of networks, computer network structure and architecture, reference models: OSI model, TCP/IP model, Comparison of TCP/IP and OSI models.

Networking and Internetworking devices: Repeater, bridges, routers, gateways, switches, Firewall, Ports, Sockets.

Multiple access protocols: ALOHA, CSMA, CSMA/CD, Collision Free protocol, BRAP, MLMA, Binary countdown.

Introduction to IEEE standards for LAN: Ethernet LAN (802.3), Token Bus (802.4), Token Ring (802.5), Wireless LAN(802.11, 802.15, 802.16) **High speed LAN:** FDDI, Fast Ethernet, Fibre channel.

SECTION B

Routing: Static vs. Dynamic Routing, various Routing Algorithms- Shortest path routing, flooding, flow based routing, distance vector routing, link state routing, routing for mobile hosts, broadcast routing, multi cast routing.

Congestion Control: Causes of Congestion, Various Congestion Control Strategies and Algorithms

Internet protocols: Principles of Internetworking, connectionless internetworking, IPv4, IPv6.

Network Security: Security requirements and attacks, encryption Public key encryption and digital Signatures. distributed applications: SNMP, SMTP, HTTP, DNS.

Text Books:

1. Forouzen, "Data Communication and Networking", TMH (Fourth edition).

Reference Books:

1. A.S. Tanenbaum, “Computer Networks”, Pearson Education (Fourth edition).
2. W. Stallings, “Data and Computer Communication”, Macmillan Press.

MS-214 : Modern Information Systems
5 CREDITS: 4H(L) + 1H(T)

Teaching Hours per week: 5	**Internal Assessment: 30 Marks**
Time Allowed: 3 Hrs.	**External Marks: 70 Marks**
Pass Marks: 35%	

A) INSTRUCTIONS FOR THE PAPER SETTER

The question paper will consist of three Sections: A, B and C. Sections A and B will have four questions each from the respective section of the syllabus and will carry 10.5 marks for each question. Section C will consist of 7-15 short answer type questions covering the entire syllabus uniformly and will carry a total of 28 marks.

B) INSTRUCTIONS FOR THE CANDIDATES

1. Candidates are required to attempt five questions in all, selecting two questions each from Section A and Section B and compulsory question of Section C.
2. Use of non-programmable scientific calculator is allowed.

SECTION A

Introduction to Systems and Basic Systems Concepts, Types of Systems, Information Systems: Definition and Characteristics, Types of Information, Role of Information in Decision Making, Types of an Information system: Operations Support Systems and Management Support Systems, Comparison of EDP/MIS/DSS.

An overview of Management Information System: Definition and Characteristics, Components of MIS, Frame Work for Understanding MIS: Robert Anthony's Hierarchy of Management Activity, Information requirements and Levels of Management, Simon's Model of decision- Making.

SECTION B

Functional Information Systems: A Study of Marketing, Personnel, Financial and Production information systems, Input transaction documents, applications and reports of Marketing, Personnel, Financial and Production information systems. Models for functional information systems.

Concept of Knowledge: Definition and characteristics of knowledge, Difference between data, information and knowledge, Knowledge versus experience. Types of knowledge: Explicit and Tacit knowledge. Nonaka and Takeuchi theory of knowledge creation: Socialization, Externalization, Combination and Internalization (SECI) Model. Introduction to knowledge management and knowledge management systems. The process of knowledge management: Creation/ capture, storage and retrieval, transfer and application.

Text Books :

1. D.P. Goyal, "Management Information Systems: Managerial perspectives", Macmillan India Ltd.

Reference Books :

1. J. Kanter, Management information Systems, Prentice Hall of India.
2. Gordon B. Davis & M.H. Olson, Management Information Systems: Conceptual Foundation, structure & Development, McGraw Hills Publishing.

3. Robert G. Murdick & Joel E. Ross & James R. Claggett, Information Systems for Modern Management, Prentice Hall of India.
4. W. S. Jawadekar, Management Information Systems, Tata McGraw Hill Publishing.
5. Bryan Bergeron, Essentials of Knowledge Management, John Wiley and Sons.
6. Infosys Campus Connect Foundation Program Volume 1 – 3, Education & Research Department, Infosys Technologies Ltd, Bangalore.

MS-215 : Programming Lab-IV (Web Technology)
2 CREDITS: 4H (P)

Practical Hours per week: 4	**Internal Assessment: 30 Marks**
Time Allowed: 3 Hrs.	**External Marks: 70 Marks**
Pass Marks: 35%	

This laboratory course will mainly comprise of exercise based on subject MS-211 Web Technology.

*Maximum Marks for Continuous Assessment: 30

Maximum Marks for University Examination:70

MS-216 Programming Lab-V (Java Programming)
2 CREDITS: 4H (P)

Practical Hours per week: 4 **Internal Assessment: 30 Marks**
Time Allowed: 3 Hrs. **External Marks: 70 Marks**
Pass Marks: 35%

This laboratory course will mainly comprise of exercise based on subject MS-212: Java Programming.

.

*Maximum Marks for Continuous Assessment: 30

Maximum Marks for University Examination:70

MS-217 : Workshop on Python Programming
2 CREDITS: 2H (P)

Practical Hours per week: 2 **Internal Assessment: 50 Marks**
Time Allowed: 3 Hrs.
Pass Marks: 35%

SECTION-A

Basics of Python: Introduction to Computers, Programs and Python; syntax indentation; keywords, identifiers, assignment statements, expressions, numbers and operators, reading and manipulating console input. Making decisions: simple if statements, multiple choice decisions.

Iteration and Lists: Iteration: for and while loops, nested loops, keywords – break and continue. Lists and Tuples: Accessing sequence values, index manipulation. Comprehensive Lists and Tuples.

Functions: Functions – code reuse, defining and calling a function, return values, positional and keyword arguments, passing arguments by reference, modularizing the code, scope of variables, default arguments, returning multiple values.

SECTION-B

Classes: Classes – definition, mutable / immutable objects, data encapsulation and abstraction, object-oriented thinking.

Strings and Formatting : Strings: len, min, max functions, indexing, slicing, concatenation, in / not in operator, comparing strings. Substring search and split functions.
Formatting: the format() method, arguments- format field names. Formatting numbers and strings: rounding, precision, scientific notation, percentage, width and justify.

Text Books
1. Introduction to Programming Using Python, First Edition by Y. Daniel Liang,©2013 Prentice Hall
2. Dawson, Michael. Python Programming for the Absolute Beginner (3rd ed.). Boston, MA: Course Technology, 2010.

Reference Books:
1. Shaw, Zed A., 2012. Learn Python the Hard Way, Second Edition, Shavian Publishing, LLC, 183 p

MS 221 : Computer Graphics
5 CREDITS: 5H(L)

Teaching Hours per week: 5 **Internal Assessment: 30 Marks**
Time Allowed: 3 Hrs. **External Marks: 70 Marks**
Pass Marks: 35%

A) INSTRUCTIONS FOR THE PAPER SETTER

The question paper will consist of three Sections: A, B and C. Sections A and B will have four questions each from the respective section of the syllabus and will carry 10.5 marks for each question. Section C will consist of 7-15 short answer type questions covering the entire syllabus uniformly and will carry a total of 28 marks.

B) INSTRUCTIONS FOR THE CANDIDATES

1. Candidates are required to attempt five questions in all, selecting two questions each from Section A and Section B and compulsory question of Section C.
2. Use of non-programmable scientific calculator is allowed.

SECTION A

Introduction to computer Graphics systems, Application areas.
Graphics Hardware: The Functional characteristics of the systems are emphasized
Input devices: Keyboard, Touch panel, Light pens, Graphic tablets, Joysticks, Data glove, Image scanner, Mouse.
Hard copy devices: Impact and non impact printers, such as line printer, dot matrix, laser, inkjet, electrostatic, flatbed and drum plotters.
Video Display Devices: Refresh cathode ray tube, raster scan displays, random scan displays, color CRT monitors, DVST, flat-panel displays, virtual reality, raster scan systems, Frame buffer and video controller.
Scan conversion algorithms for line, circle and ellipse, Bresenham’s algorithms, area filling techniques.

SECTION B

2-dimensional Graphics: Cartesian and Homogeneous co-ordinate system, Matrix representation, Geometric transformations (translation, Scaling, Rotation, Reflection, Shearing), Composite transformations, Affine transformation, Viewing transformation, 2D clipping algorithms (Cohen Sutherland and Liang Barsky’s line clipping algorithms), polygon and text clipping.
3-dimensional Graphics: Geometric transformations (translation, Scaling, Rotation, Reflection, Shearing), Composite transformations, Mathematics of Projections (parallel & perspective). 3-D viewing transformation and clipping.

Reference Books :

1. D. Hearn and M.P. Baker, “Computer Graphics”, PHI New Delhi; Second Edition, 1995.
2. J.D. Foley, A.V. Dam, S.K. Feiner, J.F. Hughes,. R.L Phillips, ”Introduction to Computer Graphics”, Addison-Wesley Publishing company, N.Y.; Second Edition,1994.
3. R.A. Plastock and G. Kalley, “Computer Graphics”, McGraw Hill, 1986.

MS-222 : LINUX Administration
5 CREDITS: 5H(L)

Teaching Hours per week: 5	**Internal Assessment: 30 Marks**
Time Allowed: 3 Hrs.	**External Marks: 70 Marks**
Pass Marks: 35%	

A) INSTRUCTIONS FOR THE PAPER SETTER

The question paper will consist of three Sections: A, B and C. Sections A and B will have four questions each from the respective section of the syllabus and will carry 10.5 marks for each question. Section C will consist of 7-15 short answer type questions covering the entire syllabus uniformly and will carry a total of 28 marks.

B) INSTRUCTIONS FOR THE CANDIDATES

1. Candidates are required to attempt five questions in all, selecting two questions each from Section A and Section B and compulsory question of Section C.
2. Use of non-programmable scientific calculator is allowed.

SECTION A

Introduction: Overview of Linux, Linux's History, Advantages of Linux, Minimum System Requirements;

Installing Linux: Choosing Text or Graphics Installation, Setting up your Hard Drive, Understanding the Swap Space, Creating the Linux File-system partition, Setting up the mouse, root password and Ethernet, Configuration X, Selecting packages to Install, Creating the Boot Disk.

Using LILO boot manager: Installing LILO, LILO make-file, Updating LILO, Removing or Disabling LILO, Troubleshooting LILO.The Boot Process, Startup Scripts, Shutdown, Halt and reboot, Creating a New Login, Virtual Terminals, Running as root.

Basic Linux Commands : How Linux Commands Work, Command Options & Parameters, Input and Output Redirection, Mian pages, Wildcards : * and ?, Environment Variables, The process status Commands : ps, termination command : kill, the su command, the grep command.

Linux File System : Common types of files, filenames, Inodes, The root directory, How directories are named, Navigating the Linux file System : pwd command, Absolute and relative filenames; cd command, Creating and Deleting files : Cat, Creating Directories, Moving and Copying files, Moving Directories, Removing files and directories, Important directories in the **Linux file System :** / , /home, /bin, /usr, /usr/bin, /var/spool, /dev, /sbin, /etc.

File and Directory ownership, Groups, Changing group ownership, File Permissions, UMASK Setting, Changing File Permission, Changing directory permissions; Bash : What is Shell ? How the Shell gets Started, The most common Shells;

SECTION B

Shell Scripting: Creating and Executing Shell Programs, Using variables : Assigning a value to a variable, Accessing the value of a variable, Positional Parameters and other Built-In Shell Variables; Special Characters, Conditional Statements : if Statement , case Statement; Iteration Statements : for Statement, while Statement, until Statement, shift Command, select Statement, repeat Statement, Functions.

Editing and Typesetting : Text Editors vi, The vi Editor, Starting vi, vi modes, Inserting Text, Quitting vi, Moving the Cursor, Deleting Text, Copying and Moving Text, Searching and Replacing Text, Setting Preferences.

Configuring the X Window: Xfree86 Software Distribution, Choosing an X Server, Installing Xfree86 Manually, Installing Xfree86 using a Script, Path Environment Variable; Configuring Xfree86; The xconfig and XF86Config Files in Detail: Pathnames, Keyboard Setting, Mouse Definition, Monitor Model, Video Cards, The Xfree86 Server, Testing Xfree86 Configurations, The .xinitrc File.

Linux for System Administrators: System Administration Basics, The root Account, Starting and Stopping the System, Booting from a Floppy, Using LILO to Boot, Shutting Down Linux; Mounting File Systems : Mounting a Floppy, CD-ROM, Creating a New file System, Un-mounting file Systems, Backup and restore: Compressing files with gzip, Using tar and cpio; Setting up your System : Setting the System Name, Using a Maintenance Disk, Forgetting the root Password, Setting the Login Message.

Networking & Network Services: What is TCP/IP? IP Address, Ports, Sockets, Subnets, Routing, Hardware Requirements, Configuring the Network, Configuration Files, Testing and Troubleshooting, The netstart Command, ping, traceroute, Mail, News, NFS, www, FTP, Telnet, DNS.

Network Security: Firewalls.

REFERENCES:

1. Tim Parker : Linux Unleashed Third Edition, Techmedia, 1999.
2. Tackett, J : Special Edition using LINUX, PHI.
3. Norton, P. : Complete guide to LINUX, Techmedia.
4. Komarinski, M : LINUX System Administration Handbook, AW.
5. SUMITABHA DAS : UNIX Concepts & Application 2nd Edition, Tata McGraw-Hill

MS-223: Research Methodology
5 CREDITS: 4H(L)+1H(T)

Teaching Hours per week: 5		**Internal Assessment:**	**30 Marks**
Time Allowed: 3 Hrs.		**External Marks:**	**70 Marks**
Pass Marks: 35%			

A) INSTRUCTIONS FOR THE PAPER SETTER

The question paper will consist of three Sections: A, B and C. Sections A and B will have four questions each from the respective section of the syllabus and will carry 10.5 marks for each question. Section C will consist of 7-15 short answer type questions covering the entire syllabus uniformly and will carry a total of 28 marks.

B) INSTRUCTIONS FOR THE CANDIDATES

1. Candidates are required to attempt five questions in all, selecting two questions each from Section A and Section B and compulsory question of Section C.
2. Use of non-programmable scientific calculator is allowed.

SECTION A

Objectives and types of research: Definition and types of research (Descriptive and analytical research, applied and fundamental research, qualitative and quantitative research, conceptual and empirical research).

Research problem formulation: Defining and formulating research problem and its necessity, selecting the problem, literature review and its importance; Primary and secondary data sources-library (books, journals, periodicals, reference sources, abstracting and indexing sources, reviews, monographs), patents, web (search engines, online libraries, online journals, e-books, e-encyclopedia, institutional websites); Journals and books-standards of research journals (impact factor, ISSN, ISBN, online and print journals, indexed journals, peer reviewed journals), citation index, H-index; Identifying gaps areas from literature review.

Research design and methods: Developing the research hypothesis; Research design – basic principles and need, important concepts; Observations and facts, laws and theories, prediction and explanation, induction, deduction; Development of models, developing a research plan, exploration, description, diagnosis, experimentation.

Data collection: Execution of research, observation and collection of data, methods of data collection, primary data, secondary data.

Documentation: Techniques and importance of documentation; Role of internet, information technology and computers in research and documentation.

SECTION-B

Reporting and thesis writing: Structure and components of research report, types of report-monographs, review articles, research papers, thesis, books, technical reports and their significance; Different steps in preparation of a written scientific document- layout, structure and language of reports, illustrations and tables, bibliography, references, footnotes.

Presentation of research papers: Poster presentations-layout and format; Oral presentation-planning, preparation, use of visual art, importance of effective communication.

Application of intellectual property rights: Commercialization, copyright, royalty, intellectual property rights and patent law; Plagiarism-concept and authentication of originality of research; Citation and acknowledgement; Reproducibility and accountability.

Cost analysis of project: Cost incurred on raw materials, different testing procedures, cost of instrumentation, downstream processing cost (wherever required); Cost of clinical trials.

Research grants: National/International funding agencies; Government and private bodies.

RECOMMENDED READING

1. Statistics – An Introductory Analysis by Taro Yamane, Harper International Edition, 1994.
2. An Introduction to Statistical Methods by C.B. Gupta, Vikas Publ. Co., Jallandhar, 1997.
3. Research Methodology: Methods and Techniques by CR Kothari and Gaurav Garg by NewAge International Publishers (Third Edition), ISBN-10:8122436235, ISBN-13:978-8122436235
4. Research Methodology: A step-by-step Guide for Beginners by Ranjit Kumar, SAGE Publications, ISBN-13: 978-1849203012

MS- 224 : Artificial Intelligence
5 CREDITS: 5H(L)

Teaching Hours per week: 5 **Internal Assessment: 30 Marks**
Time Allowed: 3 Hrs. **External Marks: 70 Marks**
Pass Marks: 35%

A) INSTRUCTIONS FOR THE PAPER SETTER

The question paper will consist of three Sections: A, B and C. Sections A and B will have four questions each from the respective section of the syllabus and will carry 10.5 marks for each question. Section C will consist of 7-15 short answer type questions covering the entire syllabus uniformly and will carry a total of 28 marks.

B) INSTRUCTIONS FOR THE CANDIDATES

1. Candidates are required to attempt five questions in all, selecting two questions each from Section A and Section B and compulsory question of Section C.
2. Use of non-programmable scientific calculator is allowed.

SECTION A

Introduction to AI : Definition, Nilsson's Onion Model explaining basic Elements of AI and AI application Areas.

Logical Reasoning: Introduction to Prepositional Logic:Syntax, Semantics, Inference methods in Prepositional Logic. Introduction to Predicate Logic:Syntax, Semantics of Predicate Logic, Clausal form, Resolution, Unification, Inference Mechanisms.

Knowledge Based Systems : Meaning of Knowledge, Types of Knowledge, Components of Knowledge Base System. Knowledge Representation :Approaches to Knowledge representation, Issues in Knowledge representation, Knowledge representation using rules. Semantic Nets, Frames, Conceptual Dependencies, Scripts, CYC. Knowledge Acquisition :Definition, General Learning Model, Types of Learning, Factors affecting Learning. Knowledge organization & Manipulation: Introduction, Issues in organization and manipulation.

SECTION B

Dealing with uncertainty: Symbolic reasoning under uncertainty-Introduction and logics for Non-monotonic reasoning, Implementation issues.

Prolog Programming : Features of Prolog, Elementary Data Types, Compound objects in Prolog, Writing simple program in Prolog, Understanding Default flow control of the Prolog Program, Controlling Program Flow with cut and fail, List Manipulation, String manipulation, Arithmetic operators, Input /Output statement.

Expert systems : Basic Components & architecture of Expert systems, representing and using domain knowledge, ES-Shells.

Applications of AI : Game Playing-The minmax Search Procedure, Adding Alpha-beta Cutoff's Planning-Overview, Components of Planning System, Natural Language processing : Overview, Syntactic processing, Semantic analysis, Morphological, Discourse and Pragmatic processing.

Reference Books :-

1. E. Rich and K. Knight, "Artificial Intelligence", Tata McGraw Hill.
2. E. Charnaik and D. McDermott, "Introduction to Atificial Intelligence", Addison-Welsley Publishing Company.

APPROVED

3. Dan W. Patterson, "Introduction to Artificial Intelligence and Expert Systems", PHI.
4. W.F. Clofisin and C.S. Melifish, "Programming n PROLOG", Narosa Publishing Co.
5. Sanjiva Nath, "Turbo PROLOG", Galgotia Publications Pvt. Ltd.

MS-225 : Programming Lab-VI (Computer Graphics)

2 CREDITS: 4H (P)

Practical Hours per week: 4	**Internal Assessment: 30 Marks**
Time Allowed: 3 Hrs.	**External Marks: 70 Marks**
Pass Marks: 35%	

This laboratory course will mainly comprise of exercise based on subject MS-221: Computer Graphics.

*Maximum Marks for Continuous Assessment: 30

Maximum Marks for University Examination: 70

MS-226 : Programming Lab-VII (LINUX Administration)

2 CREDITS: 4H (P)

Practical Hours per week: 4	**Internal Assessment: 30 Marks**
Time Allowed: 3 Hrs.	**External Marks: 70 Marks**
Pass Marks: 35%	

This laboratory course will mainly comprise of exercise based on subject MS-222 : LINUX Administration.

*Maximum Marks for Continuous Assessment: 30

Maximum Marks for University Examination: 70

MS-227 : Minor Project
2 CREDITS: 4H (P)

Practical Hours per week: 2 **Internal Assessment: 50 Marks**
Time Allowed: 3 Hrs.
Pass Marks: 35%

In this laboratory course, the students have to work on a Minor Project which will be based on applications of Linux or Computer Graphics. The student have to submit a project report with their applications.

MEMBERS OF BOARD OF STUDIES

1. Mr. Surender Kumar **2. Dr. Gurpreet Singh Lehal** **3. Dr. Gurvinder Singh**

4. Dr. Navdeep Singh **5. Mr. Upkar Singh** **6. Mr. Sachin Kumar**

7. Mrs. Tajinder Kaur **8. Mrs. Paramjit Kaur** **9. Mrs. Amandeep Kaur**

General Elective
B.Sc (H) Maths
FUNDAMENTALS OF INFORMATION TECHNOLOGY
BHMC - 1.1
4 CREDITS: 4H (L)

Time Allowed: 3 Hours	**Max. Marks: 100**
Number of Lectures per Week: 4	**External Marks: 70**
Pass Percentage: 35%	**Internal Assessment: 30**

Instructions for the Paper Setter

The question paper will consist of three sections: A, B & C. Sections A & B will have four questions each from the respective sections of the syllabus carrying 10 marks for each question. Section C will have 10 short-answer type questions carrying at total of 30 marks, which will cover the entire syllabus uniformly.

Instructions for the Candidates

Candidates are required to attempt two questions each from the sections A & B of the question paper and the entire section C.

Section-A

Computer Fundamentals: Block diagram of Computer, Characteristics and Types of Computers.
Input/output Devices: Keyboard & Mouse, Trackball, Joystick, Scanner (OCR, OMR, MICR) Displays-CRT, LCD, LED, Plotter, Printer-Impact & Non-Impact Printers, Speakers
Memories: Types, Units of Memory, Primary Storage-RAM, ROM, Cache, Virtual Memory. Secondary Storage -Drives – CD, DVD(R/W), Hard Disk, Pen Drive.
Languages: Machine, Assembly, High-Level, Translators (Assembler, Compiler & Interpreter), Algorithm & Flow Charts, Hardware, Software, Application Software & System Software.

Section-B

Number System: Non-Positional & Positional Number Systems, Concept of Bit and Byte, binary, decimal, hexadecimal, and octal systems, Base Conversion from one system to another system, Binary Arithmetic: Addition, Subtraction and Multiplication, 1's Complement, 2's Complement, Subtraction using 1's Complement & 2's Complement.
Computer Codes: Weighted & Non-Weighted Codes, BCD, EBCDIC, ASCII, Unicode.
Applications of IT: IT in Business and Industry, IT in Education and Training, IT in Science and Technology, IT and Entertainment.
Advanced Trends in IT: Mobile Internet, GPS, 3G, 4G, Wi-Fi, Bluetooth, Cloud Technology, Virtual LAN Technology, Firewall, e-Commerce, M-Commerce, Nanotechnology, Virtual Reality, BPO, KPO, Online Shopping, Social Media: YouTube, Facebook, Linkedin, Twitter, Google+.

References:

1. P.K. Sinha and P. Sinha, "Computer Fundamentals",BPB.

2. N. Subramanian, Introduction to Computers, Tata McGraw-Hill.
3. Edward G. Martin, "Discovering Microsoft Office 2016”, Wiley Custom Learning Solutions.
4. Kate Shoup, “Teach Yourself Visually Office 2010”,Visual.
5. V. Rajaraman, “Computer fundamentals”,PHI.

General Elective
B.Sc (H) Maths
SOFTWARE LAB-I (BASED ON BHMC 1.1)
BHMC- 1.1P
2 CREDITS: 4H (P)

Time Allowed: 3 Hours **Max. Marks: 50**
Number of Practicals per Week: 4 **External Marks: 30**
Pass Percentage: 35% **Internal Assessment: 20**

This laboratory course will comprise of exercises to supplement paper BHMC 1.1: Fundamentals of Information Technology based upon following contents:

MS-WORD: Introduction Basic Editing, Formatting, Templates, Working with Graphics and Pictures, Tables, Desktop Publishing, Mail Merge, Proofing, Printing, and Publishing, Comparing, Merging, and Protecting Documents.

MS-POWERPOINT: Introduction, Using Themes and Layouts, Inserting Text and Using WordArt, Inserting Graphics (Tables, Charts, Shapes, Clip-Art), Working with Videos, Movie-Clips, Animations, and Transitions, Sounds, Editing, Saving, Printing and Publishing Tools, Help.

MS-EXCEL: Introduction, Worksheets and Workbooks, Entering Information into MS Excel, formatting a Worksheet, Adding Elements to a Workbook, Charts, Formulas and Calculations, Statistical functions and financial functions.

General Elective
B.Sc (H) Maths
OBJECT ORIENTED PROGRAMMING USING C++
BHMC 1.2
4 CREDITS: 4H (L)

Time Allowed: 3 Hours	**Max. Marks: 100**
Number of Lectures per Week: 4	**External Marks: 70**
Pass Percentage: 35%	**Internal Assessment: 30**

Instructions for the Paper Setter

The question paper will consist of three sections: A, B & C. Sections A & B will have four questions each from the respective sections of the syllabus carrying 10 marks for each question. Section C will have 10 short-answer type questions carrying at total of 30 marks, which will cover the entire syllabus uniformly.

Instructions for the Candidates

Candidates are required to attempt two questions each from the sections A & B of the question paper and the entire section C.

Section A

Evolution of OOP (Object Oriented Programming) : Procedure Oriented Programming, OOP Paradigm, Advantages and disadvantages of OOP over its predecessor paradigms. Characteristics of Object Oriented Programming: Abstraction, Encapsulation, Data hiding, Inheritance, Polymorphism, code Extensibility and Reusability.

Introduction to C++: Identifier, Keywords, Constants, Operators: Arithmetic, relational, logical, conditional and assignment, Size of operator, new and delete operator, Operator precedence and associativity. Type conversion, Variable declaration, expressions, statements, manipulators. Input and Output statements, stream I/O.

Control Statements: Conditional and Iterative statements, breaking control statements.

Storage Classes, Arrays, Strings.

Pointers: Pointer Operations, Pointer Arithmetic, Pointers and Arrays

Function : Prototyping, Definition and Call, Scope Rules, Parameter Passing Value, by address and by reference, Recursion.

Section B

Classes and Objects : Class Declaration and Class Definition, Defining member functions, making functions inline, Nesting of member functions, Members access control, this pointer, Objects: Object as function arguments, array of objects, functions returning objects, Const member. Static data member and Static member functions, Friend functions and Friend classes.

Constructors: Properties, types of constructors, Dynamic constructors, multiple constructors in classes.

Destructors: Properties, Virtual destructors, Destroying objects, Rules for constructors and destructors.

Inheritance: Defining derived classes, inheriting private members, single inheritance, types of derivation, function redefining, constructors in derived class, Types of inheritance, Types of base classes, Code Reusability, Overview of polymorphism.

References:

1. Deitel and Deitel, "C++ How to Program", Pearson Education, 2001
2. Robert Lafore, "Object Oriented Programming in C++", Galgotia Publicationsk, 1994.
3. Bjarne Strautrup, "The C++ Programming Language", Addition-Wesley Publication Co., 2001.
4. Stanley B. Lippman, Josee Lajoie, "C++ Primer", Pearson Educaion, 2002
5. E.Balagurusamy, "Object Oriented Programming with C++", Tata McGraw-Hill, 2001.
6. M.K.Jain, S.R.K lyengar and R.K.Jain, Numerical Methods for Scientific and Engineering Computation, New Age Publisher, New Delhi.
7. S.D.Conte and C.D.Boor, *Elementary Numerical Analysis*, 3rd Edition, Mc-Graw Hill International Company, Newyork.
8. Smith, G D, Numerical solution of partial differential equations, Oxford Univ. Press (1982).
9. R.S. Gupta, Elements of Numerical Analysis, Macmillan India Ltd., 2009.
10. B.S Grewal. Numerical methods in engineering and science with program in C and C++
11. F.B. Hildebland. Introduction to numerical analysis
12. S.S.Sastry Introductory methods of numerical anylysis Publisher Prentice Hall of India Pvt Ltd.
13. Herbert Schildt. "The Complete Reference C++",Tata McGraw-Hill,2001

General Elective
B.Sc (H) Maths
SOFTWARE LAB-II (BASED ON BHMC-1.2)
BHMC-1.2P
2 CREDITS: 4H (P)

Time Allowed: 3 Hours	**Max. Marks: 50**
Number of Practicals per Week: 4	**External Marks: 30**
Pass Percentage: 35%	**Internal Assessment: 20**

This course will mainly comprise of exercises on the basis of theory paper BHMC-1.2: Object Oriented Programming using C++.

General Elective
B.Sc (H) Maths
Data Structures
BHMC- 2.1
4 CREDITS: 4H (L)

Time Allowed: 3 Hours	**Max. Marks: 100**
Number of Lectures per Week: 4	**External Marks: 70**
Pass Percentage: 35%	**Internal Assessment: 30**

Instructions for the Paper Setter

The question paper will consist of three sections: A, B & C. Sections A & B will have four questions each from the respective sections of the syllabus carrying 10 marks for each question. Section C will have 10 short-answer type questions carrying at total of 30 marks, which will cover the entire syllabus uniformly.

Instructions for the Candidates

Candidates are required to attempt two questions each from the sections A & B of the question paper and the entire section C.

Section A

Data Structure: Introduction to data structure and algorithm. - Algorithm analysis: Time space trade off algorithms and Big O notation.

Arrays: Introduction, one dimensional and multidimensional arrays, memory representation of arrays, traversing linear array, insertion and deletion in an array, sparse array.

Linked List: representation of linked list, Comparison of linear and non- Linear data structures, Insertion and Deletion of a node from a linear linked list, doubly linked list, Circular linked list, Application of linked lists.

Queue: De queues and their applications.

Section B

Stacks: Push and Pop in stacks. Representation of stacks in memory (Linked and sequential) Application of stacks: matching parenthesis, evaluation of postfix Notation, conversion from infix to postfix, recursion. , Tower of Hanoi.

Tree: Definitions and basic concepts, linked tree representation, representations in contiguous storage.

Graphs: Introduction and their application, sequential and linked representation of graph.

Searching and Sorting: Linear and binary search, bubble sort, Selection Sort, Insertion Sort, Merge Sort, Radix Sort, Quick Sort, Comparison of various searching and sorting algorithms.

Suggested Reading:

1. Tanenbaum, Y. Lanhgsam and A.J. Augenstein, “Data Structures Using C”, Prentice Hall of India, 1990.
2. Seymour Lipschultz, “Theory and Practice of Data Structures”, McGraw-Hill, 1988.

General Elective
B.Sc (H) Maths
SOFTWARE LAB-III (BASED ON BHMC- 2.1)
BHMC - 2.1P
2 CREDITS: 4H (P)

Time Allowed: 3 Hours	**Max. Marks: 50**
Number of Practicals per Week: 4	**External Marks: 30**
Pass Percentage: 35%	**Internal Assessment: 20**

This course will mainly comprise of exercises on the basis of theory paper BHMC-2.1: Data Structures

General Elective
B.Sc (H) Maths
COMPUTER GRAPHICS
BHMC 2.2
4 CREDITS: 4H (L)

Time Allowed: 3 Hours	**Max. Marks: 100**
Number of Lectures per Week: 4	**External Marks: 70**
Pass Percentage: 35%	**Internal Assessment: 30**

Instructions for the Paper Setter

The question paper will consist of three sections: A, B & C. Sections A & B will have four questions each from the respective sections of the syllabus carrying 10 marks for each question. Section C will have 10 short-answer type questions carrying at total of 30 marks, which will cover the entire syllabus uniformly.

Instructions for the Candidates

Candidates are required to attempt two questions each from the sections A & B of the question paper and the entire section C.

SECTION A

Graphics Hardware: The Functional characteristics of the systems are emphasized.
Input Devices: Keyboard, Touch Panel, Light Pens, Graphic Tablets, Joysticks, Trackball, Data Glove, Digitizer, Image Scanner, Mouse, Voice Systems.
Hard Copy Devices: Impact and non impact printers, such as line printer, dot matrix, laser, ink-jet, electrostatic, flatbed and drum plotters.
Video Display Devices: Raster Scan Systems, Random Scan Systems. Coloring technique: Beam Penetration, Shadow Mask. Graphics Monitors: Plasma Panel, LED, LCD. Properties of Display Devices: Persistence, Resolution, Aspect Ratio and Workstations
Scan conversion algorithms for line, circle and ellipse, Bresenham's algorithms, area filling techniques, character generation.

SECTION B

2-dimensional Graphics: Cartesian and Homogeneous co-ordinate system, Geometric transformations (translation, Scaling, Rotation, Reflection, Shearing), Composite transformations, affine transformation, Two dimensional viewing transformation and clipping (line, polygon and text).
3-dimensional Graphics: Geometric transformations (translation, Scaling, Rotation, Reflection, Shearing), Composite transformations, Mathematics of Projections (parallel & perspective). 3-D viewing, transformations and clipping.

Suggested Reading:

1. D. Hearn and M.P. Baker, “Computer Graphics”, PHI New Delhi; Second Edition, 1995.
2. J.D. Foley, A.V. Dam, S.K. Feiner, J.F. Hughes, R.L. Philips,“ Introduction to Computer Graphics”, Addison-Wesley Publishing Company, N.Y. : Second Edition, 1994.
3. R.A. Plastock and G. Kalley, “Computer Graphics”, McGraw Hill, 1986

General Elective
B.Sc (H) Maths
SOFTWARE LAB-IV (BASED ON BHMC 2.2)
BHMC 2.2P
2 CREDITS: 4H (P)

Time Allowed: 3 Hours	**Max. Marks: 50**
Number of Practicals per Week: 4	**External Marks: 30**
Pass Percentage: 35%	**Internal Assessment: 20**

This course will mainly comprise of exercises on the basis of theory paper BHMC - 2.2: COMPUTER GRAPHICS.

Members of Board of Studies

1. **Mr. Surender Kumar**
2. **Dr. Dharamveer Sharma**
3. **Dr. Major Singh Gorya**
4. **Dr. Navdeep Singh**
5. **Mr. Sandeep Sharma**
6. **Mr. Rakesh Kumar**
7. **Mrs. Tajinder Kaur**
8. **Mrs. Paramjit Kaur**
9. **Mrs. Amandeep Kaur**

(P.G. DEPARTMENT OF COMPUTER SCIENCE)

OUTLINES OF TESTS,
SYLLABI AND COURSES OF READING

FOR

M.Sc. ARTIFICIAL INTELLIGENCE AND DATA SCIENCE
(SEMESTER SYSTEM)
FIRST YEAR (Semester I & II)
(2020-21 and 2021-22 Sessions)

FACULTY OF COMPUTING SCIENCES

SRI GURU TEG BAHADUR KHALSA COLLEGE

Sri Anandpur Sahib
An Autonomous College
Affiliated to Punjabi University, Patiala

PROGRAMME OF STUDY OF M.Sc.(AI & DS) PART-I
(SEMESTER-I &II)
FOR SESSIONS 2020-21, 2021-22

Semester-I

Paper Code	Name of Subject	Contact Hours per week				Examination scheme marks				Credit
		L	T	P	Total	Internal	External	Practical	Total	
MSAIDS-111	Introduction to Artificial Intelligence	4	1		5	30	70		100	5
MSAIDS-112	Python Programming	5			5	30	70		100	5
MSAIDS-113	Data Structures & Algorithms	4	1		5	30	70		100	5
MSAIDS-114	Mathematical Foundation Course	4	1		5	30	70		100	5
MSAIDS-115	Elective-I*	4	1		5	30	70		100	5
MSAIDS-116	Software Lab-I (Based on MSAIDS-112 & MSAIDS-113)			4	4	30		70	100	2
	Total	**19**	**4**	**4**	**29**	**180**	**350**	**70**	**600**	**27**

Semester-II

Paper Code	Name of Subject	Contact Hours per				Examination scheme marks				Credit
		L	T	P	Total	Internal	External	Practical	Total	
MSAIDS-121	Introduction to Data Science	4	1		5	30	70		100	5
MSAIDS-122	Web Analytics	5			5	30	70		100	5
MSAIDS-123	Machine Learning with R	4	1		5	30	70		100	5
MSAIDS-124	Probability & Statistics in Data Science	4	1		5	30	70		100	5
MSAIDS-125	Elective-II**	4	1		5	30	70		100	5
MSAIDS-126	Software Lab-II and Minor Project (Based on MSAIDS-123)			4	4	30		70	100	2
	Total	**19**	**4**	**4**	**29**	**180**	**350**	**70**	**600**	**27**

***Elective-I: Students can opt any of the following papers:**

MSAIDS-115 E1	Developing Soft Skills & Personality
MSAIDS-115 E2	Soft Computing
MSAIDS-115 E3	Healthcare Data Analytics

****Elective-II: Students can opt any of the following papers:**

MSAIDS-125 E1	Data Warehousing & Mining
MSAIDS-125 E2	Digital Marketing
MSAIDS-125 E3	Block chain & Bitcoin Fundamentals

NOTE:

The Break-up of Marks for Practical exams (External) will be as under:

1. Viva-Voce(External examination)	20Marks
2. Program Development and Execution	20Marks
3. File Record	30Marks

Internal Assessment will be based on Continuous Comprehensive Assessment (CCA) pattern and the breakup of Internal Assessment will be asunder:

a) Average of Two mid Semester Tests:	**60%**
b) Assignment/Seminar/Class Test/Tutorial/Quiz etc.:	**20%**
c) Attendance:	**10%**
d) Class participation and behavior:	**10%**

MSAIDS-111
Introduction to Artificial Intelligence
5 CREDITS: 4H(L) + 1H(T)

Teaching Hours per week: 5 **Internal Assessment: 30Marks**
Time Allowed: 3Hrs. **External Marks: 70Marks**
Pass Marks: 35%

Instructions for Paper Setter/Examiners

The Question paper will consist of three sections-A, B & C. Section A and B will have four questions each from the respective unit of the syllabus and will carry 10 marks each. Candidates are required to attempt two questions each from section A and B. Section C will consist of 10 short answer type questions covering entire syllabus and will carry 3 marks each. Section C is Compulsory.

Section-A

Introduction: Introduction to Artificial Intelligence, Background and Applications, Turing Test and Rational Agent approaches to AI, Introduction to Intelligent Agents, their structure, behaviour and environment.

Problem Solving and Searching Techniques: Problem Characteristics, Production Systems, Control Strategies, Breadth First Search, Depth First Search, Hill climbing and its Variations, **Heuristics Search Techniques:** Best First Search, A* algorithm, Constraint Satisfaction Problem, Means-End Analysis

Section-B

Knowledge Representation: Introduction to First Order Predicate Logic, Resolution Principle, Unification, Semantic Nets, Conceptual Dependencies, Frames, and Scripts, Production Rules, Conceptual Graphs.

Expert systems : Basic Components & architecture of Expert systems, representing and using domain knowledge, ES-Shells.

Applications of AI : Game Playing-The minmax Search Procedure, Adding Alpha-beta Cutoff's Planning-Overview, Components of Planning System, Natural Language processing : Overview, Syntactic processing, Semantic analysis, Morphological, Discourse and Pragmatic processing.

BOOKS RECOMMENDED:

1. DAN.W. Patterson, Introduction to A.I and Expert Systems – PHI, 2007.
2. Russell & Norvig, Artificial Intelligence-A Modern Approach, LPE, Pearson Prentice Hall, 2nd edition, 2005.
3. Rich & Knight, Artificial Intelligence – Tata McGraw Hill, 2nd edition, 1991.
4. W.F. Clocksin and Mellish, Programming in PROLOG, Narosa Publishing House, 3rd edition, 2001.
5. Ivan Bratko, Prolog Programming for Artificial Intelligence, Addison-Wesley, Pearson Education, 3rd edition, 2000.

MSAIDS-112
Python Programming
5 CREDITS: 5H(L)

Teaching Hours per week: 5 **Internal Assessment: 30Marks**
Time Allowed: 3Hrs. **External Marks: 70Marks**
Pass Marks: 35%

Instructions for Paper Setter/Examiners

The Question paper will consist of three sections-A, B & C. Section A and B will have four questions each from the respective unit of the syllabus and will carry 10 marks each. Candidates are required to attempt two questions each from section A and B. Section C will consist of 10 short answer type questions covering entire syllabus and will carry 3 marks each. Section C is Compulsory.

Section A

Introduction to Python: History of Python, Strength and Weakness, Different Versions, Installing Python , Setting up in local environment, IDLE, Executing from file, command line from interactive mode, Python Identifiers and reserved key words.

Python syntax: Variables and Variables type, Data types, Data Types Conversion, Operators (Arithmetic, Comparison, Assignment, Bitwise, Logical, Membership, Identity), Operators Precedence, Python Decision making (if, el if, else, nested if), Python loops (while, for, nested loops), Break and continue statements.

Python Collections or Sequence: Sequence introduction, Number operations, String Operations, List, Tuple, Dictionary, Set.

Python Functions: Function introduction, User defined functions, Functions with parameters, Keywords and optional parameters, Scope of variables (Global and Local), Anonymous function – Lambda, In-build function, List comprehension.

Section B

Python Modules: Modules, Standard Modules (Sys, Math, Time), Import Statement, from statement, Dir() functions.

Python File handling: Sending Output to STDOUT Using the print() Method, Reading Input with the input() Method, Creating File Objects with the open() Method, Controlling File Access Modes, Working with File Object Attributes, Closing File Objects with the close() Method, Reading and Writing to File Objects with read() and write(),

OOP: Class and object, Attributes, Inheritance, Overloading, Overriding, Polymorphism.

Exceptions handling: Errors, Run Time Errors, The Exception Model, Exception Hierarchy, Handling Multiple Exceptions, Raise.

Text Books:

1. Paul Gries, Jennifer Campbell, Jason Montojo, Practical Programming- An Introduction to Computer Science Using Python 3.6, Shroff Publications and Distributors.

Reference books:

1. John V Guttag, Introduction to Computation and Programming Using Python‘‘, Revised and expanded Edition, MIT Press , 2013.

2. Robert Sedgewick, Kevin Wayne, Robert Dondero, ―Introduction to Programming in Python: An Inter-disciplinary Approach, Pearson India Education Services Pvt. Ltd., 2016.
3. Timothy A. Budd, Exploring Python, Mc-Graw Hill Education (India) Private Ltd., 2015.

MSAIDS-113
Data Structures & Algorithms
5 CREDITS: 4H(L) + 1H(T)

Teaching Hours per week: 5 **Internal Assessment: 30Marks**
Time Allowed: 3Hrs. **External Marks: 70Marks**
Pass Marks: 35%

Instructions for Paper Setter/Examiners

The Question paper will consist of three sections-A, B & C. Section A and B will have four questions each from the respective unit of the syllabus and will carry 10 marks each. Candidates are required to attempt two questions each from section A and B. Section C will consist of 10 short answer type questions covering entire syllabus and will carry 3 marks each. Section C is Compulsory.

SECTION A

Data Structure: Introduction to data structure and algorithm, Algorithm analysis: Time space trade off algorithms and Big O notation.

Arrays: Introduction, one dimensional and multidimensional arrays, memory representation of arrays, operations on arrays, sparse arrays and sparse matrices and their implementation, Advantages and limitation of arrays.

Stacks: Introduction; Operation on stacks; Implementation of stacks, Application of stacks: matching parenthesis, evaluation of arithmetic expressions, conversion from infix to postfix, recursion.

Queues: Introduction, operation on queues, circular queue, memory representation of queues, de-queues, priority queues, application of queues.

Linked List: Introduction; operation on linked list, circular linked list, doubly linked list, header linked list, implementation of linked list, application of linked lists.

Trees: Introduction; Binary Tree; Threaded Binary Trees; Binary Search Tree; Balanced Trees; B-Trees; Heap.

SECTION B

Graphs: Introduction Graph: Graph terminology, Memory Representation of Graphs: adjacency matrix representation of graphs, adjacency list or linked representation of graphs, **Operations performed on graphs:** Breadth-first and Depth-first search, Dijkastra Shortest Path algorithm, Minimum Spanning Tree, Kruskal Algorithm, Prims Algorithms.

Sorting: Selection Sort, Insertion Sort, Merge Sort, Bucket Sort, Radix Sort, Quick Sort and Heap Sort.

Algorithm Design Techniques: Divide and Conquer Algorithms, Greedy Algorithms, Dynamic Programming, Back Tracking Algorithms.

Hashing: Hashing techniques; Collision resolution; Deleting items from a hash table; Open Addressing, Chaining, Applications of hashing.

TEXT BOOKS:

1. M. A. Weiss, "Data Structures and Algorithm Analysis in C++, Pearson Education.
2. Tanenbaum, Y. Lanhgsam and A. J. Augenstein, "Data Structures Using C", Prentice Hall of India.

REFERENCE BOOKS:

1. Vishal Goyal, Lalit Goyal, Pawan Kumar, A Simplified Approach to Data Structures,Shroff Publishers and Distributors.
2. CORMAN, Introduction to Algorithms
3. S. Sahni, "Data Structures, Algorithms and Application in C++, McGraw-Hill.
4. Donald Knuth : Fundamental Algorithms. Vol-1
5. Donald Knuth : Sorting & Searching. Vol-3

MSAIDS-114

Mathematical Foundation Course

5 CREDITS: 4H(L) + 1H(T)

Teaching Hours per week: 5 **Internal Assessment: 30Marks**
Time Allowed: 3Hrs. **External Marks: 70Marks**
Pass Marks: 35%

Instructions for Paper Setter/Examiners

The Question paper will consist of three sections-A, B & C. Section A and B will have four questions each from the respective unit of the syllabus and will carry 10 marks each. Candidates are required to attempt two questions each from section A and B. Section C will consist of 10 short answer type questions covering entire syllabus and will carry 3 marks each. Section C is Compulsory.

SECTION A

Sets: Introduction to the theory of sets, combination of sets, power sets, finite and infinite sets, principle of inclusion and exclusion

Functions: One-to-One Functions and Onto Functions, Inverse and Composition of Functions, Floor Function, Ceiling Function.

Relations and their properties: Relations and types of relations , Equivalence Relations closure of relation, partial ordering.

Algorithms:, Growth of Functions, Big-O Notation, Big-Omega and Big-Theta Notation, Mathematical Induction, The Basic of counting, The Pigeonhole Principle.

SECTION B

Recurrence Relations: Linear recurrence relations with constant coefficients, Solution of non homogeneous recurrence relations. Generating functions

Graphs: Introduction, terminology, Representing Graphs and Graph Isomorphism, Connectivity, Euler Path and Circuits, Shortest Path Problems, Planar Graphs, Graph Coloring, Trees, Basic Terminology and properties of Trees, Introduction to Spanning Trees

Prepositional Logic: Logical Connectives, Well-formed Formulas, Tautologies, Equivalences.

Boolean Algebra: Boolean algebra, Boolean Functions, Connonical Form (Disjunctive NormalForm) of a Boolean function, Karnaugh Maps

Recommended Books:

1. C.L. Liu , D.P. Mahopatra, Elements of Discrete mathematics, 2nd Edition , Tata McGraw Hill, 1985.
2. Kenneth Rosen, Discrete Mathematics and Its Applications, Sixth Edition ,McGraw Hill 2006
3. T.H. Coremen, C.E. Leiserson, R. L. Rivest, Introduction to algorithms, 3rd edition Prentice Hall on India, 2009
4. M. O. Albertson and J. P. Hutchinson, Discrete Mathematics with Algorithms , John wiley Publication, 1988

MSAIDS-115 E1

Developing Soft Skills & Personality

5 CREDITS: 4H(L) + 1H(T)

Teaching Hours per week: 5 **Internal Assessment: 30Marks**
Time Allowed: 3Hrs. **External Marks: 70Marks**
Pass Marks: 35%

Instructions for Paper Setter/Examiners

The Question paper will consist of three sections-A, B & C. Section A and B will have four questions each from the respective unit of the syllabus and will carry 10 marks each. Candidates are required to attempt two questions each from section A and B. Section C will consist of 10 short answer type questions covering entire syllabus and will carry 3 marks each. Section C is Compulsory.

Section-A

Introduction to Soft Skills: Interpersonal skills, Importance of Soft Skills.

Communication: Verbal & Non-verbal communication, Role of body language, Essentials of Effective Communication, barriers to Communication.

Team building and team work, Leadership, Qualities of a leader.

Managing Self: Techniques of Time Management, Stress Management.

Section-B

Problem Solving: Approaches for problem solving, Steps followed in problem solving.

Art of listening: Skills for effective listening, Art of Persuasion and Negotiation.

Speaking Skills: Preparing and delivering effective multimedia presentation.

Interview Skills, Participation in Group Discussion, Conducting meeting.

Recommended Books :

1. Dorch, Patricia. *What Are Soft Skills.*New York: Execu Dress Publisher, 2013.
2. Kamin, Maxine. *Soft Skills Revolution: A Guide for Connecting with Compassion for Trainers, Teams, and Leaders.* Washington, DC: Pfeiffer & Company, 2013.
3. Klaus, Peggy, Jane Rohman & Molly Hamaker. *The Hard Truth about Soft Skills.*London: Harper Collins E-books, 2007.
4. Petes S. J. Francis. *Soft Skills and Professional Communication.* New Delhi: Tata McGraw-Hill Education, 2011.
5. Turk, Christopher. *Effective Speaking*, South Asia Division: Taylor & Francis, 1985.
6. Lucas, Stephen E. *The Art of Public Speaking*, 11th Edn., International Edn., McGraw Hill Book Co., 2014.
7. Holtz, Shel, *Corporate Conversations*, PHI, New Delhi, 2007.
8. Chauhan, G.S. and Sharma, S. *Soft Skills.* Wiley, New Delhi, 2016.
9. Kumar, Sanajy and Pushp Lata.*Communication Skills*. New Delhi: OUP. 2011.

MSAIDS-115 E2

Soft Computing

5 CREDITS: 4H(L) + 1H(T)

Teaching Hours per week: 5 **Internal Assessment: 30Marks**
Time Allowed: 3Hrs. **External Marks: 70Marks**
Pass Marks: 35%

Instructions for Paper Setter/Examiners

The Question paper will consist of three sections-A, B & C. Section A and B will have four questions each from the respective unit of the syllabus and will carry 10 marks each. Candidates are required to attempt two questions each from section A and B. Section C will consist of 10 short answer type questions covering entire syllabus and will carry 3 marks each. Section C is Compulsory.

Section A

Introduction: Introduction to soft computing, application areas of soft computing, classification of soft computing techniques, structure & functioning of biological brain & Neuron, and concept of learning/training. Model of an Artificial Neuron, transfer/activation functions, perceptron, perceptron learning model, binary & continuous inputs, linear separability.

Multilayer Neural Networks: Feed Forward network - significance, training, loss function, Back-Propagation algorithm, convergence & generalization, momentum, applications. Feedback network -Hopfield Nets: architecture, energy functions, training algorithms & examples, competitive learning, self-organizing maps. Introduction to CNN and RNN network.

Section B

Fuzzy Systems: fuzzy set theory, fuzzy sets and operations, membership functions, concept of fuzzy relations and their composition, concept of fuzzy Measures. Fuzzy logic: fuzzy rules, inferencing. Fuzzy Control system: selection of membership functions, Fuzzyfication, rule based design & inferencing, defuzzyfication, applications of fuzzy system.

Genetic algorithm: concepts, creation of offspring, working principle, encoding, fitness functions, reproduction, genetic modeling. Generation cycle & convergence of GA, application areas of GA.

Advanced soft computing techniques: Rough Set Theory - Introduction, Set approximation, Rough membership, Attributes, optimization. SVM - Introduction, obtaining the optimal hyper plane, linear and nonlinear SVM classifiers. Introduction to Swarm Intelligence, Swarm Intelligence Techniques: Ant Colony Optimization, Particle Swarm Optimization, Bee Colony Optimization etc.

References:

1. S.N. Sivanandam & S.N. Deepa, Principles of Soft Computing, Wiley Publications
2. S, Rajasekaran & G.A. Vijayalakshmi Pai, Neural Networks, Fuzzy Logic & Genetic Algorithms, Synthesis & applications, PHI Publication
3. Bose, Neural Network fundamental with Graph , Algo.& Appl, TMH Kosko: Neural Network & Fuzzy System, PHI Publication
4. Klir & Yuan ,Fuzzy sets & Fuzzy Logic: Theory & Appli.,PHI Pub. Hagen, Neural Network Design, Cengage Learning

MSAIDS-115 E3

Healthcare Data Analytics

5 CREDITS: 4H(L) + 1H(T)

Teaching Hours per week: 5 **Internal Assessment: 30Marks**
Time Allowed: 3Hrs. **External Marks: 70Marks**
Pass Marks: 35%

Instructions for Paper Setter/Examiners

The Question paper will consist of three sections-A, B & C. Section A and B will have four questions each from the respective unit of the syllabus and will carry 10 marks each. Candidates are required to attempt two questions each from section A and B. Section C will consist of 10 short answer type questions covering entire syllabus and will carry 3 marks each. Section C is Compulsory.

Section A

Introduction: Introduction to Healthcare Data Analytics- Electronic Health Records– Components of EHR- Coding Systems- Benefits of EHR- Barrier to Adopting HER Challenges- Phenotyping Algorithms.

Analysis: Biomedical Image Analysis- Mining of Sensor Data in Healthcare- Biomedical Signal Analysis- Genomic Data Analysis for Personalized Medicine.

Analytics: Natural Language Processing and Data Mining for Clinical Text- Mining the Biomedical- Social Media Analytics for Healthcare.

Section B

Advanced Data Analytics: Advanced Data Analytics for Healthcare– Review of Clinical Prediction Models- Temporal Data Mining for Healthcare Data- Visual Analytics for Healthcare- Predictive Models for Integrating Clinical and Genomic Data- Information Retrieval for Healthcare- Privacy-Preserving Data Publishing Methods in Healthcare.

Applications: Applications and Practical Systems for Healthcare– Data Analytics for Pervasive Health- Fraud Detection in Healthcare- Data Analytics for Pharmaceutical Discoveries- Clinical Decision Support Systems- Computer-Assisted Medical Image Analysis Systems- Mobile Imaging and Analytics for Biomedical Data.

References:

1. Chandan K. Reddy and Charu C Aggarwal, “Healthcare data analytics”, Taylor & Francis, 2015
2. Hui Yang and Eva K. Lee, “Healthcare Analytics: From Data to Knowledge to Healthcare Improvement, Wiley, 2016.

MSAIDS-116

Software Lab-I (Based on MSAIDS-112 & MSAIDS-113)

2 CREDITS: 4H(P)

Teaching Hours per week: 4	**Internal Assessment: 30Marks**
Time Allowed: 3Hrs.	**External Marks: 70Marks**
Pass Marks: 35%	

This laboratory course will mainly comprise of exercises based on subject MSAIDS-112: Python Programming & MSAIDS-113: Data Structures & Algorithms. Students are required to develop programs based upon:

1. Various data types
2. Various Operators
3. Lists in Python
4. Functions in Python
5. File Handling Operations
6. OOPs Concepts
7. Exception Handling
8. Implementation of Data Structure Concepts: Array, Stacks, Queue and Searching

The Break-up of Marks for Practical exams (External) will be as under:

1.	Viva Voce	20Marks
2.	Program Development and Execution	30Marks
3.	File Record	20Marks

MSAIDS-121

Introduction to Data Science

5 CREDITS: 4H(L) + 1H(T)

Teaching Hours per week: 5 **Internal Assessment: 30Marks**
Time Allowed: 3Hrs. **External Marks: 70Marks**
Pass Marks: 35%

Instructions for Paper Setter/Examiners

The Question paper will consist of three sections-A, B & C. Section A and B will have four questions each from the respective unit of the syllabus and will carry 10 marks each. Candidates are required to attempt two questions each from section A and B. Section C will consist of 10 short answer type questions covering entire syllabus and will carry 3 marks each. Section C is Compulsory.

Section-A

Introduction to Data Science: Data Science-a discipline, Landscape-Data to Data science, Data Growth-issues and challenges, The data science Venn diagram, Foundations of data science.

Data Exploration and Preparation: Structured vs unstructured data, Quantitative vs qualitative data. Four levels of data – nominal, ordinal, interval, ration. Messy data, Anomalies and artifacts in datasets. Cleaning data.

The Five Steps of Data Science: Introduction to data science, Overview of the five steps: Ask an interesting question, Obtain the data, Explore the data, Model the data, Communicate and visualize the results.

Section-B

Feature Generation and Feature Selection (Extracting Meaning From Data) - Motivating application: user (customer) retention - Feature Generation (brainstorming, role of domain expertise, and place for imagination) - Feature Selection algorithms – Filters; Wrappers; Decision Trees; Random Forests

Data Modelling: Basics of Generative modeling and Predictive modeling.

Data Visualization and Presentation: Charts-histograms, scatter plots, time series plots etc. Graphs, 3D Visualization and Presentation.

Data Science and Ethical Issues:- Discussions on privacy, security, ethics; A look back at Data Science; Next-generation data scientists

Text Books:

1. S.J. Russell and P.Norvig: “Artificial Intelligence: A Modern Approach”, Pearson.
2. Sinan Ozdemir, “Principles of Data Science”, Packt Publishing.

Reference Books:

1. E.Rich, K.Knight, S.B. Nair: “Artificial Intelligence”, Tata McGraw Hill Ed Pvt Ltd.
2. Joel Grus: “Data Science from Scratch”, O’Reilly.
3. Foster Provost & Tom Fawcett: “Data Science for Business” O’Reilly
4. Roger D. Peng & Elizabeth Matsui: “The Art of Data Science” Lean Publishing.

MSAIDS-122

Web Analytics

5 CREDITS: 4H(L) + 1H(T)

Teaching Hours per week: 5 **Internal Assessment: 30Marks**
Time Allowed: 3Hrs. **External Marks: 70Marks**
Pass Marks: 35%

Instructions for Paper Setter/Examiners

The Question paper will consist of three sections-A, B & C. Section A and B will have four questions each from the respective unit of the syllabus and will carry 10 marks each. Candidates are required to attempt two questions each from section A and B. Section C will consist of 10 short answer type questions covering entire syllabus and will carry 3 marks each. Section C is Compulsory.

Section A

Web Analytics – Basics – Traditional Ways – Expectations – Data Collection – Clickstream Data – Weblogs – Beacons – JavaScript Tags – Packet Sniffing – Outcomes data – Competitive data – Search Engine Data.

Qualitative Analysis – Customer Centricity – Site Visits – Surveys – Questionnaires – Website Surveys – Post visits – Creating and Running- Benefits of surveys – Critical components of successful strategy.

Section B

Web Analytic concepts – URLS – Cookies – Time on site – Page views – Understand standard reports – Website content quality – Navigation reports (top pages, top destinations, site overlay). – Search Analytics – Internal search, SEO and PPC – Measuring Email and Multichannel Marketing - Competitive intelligence and Web 2.0 Analytics – Segmentation – Connectable reports.

Google Analytics: Analytics - Cookies - Accounts vs Property - Tracking Code - Tracking Unique Visitors - Demographics - Page Views & Bounce Rate Acquisitions - Custom Reporting.

Goals & Funnels – Filters - Ecommerce Tracking - Real Time Reports - Customer Data Alert - Adwords Linking - Adsense Linking -Attribution Modeling - Segmentation - Campaign Tracking - Multi-Channel Attribution.

References:

1. Avinash Kaushik, “Web Analytics 2.0: The Art of Online Accountability and Science Of Customer Centricity “, 1st edition, Sybex, 2009.
2. Michael Beasley, “Practical Web Analytics for User Experience: How Analytics can help you Understand your Users”, Morgan Kaufmann, 2013. 20
3. Magy Seif El-Nasr, Anders Drachen, Alessandro Canossa, eds., “Game Analytics: Maximizing the Value of Player Data”, Springer, 2013.
4. Bing Liu, “Web Data Mining: Exploring Hyperlinks, Content, and Usage Data”, 2 nd Edition, Springer, 2011.
5. Justin Cutroni, “Google Analytics”, O’Reilly, 2010.

6. Eric Fettman, Shiraz Asif, Feras Alhlou , “Google Analytics Breakthrough”, John Wiley & sons, 2016.

MSAIDS-123
Machine Learning with R
5 CREDITS: 5H(L)

Teaching Hours per week: 5 **Internal Assessment: 30Marks**
Time Allowed: 3Hrs. **External Marks: 70Marks**
Pass Marks: 35%

Instructions for Paper Setter/Examiners

The Question paper will consist of three sections-A, B & C. Section A and B will have four questions each from the respective unit of the syllabus and will carry 10 marks each. Candidates are required to attempt two questions each from section A and B. Section C will consist of 10 short answer type questions covering entire syllabus and will carry 3 marks each. Section C is Compulsory.

Section A

Introduction to R: R Installation Guide and Installing R Packages; Basic data types and data structures in R; Reading, writing, manipulating and visualizing data in R

Introduction to Machine Learning: Basic definitions, types of learning, hypothesis space and inductive bias, evaluation, cross-validation

Linear Regression: Introduction, Definition, (Linear functions and other functions), Various Types of regression models, multiple linear regression, Assumption for errors, The least square regression line

Bayesian Learning: Bayes theorem, Bayes Optimal Classifier, Naïve Bayes classifier, Gibbs algorithm, Bayesian belief networks.

Section B

Classification Techniques: K-Nearest Neighbors, Support Vector Machines, Linear SVM formulation, Nonlinear SVM, Feature Space Kernel Function, KNN modeling, SVM modeling, Decision Trees

Neural networks: Perceptron, Multilayer Neural Network, Backpropagation Algorithm, Recurrent Networks.

Unsupervised Learning: Hierarchical Clustering, K-means Clustering, Expectation Maximization (EM) Algorithm.

Combining Multiple Classifiers: Voting, Bagging, Boosting, AdaBoost

Text Books:

1. Cory Lesmeister, Mastering Machine Learning with R, Packt Publishing
2. Abhijit Ghatak, Machine Learning with R, Springer

Reference Books:

1. Kevin Murphy, Machine Learning, MIT Press
2. Sebastian Raschka and Vahid Mirjalili, Python Machine Learning, Packt Publishing 28
3. Shai Shalev-Shwartz, Shai Ben-David, Understanding Machine Learning: From Theory to Algorithms, Cambridge University Press
4. Stephen Marsland, Machine Learning: An Algorithmic Perspective CRC Press
5. Machine Learning Online Course: http://nptel.ac.in/courses/106105152/

6. Chio, Machine Learning & Security Protecting Systems with Data, Shroff Publications and Distributors
7. Conway, Machine Learning for Hackers, Shroff Publications and Distributors

MSAIDS-124

Probability & Statistics in Data Science

5 CREDITS: 4H(L) + 1H(T)

Teaching Hours per week: 5 **Internal Assessment: 30Marks**
Time Allowed: 3Hrs. **External Marks: 70Marks**
Pass Marks: 35%

Instructions for Paper Setter/Examiners

The Question paper will consist of three sections-A, B & C. Section A and B will have four questions each from the respective unit of the syllabus and will carry 10 marks each. Candidates are required to attempt two questions each from section A and B. Section C will consist of 10 short answer type questions covering entire syllabus and will carry 3 marks each. Section C is Compulsory.

Section A

Collection of data, Measures of central tendency (Mean, Median, Mode) , Mean Deviation, Standard Deviation, Variance, Coefficient of Variation, Skewness, Kurtosis, Moments, Corelation(Karl Pearson Coeficient of correlation, Spearmans Rank Corelation) , Regression Analysis

Section B

Probability

Definition, Addition theorem, Independent Events, Conditional Probability, Bayes theorem, Random Variable , Binomial Distribution, Poisson Distribution, Normal Distribution.

Sampling:-

Sample , Hypothesis, Confidence Limits, Central Limit Theorem, Population, Universe, t-test, F-test, Chi- Square test, Anova

Text Books:-

1. Statistical Methods , SP Gupta , Sultan Chand and Sons.
2. Higher Engineering Mathematics , BS Grewal , Khanna Publishers.
3. A Text Book for Statistics , Goon and Gupta.

MSAIDS-125 E1
Data Warehousing & Mining
5 CREDITS: 4H(L) + 1H(T)

Teaching Hours per week: 5 **Internal Assessment: 30Marks**
Time Allowed: 3Hrs. **External Marks: 70Marks**
Pass Marks: 35%

Instructions for Paper Setter/Examiners

The Question paper will consist of three sections-A, B & C. Section A and B will have four questions each from the respective unit of the syllabus and will carry 10 marks each. Candidates are required to attempt two questions each from section A and B. Section C will consist of 10 short answer type questions covering entire syllabus and will carry 3 marks each. Section C is Compulsory.

Section A

Data Warehousing: Data warehousing Components –Building a Data warehouse –- Mapping the Data Warehouse to a Multiprocessor Architecture – DBMS Schemas for Decision Support – Data Extraction, Cleanup, and Transformation Tools –Metadata. **Business Analysis**: Online Analytical Processing (OLAP) – Need – Multidimensional Data Model – OLAP Guidelines – Multidimensional versus Multi-relational OLAP – Categories of Tools – OLAP Tools and the Internet.

Section B

Data Mining: Introduction – Data – Types of Data – Data Mining Functionalities – Interestingness of Patterns – Classification of Data Mining Systems – Data Mining Task Primitives – Integration of a Data Mining System with a Data Warehouse – Issues –Data Pre-processing.
Association Rule Mining And Classification: Mining Frequent Patterns, Associations and Correlations – Mining Methods – Mining various Kinds of Association Rules – Correlation Analysis – Constraint Based Association Mining – Classification and Prediction - Basic Concepts - Decision Tree Induction - Bayesian Classification – Rule Based Classification – Classification by Back propagation – Support Vector Machines – Associative Classification – Lazy Learners – Other Classification Methods – Prediction. **Clustering And Trends In Data Mining**: Cluster Analysis - Types of Data – Categorization of Major Clustering Methods – K-means– Partitioning Methods – Hierarchical Methods - Density-Based Methods –Grid Based Methods – Model-Based Clustering Methods – Clustering High Dimensional Data - Constraint – Based Cluster Analysis – Outlier Analysis – Data Mining Applications.

References:

1. Han, Kamber "Data Mining: Concepts and Techniques" Morgan Kaufmann
2. Romez Elmasri, Shamkant B.Navathe, *'Fundamentals of Database Systems'* Pearson Education.
3. Silberschatz, Korth, Sudershan "Database System Concepts" 4th Ed. McGraw Hill
4. Connolly & Begg "Database Systems – A practical approach to design, Implementation and Management, 3rd Ed. Pearson Education

MSAIDS-125 E2

Digital Marketing

5 CREDITS: 4H(L) + 1H(T)

Teaching Hours per week: 5 **Internal Assessment: 30Marks**
Time Allowed: 3Hrs. **External Marks: 70Marks**
Pass Marks: 35%

Instructions for Paper Setter/Examiners

The Question paper will consist of three sections-A, B & C. Section A and B will have four questions each from the respective unit of the syllabus and will carry 10 marks each. Candidates are required to attempt two questions each from section A and B. Section C will consist of 10 short answer type questions covering entire syllabus and will carry 3 marks each. Section C is Compulsory.

Section-A

Meaning and Definition of Marketing- Basics of Marketing, Features of Marketing, Importance of Marketing, Functions of Marketing, Core Concept of Marketing - Need, Want, Demand, Value and Satisfaction, Production-Concept, Product concept, selling concept Marketing concept, Marketing Mix: Meaning, Seven Ps of marketing mix.

Introduction to Digital Marketing- Key Concepts of Digital Marketing, Traditional Marketing vs. Digital Marketing, The Opportunity of Digital Marketing, Characteristics of Digital Marketing, Implications of Digital Marketing, Strategies in Digital Marketing.

Internet and WWW: Introduction to internet and its working, business use of internet, services offered by Internet, evaluation of internet, internet service provider (ISP), internet addressing (DNS and IP addresses). Introduction and working of WWW, Web browsing (opening, viewing, saving and printing a web page and bookmark).

Search Engine: About search engine, component of search engine, working of search engine, Difference between search engine and web directory.

SECTION B

HTML: Basics of HTML, HTML Tags, Elements of Web page (Text , Image & Hyperlink Elements).

SMO (Social Media Optimization) –Facebook, Twitter, YouTube-Introduction to Social Media, Types of Social Media, How Social Media is affecting Google Search, How to choose right social media, Integrating social media into your website and blogs, Facebook Marketing, Introduction to Facebook, Difference between Profiles, Places, Groups and Pages, Social media and communications strategy, Facebook Connect(Like, Share, Comment),Facebook pages(Creating, Managing, Retention), Facebook Apps, Measuring and Monitoring, Advantages and Challenges ,

Twitter Marketing: Introduction to Micro blogging and Twitter, Twitter Demographics, Use for reputation, promotion, sales, conversing, Who to follow, Tweeting, Searching tweets and users, Measuring Influence, Tools, Tracking Code, Twitter Account Promotion, How to Shorten and Measure your URLs , Photo Sharing Social Network : Picasa, Video Sharing Social Network : YouTube

Email Marketing: Introduction to Email Marketing, How Email Marketing Works, Sending Email

References:

1. William I. Stanton, Ajay Pandit-Marketing Concepts & Cases,- The McGraw Hill companies Ltd. New Delhi
2. Search Engine Optimization Bible, Jerri L. Ledford, Wiley Publishing
3. S.A.Sherlekar, “Marketing Management”, Himalaya Publishing House, Mumbai.
4. E. Stephen Mack, Janan Platt, “HTML 4.0” BPB Publications, New Delhi

MSAIDS-125 E3

Block Chain and Bitcoin Fundamentals

5 CREDITS: 4H(L) + 1H(T)

Teaching Hours per week: 5 **Internal Assessment: 30Marks**
Time Allowed: 3Hrs. **External Marks: 70Marks**
Pass Marks: 35%

Instructions for Paper Setter/Examiners

The Question paper will consist of three sections-A, B & C. Section A and B will have four questions each from the respective unit of the syllabus and will carry 10 marks each. Candidates are required to attempt two questions each from section A and B. Section C will consist of 10 short answer type questions covering entire syllabus and will carry 3 marks each. Section C is Compulsory.

SECTION A

Blockchain definition: Bitcoin & Blockchain, Blockchain Structure, Basic Operations. **Ethereum Blockchain:** Smart Contracts, Ethereum Structure, Ethereum Operations.

Integrity of transactions and blocks in blockchain: Algorithms & Techniques: Public-Key Cryptography, Hashing, Transaction Integrity.

Introduction to Crypto and Cryptocurrencies: Cryptographic Hash Functions, Hash Pointers and Data Structures, Digital Signatures, Public Keys as Identities.

SECTION B

Mechanics of Bitcoin : components of the Bitcoin protocol ,Bitcoin Transactions, Bitcoin Scripts, Applications of Bitcoin Scripts, Bitcoin Blocks, The Bitcoin Network.

How Bitcoin Achieves Decentralization: Centralization vs. Decentralization, Distributed Consensus, Consensus without Identity: the Block Chain, Incentives and Proof of Work

How to Store and Use Bitcoins: Hot and Cold Storage, Splitting and Sharing Keys, Online Wallets and Exchanges,Payment Services,Transaction Fees,Currency Exchange Markets

Reference Books:

1. Mastering Bitcoin: Unlocking Digital Cryptocurrencies, by Andreas Antonopoulos
2. Blockchain by Melanie Swa, O'Reilly
3. Hyperledger Fabric - https://www.hyperledger.org/projects/fabric
4. Zero to Blockchain - An IBM Redbooks course, by Bob Dill, David Smits
5. https://www.redbooks.ibm.com/Redbooks.nsf/RedbookAbstracts/crse0401.html

MSAIDS-126
Software Lab-II and Minor Project (Based on MSAIDS-123)
2 CREDITS: 4H(P)

Teaching Hours per week: 4 **Internal Assessment: 30Marks**
Time Allowed: 3Hrs. **External Marks: 70Marks**
Pass Marks: 35%

This laboratory course will mainly comprise of exercises based on subject MSAIDS-123: Machine Learning with R and a minor project is to be made by the students based on MSAIDS-123.

The Break-up of Marks for Practical exams (External) will be as under:

1.	Viva Voce	20Marks
2.	Program Development and Execution	30Marks
3.	File Record	20Marks

MEMBERS OF BOARD OF STUDIES

1. Mr. Surender Kumar **2. Dr. Gurpreet Singh Lehal** **3. Dr. Gurvinder Singh**

4. Dr. Navdeep Singh **5. Mr. Upkar Singh** **6. Mr. Sachin Kumar**

7. Mrs. Tajinder Kaur **8. Mrs. Paramjit Kaur** **9. Mrs. Amandeep Kaur**

PAPER-MC204: COMPUTER FOR CHEMISTS

Maximum Marks: 100	**Time: 3 hrs**
External Examination: 70	**Pass Marks: 35 %**
Internal Assessment: 30	**Number of Lectures: 75**
Credit: 05 (03+02)	

Course Objectives:

The curriculum has been formulated with intend to offer the students basic understanding of computer and its implication in Chemistry.

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will consist of three Sections: A, B and C. Section A and B will have four questions (from the respective section of syllabus) carrying 12 marks each. Section C will consist of 11 short answer questions that will cover the entire syllabus and will be of 2 marks each.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions selecting two questions from each of Section A & B and entire Section C.

SECTION-A

Basics of Python: Introduction to Computers, Programs and Python; syntax indentation; keywords, identifiers, assignment statements, expressions, numbers and operators, reading and manipulating console input. Making decisions: simple if statements, multiple choice decisions.

Iteration and Lists: Iteration: for and while loops, nested loops, keywords – break and continue. Lists and Tuples: Accessing sequence values, index manipulation. Comprehensive Lists and Tuples.

Functions: Functions – code reuse, defining and calling a function, return values, positional and keyword arguments, passing arguments by reference, modularizing the code, scope of variables, default arguments, returning multiple values.

SECTION-B

Strings: len, min, max functions, indexing, slicing, concatenation, in / not in operator, comparing strings. Substring search and split functions.

Formatting: the format() method, arguments- format field names. Formatting numbers and strings: rounding, precision, scientific notation, percentage, width and justify.

Text Books

1. Introduction to Programming Using Python, First Edition by Y. Daniel Liang,©2013 Prentice Hall
2. Dawson, Michael. Python Programming for the Absolute Beginner (3rd ed.). Boston, MA: Course Technology, 2010.

Reference Books:

1. Shaw, Zed A., 2012. Learn Python the Hard Way, Second Edition, Shavian Publishing, LLC, 183 p

PRACTICALS

This laboratory course will mainly comprise of exercise based on the theory taught under PAPER-MC204: Computer for Chemists.

MEMBERS OF BOARD OF STUDIES

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7. Mrs. Tajinder Kaur **8. Mrs. Paramjit Kaur** **9. Mrs. Amandeep Kaur**

P.G. DEPARTMENT OF POLITICAL SCIENCE
SYLLABUS
FOR
COURSE: B.A. POLITICAL SCIENCE
PART-II
(SEMESTER: III &IV)
SESSIONS: 2020–2021, 2021-22 ND 2022-23

FACULTY OF ARTS
P.G. DEPARTMENT OF POLITICAL SCIENCE

SRI GURU TEG BAHADUR KHALSA COLLEGE
Sri Anandpur Sahib
An Autonomous College
Affiliated to Punjabi University, Patiala

BA(POL)-314 INDIAN POLITICAL SYSTEM-1

PART –A	**THEORY**	**100 marks (Theory-70)** **(Internal Assessment-30)** **Pass Marks: 35%** **Timing: 3 Hrs**	**Credit** **4+1=05**

Note: Total Teaching hrs weekly: 5

SYLLABUS

FOR REGULAR/STUDENTS
B.A.-II, POLITICAL SCIENCE (Semester System)
(Session: 2020-2021, 2021-2022, 2022-2023)

(SEMESTER III&IV)

Max. Marks: 100 (**Theory** 70 Marks, 30 Marks **Internal Assessment**)
(Five Periods per week per paper)

Note: Each paper will carry **70** marks and is of **3** hours duration. **30** marks in each paper are for Internal Assessment.

The Break up of 30 marks for Internal Assessment (Theory Papers) is as below:-

Attendance	06 Marks
Assignment	12 Marks
MST	12 Marks
Total marks	30 Marks

SEMESTER-III

Paper-I: INDIAN POLITICAL SYSTEM-I

SEMESTER-IV

Paper II: INDIAN POLITICAL SYSTEM-II

Dr. Sunita Rani **Dr. Dalbir kaur** **Dr. Kuldeep Singh** **Dr. Gurpreet Singh**

Dr. Virpal Singh **Pr. Sandeep Kaur** **S. Mohan Singh** **Devinder Kaur**

Course Objectives:

Students will acquire a working knowledge of the Indian political system. This will include gaining an understanding of the nation’s political institutions, political culture, and political ideologies, as well as how public policy is decided upon and implemented. Students will come to understand that there are various types of political systems around the world, and that these may differ from each other with regard to their individual political institutions, political culture, political ideologies, and public policies. To increase awareness of career options available with an undergraduate degree in political science; its utility in the public and private sectors; and its value as entry into a range of graduate programs, teaching positions, and legal education. Students also have the opportunity to participate in intensive government and legal internships for course credit.

Dr. Sunita Rani **Dr. Dalbir kaur** **Dr. Kuldeep Singh** **Dr. Gurpreet Singh**

Dr. Virpal Singh **Pr. Sandeep Kaur** **S. Mohan Singh** **Devinder Kaur**

BA (POL) 314 : INDIAN POLITICAL SYSTEM-I
(Session: 2020-2021, 2021-2022, 2022-23)

Maximum Marks: 100	**Pass Marks: 35%**
Maximum External Marks: 70	**Pass Marks: 25**
Maximum Internal Marks: 30	**Pass Marks: 11**
Time: 3 Hours	**Total Lectures: 75**

Objectives: This paper provides students with a basic knowledge of the fundamental elements and institutions of government, politics and processes in India at both the centre and state levels.

INSTRUCTIONS FOR THE PAPER SETTER/EXAMINER

The question paper will consist of Three Section: A, B and C. Sections A & B will have four questions from the respective portion of the Syllabus and will carry 10.5 marks each. Section C will consist of 14 short-answer type questions which will cover the entire syllabus and will carry 28 marks in all. Each short answer type question will carry three (2) marks.

Instructions for the Candidates (for all papers) Candidates are required to attempt two questions each from the Sections A & B of the question paper and the entire Section C. The candidates are required to give answer of each short type question in 50 words i.e. in 7-10 lines.

Section - A

1. Constituent Assembly and making of India's Constitution.
2. Basic features and structure of India's Constitution.
3. Nature of Indian Federalism: Emerging Trends.
4. Fundamental Rights and Fundamental Duties.

Section- B

5. Directive Principles of State Policy
6. President: Election, Powers, Position and its Changing Role.
7. Parliament: Composition, Powers, Role, Prime Minister and Cabinet.
8. Supreme Court: Composition, Powers, Judicial Review and Judicial Activism.

Dr. Sunita Rani **Dr. Dalbir kaur** **Dr. Kuldeep Singh** **Dr. Gurpreet Singh**

Dr. Virpal Singh **Pr. Sandeep Kaur** **S. Mohan Singh** **Devinder Kaur**

Books Suggested

- B.L. Fadia: State Politics in India, Vol. II, New Delhi, Radint Publisher, 1984
- C.P. Bhambari: The Indian State fifty years, New Delhi, Sipra, 1997
- D.D. Basu: An Introduction to the Constitution of India, New Delhi, Prentice Hall, 1994
- G. Austin: The Indian Constitution: Corner Stone of a Nation, Oxford University Press, 1966
- G. Austin: Working of a Democratic Constitution: The Indian Experience, Delhi, Oxford University Press, 2000
- J.S. Badyal: Indian Political System (English, Hindi and Punjabi), Jalandhar, Raj Publishers, 2019.
- Laxmikant, Indian Polity, Mchraw Hill Education, New Delhi, 2018.
- M.V. Pylee : Constituional Government in India, Bombay, Asia Publishing House, 1977
- M.V. Pylee: An Introduction to the Constitution of India, New Delhi, Vikas 1998
- Morris Johnes: Government and Politics of India, The Eothen Press; 4th Revised edition (1 October 1987)
- Nirja Gopal ayal, PartapBhanu Mehta, The Oxford Companies to Politics in India, Oxford University Press, 2010.
- P. Brass: Ethnic Groups and the State, London, Croom Helm, 1995
- P. Brass: Language, Religion and Politics in North India, London, Cambridge University Press, 1974
- R. Kothari: Politics in India, New Delhi, Orient Longman, 1970
- R. Kothari: State against Democracy : In Search of Human Governance, Delhi, Ajantha, 1988
- S.S. Nanda: Indian Political System (English, Hindi and Punjabi)

Dr. Sunita Rani **Dr. Dalbir kaur** **Dr. Kuldeep Singh** **Dr. Gurpreet Singh**

Dr. Virpal Singh **Pr. Sandeep Kaur** **S. Mohan Singh** **Devinder Kaur**

SEMESTER-IV

POLITICAL SCIENCE

BA(POL)-414 INDIAN POLITICAL SYSTEM-1I

PART –A	**THEORY**	**100 marks (Theory-70)** **(Internal Assessment-30)** **Pass Marks: 35%** **Timing: 3 Hrs**	**Credit** **4+1=05**

Note: Total Teaching hrs weekly:5

SYLLABUS

FOR REGULAR/STUDENTS

B.A.-II, POLITICAL SCIENCE (Semester System)

(Session: 2020-2021, 2021-2022, 2022-2023)

(SEMESTER IV)

Max. Marks: 100 (**Theory** 70 Marks, 30 Marks **Internal Assessment**)
(Five Periods per week per paper)

Note: Each paper will carry **70** marks and is of **3** hours duration. **30** marks in each paper are for Internal Assessment.

The Break up of 30 marks for Internal Assessment (Theory Papers) is as below:-

Attendance	06 Marks
Assignment	12 Marks
MST	12 Marks
Total marks	30 Marks

Dr. Sunita Rani **Dr. Dalbir kaur** **Dr. Kuldeep Singh** **Dr. Gurpreet Singh**

Dr. Virpal Singh **Pr. Sandeep Kaur** **S. Mohan Singh** **Devinder Kaur**

Course Objectives:

Students will acquire a working knowledge of the Indian political system. This will include gaining an understanding of the nation's political institutions, political culture, and political ideologies, as well as how public policy is decided upon and implemented. Students will come to understand that there are various types of political systems around the world, and that these may differ from each other with regard to their individual political institutions, political culture, political ideologies, and public policies. To increase awareness of career options available with an undergraduate degree in political science; its utility in the public and private sectors; and its value as entry into a range of graduate programs, teaching positions, and legal education. Students also have the opportunity to participate in intensive government and legal internships for course credit.

Dr. Sunita Rani	**Dr. Dalbir kaur**	**Dr. Kuldeep Singh**	**Dr. Gurpreet Singh**
Dr. Virpal Singh	**Pr. Sandeep Kaur**	**S. Mohan Singh**	**Devinder Kaur**

BA(POL)414: INDIAN POLITICAL SYSTEM-II
(Session: 2020-2021, 2021-2022, 2022-23)

Maximum Marks: 100	**Pass Marks: 35 %**
Maximum External Marks: 70	**Pass Marks: 25**
Maximum Internal Marks: 30	**Pass Marks: 11**
Time: 3 Hours	**Total Lectures: 75**

Objectives : The aim of this paper is to enrich the student's understanding of the working of the Indian political system with reference to political parties, the party system, elections and voting behaviour.

INSTRUCTIONS FOR THE PAPER SETTER/EXAMINER

The question paper will consist of Three Section: A, B and C. Sections A & B will have four questions from the respective portion of the Syllabus and will carry 10.5 marks each. Section C will consist of 14 short-answer type questions which will cover the entire syllabus and will carry 28 marks in all. Each short answer type question will carry three (2) marks.

Instructions for the Candidates (for all papers) Candidates are required to attempt two questions each from the Sections A & B of the question paper and the entire Section C. The candidates are required to give answer of each short type question in 50 words i.e. in 7-10 lines.

Section A

1. Governor of States: Appointment, Powers and Role
2. State Legislature: Composition, Powers and Role
3. State Council of Ministers: Chief Minister: Appointment, Powers, Role and Position
4. High Court: Composition, Powers and Role.

Section B

5. Nature of Party System in India.
6. Organization and its ideology of Indian National Congress, BJP, BSP, SAD, APP, DMK.
7. Role of Religion, Caste and Language in Indian Politics.
8. Gender and Dalit Politics in India.
9. The Election Commission: Composition, Powers and electoral Reforms in India.

Dr. Sunita Rani **Dr. Dalbir kaur** **Dr. Kuldeep Singh** **Dr. Gurpreet Singh**

Dr. Virpal Singh **Pr. Sandeep Kaur** **S. Mohan Singh** **Devinder Kaur**

Books Suggested

- B.L. Fadia: *State Politics in India*, Vol. II, New Delhi, Radint Publisher, 1984.
- C.P. Bhambari: *The Indian State fifty years*, New Delhi, Sipra, 1997.
- D.D. Basu: *An Introduction to the Constitution of India*, New Delhi, Prentice Hall, 1994.
- G. Austin : The Indian Constitution : *Corner Stone of a Nation*, Oxford, Oxford University Press, 1966.
- G. Austin: *Working of a Democratic Constitution: The Indian Experience*, Delhi, Oxford University Press, 2000.
  India, Meerut, Meenakshi Parkashan, 1967.
- Iqbal Narain (ed): *State Politics in India*, Meerut, MeenakshiParkashan, 1967.
- J.S. Badyal*: Indian Political System (English, Hindi and Punjabi*), Jalandhar, Raj Publishers, 2019.
- Laxmikant: *Indian Polity*, Mchraw Hill Education, New Delhi, 2018.
- M.V. Pylee: *An Introduction to the Constitution of India*, New Delhi, Vikas 1998.
- M.V. Pylee: *Constituional Government in India, Bombay*, Asia Publishing House, 1977.
- P. Brass: *Ethnic Groups and the State*, London, Croom Helm, 1995.
- P. Brass: *Language, Religion and Politics in North India*, London, Cambridge University Press, 1974.
- P.Brass: *Politics of India since Independence*, Cambridge University Press, 2003.
- R. Kothari: *Party System and Election Studies*, Bombay, Asia Publishing House, 1967.
- R. Kothari: *Politics in India*, New Delhi, Orient Longman, 1970.
- R. Kothari: *State against Democracy: In Search of Human Governance*, Delhi, Ajantha, 1988.
- Rajni Kothari (ed.): *Caste in Indian Politics*, New Delhi, Orient Longman, Reprint, 2004.
- S.P. Verma and C.P. Bhambari (ed): *Election and Political Consciousness in*
- S.S. Nanda: *National Movement 1885-1947*, Patiala, Nanda Publications, 1999.
- S.S. Nanda: *Indian Political System (English, Hindi and Punjabi)*,Patiala, Nanda

Publications, 2019.

Dr. Sunita Rani **Dr. Dalbir kaur** **Dr. Kuldeep Singh** **Dr. Gurpreet Singh**

Dr. Virpal Singh **Pr. Sandeep Kaur** **S. Mohan Singh** **Devinder Kaur**

B.A. Political Science Part III (Pass & Hons.)

Semester V
2019-20, 2020-21 & 2021-22

Paper : Comparative Political System
(UK and USA)

INSTRUCTIONS FOR THE PAPER SETTER/EXAMINER

For Regular Students & Distance Education Students the question paper will consist of Three Section: A, B and C. Sections A & B will have four questions from the respective portion of the Syllabus and will carry 10½ marks each. Section C will consist of 14 short-answer type questions which will cover the entire syllabus and will carry 28 marks in all. Each short answer type question will carry two marks.

For Private Students the question paper will consist of three sections: A, B and C. Sections A & B will have four questions from the respective portion of the Syllabus and will carry 14½ marks each. Section C will consist of 14 short-answer type questions which will cover the entire syllabus and will carry 42 marks in all. Each short answer type question will carry three marks

Instructions for the Candidates (for all papers)

Candidates are required to attempt two question each from the Sections A & B of the question paper and the entire Section C. The candidates are required to give answer of each short type question in 50 words i.e. in 7-10 lines.

For Regular and Distance Education
Maximum Marks : 100 **Time : 3 Hours**
(Theory 70 and Internal Assessment 30) **Pass Marks : 35**

For Private Students
Max. Marks: 100 Time allowed: 3 hrs.
Pass Marks: 35%

Section A :

1. Theoretical Framework
(a) Meaning and Scope of Comparative Politics
(b) Comparative Method
2. U.K.
(a) The British Political Tradition
(b) Parliamentary Government, Monarchy, Cabinet and Parliament

Section B

3. U.S.A.
(a) Features of Constitution and American Bill of Rights
(b) President and Congress
(c) Federal System : Nature and Working
4. U.S.A. and U.K.
(a) Party System in U.S.A. and U.K.
(b) Pressure Groups in U.K. and U.S.A.
(c) Supreme Court in U.S.A. and Rule of Law in U.K. .

Books Recommended

1. J.C Johri, *Major Modern Political System*
2. A.C Kapoor, *Select Constitutions*
3. V.N. Khanna, *Comparative Study of Government and Politics*
4. Vishnu Bhagwan and Vidya Bhushan, *World Constitutions*
5. K.R. Bombwall, *Major Contemporary Constitutional Political System*
6. H.S. Deol, *Adhunik Sarkaran* (Punjabi)
7. J.C. Johri, *Comparative Politics*
8. Mackintosh, *The Government and Politics of Britain*
9. C.O. Johnson, *Government in the United States*
10. Herman Finer : *Theory and Practice of Modern Government*

Semester VI

PAPER : INTERNATIONAL POLITICS : THEORY AND PRACTICE

INSTRUCTIONS FOR THE PAPER SETTER/EXAMINER

For Regular Students & Distance Education Students the question paper will consist of Three Section: A, B and C. Sections A & B will have four questions from the respective portion of the Syllabus and will carry 10½ marks each. Section C will consist of 14 short-answer type questions which will cover the entire syllabus and will carry 28 marks in all. Each short answer type question will carry two marks.

For Private Students the question paper will consist of three sections: A, B and C. Sections A & B will have four questions from the respective portion of the Syllabus and will carry 14½ marks each. Section C will consist of 14 short-answer type questions which will cover the entire syllabus and will carry 42 marks in all. Each short answer type question will carry three marks

Instructions for the Candidates (for all papers)

Candidates are required to attempt two question each from the Sections A & B of the question paper and the entire Section C. The candidates are required to give answer of each short type question in 50 words i.e. in 7-10 lines.

For Regular and Distance Education
Maximum Marks : 100 **Time : 3 Hours**
(Theory 70 and Internal Assessment 30) **Pass Marks : 35**

For Private Students
Max. Marks: 100 Time allowed: 3 hrs.
Pass Marks: 35%

Section A :

1. Meaning, Nature and Scope of International Politics
2. Realist and Idealist Approaches to International Politics
3. National Power : Its Elements
4. System of Balance of Power and Collective Security.

Section B

5. Cold War and Post Cold war era in International Politics
6. Human Rights : Meaning and United Nations' declarationof Human Rights.
7. Regional Organizations : SAARC and EU
8. World Peace and United Nations

Books Recommended

1. H. Bull, *The Anarchical Society : A Study of Order in World Politics*
2. E.H. Carr, *The Twenty-Year Crisis*
3. E.H. Carr, *Conditions of Peace*
4. J. Frankel, *The Making of Foreign Policy*
5. S.H. Hoffman (ed), *Contemporary Theory in International Relations*
6. A. Hurell, *Collective Security and International Order*
7. H.J. Morgenthau, *Politics Among Nations*
8. N.D. Palmer and H. Perkins, *International Relations*
9. A Roberts, *The UN and International Security*
10. S.P.Verma, *International System and the Third World*
11. Rumki Basu , *International Politics: Concepts, Theories and Issues*, Sage, New Delhi, 2017
12 Jaswinder Kumar, International Poliics, Publication Bureau, Punjabi University, Patiala, 2016
13. Mohindra Kumar, *Theoretical Aspects of International Politics*
14. ਜ਼ਸਵਿੰਦਰ ਸਿੰਘ, ਅੰਤਰਰਾਸ਼ਟਰੀ ਰਾਜਨੀਤੀ (ਪੰਜਾਬੀ)
15. Robet Jackson and Gearg Sorensen, Introduction to International Relations
16. Rumki Basu, International Politics: Concept, Theories and Issues
17. Parmjit Kaur Gill, Dynomics of International Relations

Semester V

Syllabus for B.A. Part III (Hons) Political Science Examination
2019-20, 2020-21 & 2021-22

PAPER I : INDIA'S FOREIGN POLICY

INSTRUCTIONS FOR THE PAPER SETTER/EXAMINER

The question paper will consist of Three Section: A, B and C. Sections A & B will have four questions from the respective portion of the Syllabus and will carry 10½ marks each. Section C will consist of 14 short-answer type questions which will cover the entire syllabus and will carry 28 marks in all. Each short answer type question will carry two marks.

Instructions for the Candidates (for all papers)

Candidates are required to attempt two question each from the Sections A & B of the question paper and the entire Section C. The candidates are required to give answer of each short type question in 50 words i.e. in 7-10 lines.

Maximum Marks : 100	Time : 3 Hours
(Theory 70 and Internal Assessment 30)	Pass Marks : 35

Section A :

1. Determinants of India's Foreign Policy : Domestic and External
2. India and Non Alignment
3. India-USA Relations
4. India-Russia Relations

Section B

5. India-China Relations
6. India and SAARC
7. India-Pakistan Relations
8. India-Sri Lanka
9. India-Nepal

Books Recommended

1. V.N. Khanna, *Foreign Policy of India*
2. Vatsala Shukla, *India's Foreign Policy in the New Millennium*
3. Viney Kumar Malhotra, *The U.S.A. Relations with India and Europe*
4. Claude Arpi, *India and Her Neighbourhood*
5. A. Appadora., and Rajan M.S, *India's Foreign Policy and Relations*
6. S.S. Bindra, *India and Her Neighbourhood*
7. V.P. Dutt, *India's Foreign Policy*
8. B.R. Nanda, *Indian Foreign Policy: The Nehru Years*
9. A.P. Rana, *The Imperatives of Non-Alignment*

Semester VI

PAPER II : PUBLIC ADMINISTRATION

INSTRUCTIONS FOR THE PAPER SETTER/EXAMINER

The question paper will consist of Three Section: A, B and C. Sections A & B will have four questions from the respective portion of the Syllabus and will carry 10½ marks each. Section C will consist of 14 short-answer type questions which will cover the entire syllabus and will carry 28 marks in all. Each short answer type question will carry two marks.

Instructions for the Candidates (for all papers)

Candidates are required to attempt two question each from the Sections A & B of the question paper and the entire Section C. The candidates are required to give answer of each short type question in 50 words i.e. in 7-10 lines.

Maximum Marks : 100	Time : 3 Hours
(Theory 70 and Internal Assessment 30)	Pass Marks : 35

Section A :

1. Meaning, Nature and Scope of Public Administration.
2. Difference between Public and Private Administration.
3. Evolution of Public Administration as a discipline.
4. New Public Administration.
5. Politics and Administration.
6. Methods and Approaches to the study of Public Administration.

Section B

7. Administrative Behaviour: Leadership, Decision Making and Communication.
8. Comparative Public Administration.
9. Development Administration.
10. Public Administration in the age of Globalization and Liberalization.
11. IT and its impact on Public Administration.
12. Legislative and Judicial Control over Administration.

Books Recommended

1. A. Avasthi and S.R. Maheshwari, *Public Administration*
2. C.P. Bhambri, *Administration in a Changing Society*
3. M. Bhattacharya, *Public Administration : Structure, Process and Behaviour*
4. M.E. Dimock and G.O. Dimock, *Public Administration*
5. E.N. Gladden, *The Essentials of Public Administration*
6. S.R. Maheshwari, *Administrative Theories*
7. B.I. Fadia & Kuldeep Fadia, *Public Administration*
8. Vishnu Bhagwan and Vidya Bhushan, *Public Administration*
9. M.P. Sharma, *Public Administration, Theory and Practice*
10. A.R. Tyagi, *Public Administration : Theory and Practice*
11. Ramesh K. Arora, *Comparative Public Administration*
12. S.P. Verma and S.K. Sharma (Eds), *Development Administration in India*
13. K.B. Srivastava, *New Perspectives in Development Administration in India*

SHRI GURU TEGH BHADUR KHALSA COLLEGE

SHRI ANANDPUR SAHIB

P.G. DEPARTMENT OF POLITICAL SCIENCE

SYLLABUS
FOR
COURSE: M.A. POLITICAL SCIENCE

PART-I
(SEMESTER: I &II)
SESSIONS: 2020–2021 ND 2021-22

An Autonomous College

NAAC Accredited “A” Grade

College with potential for Excellence Status by UGC

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Website: www.sgtbcollege.org.in

M.A. (Political Science) Part-I: Credit Scheme Session 2020-21

Note: Complete M.A. (Political Science) Course carries 100 credits and each paper carries 5 Credits

(4 Lectures + 1 Tutorial).

			Hours			Marks
S. No.	**CODE**	**PAPERS TITLE SEMISTER – 1.**	**Credits (L+T)**	**Ext. Marks**	**Int. Marks**	**Total**
		CORE PAPERS				
1.	**MAPOLSCI –101**	**INDIAN POLITICAL THOUGHT -- 1**	**4+1=5**	**70**	**30**	**100**
2.	**MAPOLSCI – 102**	**WESTERN POLITICAL THOUGHT**	**4+1=5**	**70**	**30**	**100**
3.	**MAPOLSCI – 103**	**INDIAN GOVERNMENT & POLITICS**	**4+1=5**	**70**	**30**	**100**
4.	**MAPOLSCI – 104**	**ELECTIVE PAPERS: ANY TWO OF THE FOLLOWINGS:**				
	MAPOLSCI – 104 (i)	**INTERNATIONAL POLITICS**	**4+1=5**	**70**	**30**	**100**
	MAPOLSCI-104 (ii)	**SOUTH ASIAN POLITICAL SYSTEM(PAKISTAN, SRI LANKA, NEPAL AND BANGLADESH)**	**4+1=5**	**70**	**30**	**100**
	MAPOLSCI-104 (iii)	**GLOABLISATION AND ITS IMPACT ON POLITICAL SYSTEM**	**4+1=5**	**70**	**30**	**100**
	MAPOLSCI-104 (iv)	**INTERNATIONAL LAW**	**4+1=5**	**70**	**30**	**100**
	MAPOLSCI-104 (v)	**SIKH POLITICAL THOUGHT(1469 AD-1708 AD)**	**4+1=5**	**70**	**30**	**100**
		SEMESTER – 2.				
		CORE PAPERS				
1.	**MAPOLSCI – 201**	**INDIAN POLITICAL THOUGHT-II**	**4+1=5**	**70**	**30**	**100**
2.	**MAPOLSCI – 202**	**CONTEMPORARY ISSUES IN INTERNATIONAL RELATIONS**	**4+1=5**	**70**	**30**	**100**
3.	**MAPOLSCI – 203**	**LIBERAL POLITICAL THEORY**	**4+1=5**	**70**	**30**	**100**
4.	**MAPOLSCI – 204**	**ELECTIVE PAPERS: ANY TWO OF THE FOLLOWINGS:**				
	MAPOLSCI – 204 (i)	**POLITICAL PROCESS IN INDIA**	**4+1=5**	**70**	**30**	**100**
	MAPOLSCI – 204 (ii)	**HUMAN RIGHTS IN INTERNATIONAL RELATIONS**	**4+1=5**	**70**	**30**	**100**
	MAPOLSCI – 204 (iii)	**FOREIGN POLICY OF US, RUSSIA, CHINA AND JAPAN**	**4+1=5**	**70**	**30**	**100**
	MAPOLSCI – 204 (iv)	**INTERNATIONAL ORGANISATION**	**4+1=5**	**70**	**30**	**100**
	MAPOLSCI – 204 (v)	**POLITICAL SOCIALOGY**	**4+1=5**	**70**	**30**	**100**

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COURSE OBJECTIVES:

PG Department of Political Science Department prepares students to become informed active citizens. Undergraduate and graduate programs emphasize the comprehension of political thinking, the application of communication and analytical skills, and the understanding of cultural diversity. The Political Science Department emphasizes these learning objectives:

1. To Increase knowledge of the political science discipline; its principal theoretical frameworks and applications, conceptual vocabulary, and methods of inquiry; its major subfields of study; and its interrelationships with the other social science fields To increase understanding of basic facts and concepts about the American political system, including its history, philosophical, constitutional and legal foundations, leading political values and ideas, governing institutions, and policymaking processes.
2. To increase knowledge of diverse political systems around the world, including empirical area-based knowledge; broader theoretical understanding of different political systems, institutions and processes; and the changing domestic and global contexts within which they operate.
3. To increase knowledge of the history of classical and modern political thought; of the fundamental values and ethical issues contested in politics over time; and of alternative moral and ethical frameworks for interpreting and evaluating contemporary political discourses.
4. To increase recognition of the major problems, the leading policies, and the legal issues confronting contemporary political systems, particularly in the U.S.
5. To increase acquisition of citizenship skills, ethical values, and the ability to understand and appreciate human diversity; and to engage in community life as active citizens.

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SEMESTER-I

MAPOLSCI-101: INDIAN POLITICAL THOUHGT-I

Maximum Marks: 100	**Pass Marks: 35%**
Maximum External Marks: 70	**Pass Marks: 25**
Maximum Internal Marks: 30	**Pass Marks: 10**
Time: 3 Hours	**Total Lectures:75**

OBJECTIVES: The paper introduces the major themes of Indian political thought particularly during the Indian national movement through a study of the contribution of key thinkers during this period**.**

INSTRUCTIONS FOR THE PAPER SETTER/EXAMINER

The question paper will consist of Three Units A, B and C. Units A & B will have four questions from the respective portion of the Syllabus and will carry 10 marks each. Unit C will consist of 10 short-answer type questions which will cover the entire syllabus and will carry 30 marks in all. Each short answer type question will carry three marks.

INSTRUCTIONS FOR THE CANDIDATED

Candidates are required to attempt two questions each from the Unit A & B of the question paper and the entire Unit C. The candidates are required to give answer of each short type question in 7-10 lines.

UNIT-I

1. Nomenclature, Characteristics and sources of Ancient Indian Political Thought.
2. Political Thought and Institutions in Vedic Literature.
3. Dharamshatra
4. Manu and Kautilya

UNIT-II

5. Aggannasutta and Barani
6. Bhagat Kabir, Pandita Ramabai
7. Guru Nanak Dev Ji.
8. Guru Gobind Singh Ji.

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READINGS

1. Altekar, A.S: *State and Government in Ancient India,* Delhi, Motilal Banarasidass, 1966.
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7. Kane, P.V.: *History of Dharmasatra*, Poona, Bhandarkar Oriental Research Institute, 1930.
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MAPOLSCI-102: WESTERN POLITICAL THOUGHT

Maximum Marks: 100 **Pass Marks: 35%**

Maximum External Marks: 70 **Pass Marks: 25**

Maximum Internal Marks: 30 **Pass Marks: 10**

Time: 3 Hours **Total Lectures:75**

OBJECTIVES : This paper aims to introduce to the students the major themes of western political thought. For this purpose, the paper undertakes a study of the key thinkers of this tradition.

INSTRUCTIONS FOR THE PAPER SETTER/EXAMINER

The question paper will consist of Three Units: A, B and C. Sections A & B will have four questions from the respective portion of the Syllabus and will carry 10 marks each. Unit C will consist of 10 short-answer type questions which will cover the entire syllabus and will carry 30 marks in all. Each short answer type question will carry three marks.

INSTRUCTIONS FOR THE CANDIDATED

Candidates are required to attempt two questions each from the Unit A & B of the question paper and the entire Unit C. The candidates are required to give answer of each short type question in 7-10 lines.

UNIT-I

1. Greek Political Thought-An Introduction.
2. Confucius
3. Plato
4. Aristotle

UNIT-II

5. Saint Augustine
6. St. Thomas Aqunias
7. Machiavelli
8. Hobbes

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READINGS

1. Barry, Norman P.: *An Introduction to Modern Political Theory,* London Macmillion, 198.
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MAPOLSCI-103: INDIAN GOVERNMENT & POLITICS

Maximum Marks: 100 **Pass Marks: 35%**

Maximum External Marks: 70 **Pass Marks: 25**

Maximum Internal Marks: 30 **Pass Marks: 10**

Time: 3 Hours **Total Lectures:75**

OBJECTIVE OF THE COURSE: Recent India has witnessed a major thrust in the study of India's political and economic processes. An important component of many such studies has been to refer to the relevant constitutional and institutional aspects. Such studies, sensitive to the constitutional experiences of a 'new democracy', have enriched themselves by undertaking an in-depth analysis of the way the constitutional provisions have been put into practice and also by making an attempt to explore the core ideas that guided the constitution-makers during the deliberations in the constituent assembly. The paper aims at making the students aware of the text of the constitution of India, important debates and the way the institutions have worked over the last more than six and half decades.

INSTRUCTIONS FOR THE PAPER SETTER/EXAMINER

The question paper will consist of Three Units: A, B and C. Unit A & B will have four questions from the respective portion of the Syllabus and will carry 10 marks each. Unit C will consist of 10 short-answer type questions which will cover the entire syllabus and will carry 30 marks in all. Each short answer type question will carry three marks.

INSTRUCTIONS FOR THE CANDIDATED

Candidates are required to attempt two questions each from the units A & B of the question paper and the entire Unit C. The candidates are required to give answer of each short type question in 7-10 lines.

UNIT-I

1. Making of Indian Constitution: Colonialism heritage and the contribution of Indian National Movement.
2. Philosophy of the Constitution: Preamble, Fundamental Rights, Directive Principles of State Policy and Fundamental Duties.
3. Constitution as an Instrument of Social Change: Amendment Process.
4. Federalism in India: Emerging Trends.

UNIT-II

5. Union Executive: President, Prime Minister and Council of Ministers.
6. Supreme Court, Judicial Review and Judicial Activism.
7. Parliamentary System in India: Critical Assessment.
8. Non Constitutional Bodies: Niti Ayog and Lok Pal.

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READINGS

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ELECTIVE PAPERS: MAPOLSCI -104 (i) INTERNATIONAL POLITICS

Maximum Marks: 100	**Pass Marks: 35%**
Maximum External Marks: 70	**Pass Marks: 25**
Maximum Internal Marks: 30	**Pass Marks: 10**
Time: 3 Hours	**Total Lectures:75**

OBJECTIVES: The purpose of this paper is to provide an historical overview of major developments in international Politics since the beginning of the twentieth century.

INSTRUCTIONS FOR THE PAPER SETTER/EXAMINER

The question paper will consist of Three Units: A, B and C. Unit A & B will have four questions from the respective portion of the Syllabus and will carry 10 marks each. Unit C will consist of 10 short-answer type questions which will cover the entire syllabus and will carry 30 marks in all. Each short answer type question will carry three marks.

INSTRUCTIONS FOR THE CANDIDATED

Candidates are required to attempt two questions each from the Unit A & B of the question paper and the entire Unit C. The candidates are required to give answer of each short type question in 7-10 lines.

UNIT-I

1. Meaning, Nature, Scope and Developments in International Politics.
2. Approaches to the study of International Relations: Idealism, Realism, Structal Marxism, Neo- Liberalism and Neo- Realism.
3. Concepts: State, State System, Power, Sovereignty, Security: Traditional and Non-Traditional.
4. Conflict and Peace: Changing Nature of Warfare: Weapons of Mass destruction; Deterrence; Conflict Resolution, Conflict Transformation.

UNIT-II

5. National Power: Its meaning, elements and constraints.
6. The Concept of Non-Alignment: Basis, Role and Relevance.
7. Global Governance and Bretton Woods System, North South Dialogue, WTO, G-20, BRICS.
8. Regional Organizations: European Union, SAARC, Shanghai Cooperation Organization, ASEAN.

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READINGS

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Diksha

MAPOLSCI-104 (ii) SOUTH ASIAN POLITICAL SYSTEMS (PAKISTAN, SRI LANKA, NEPAL AND BANGLADESH)

Maximum Marks: 100	**Pass Marks: 35%**
Maximum External Marks: 70	**Pass Marks: 25**
Maximum Internal Marks: 30	**Pass Marks: 10**
Time: 3 Hours	**Total Lectures:75**

Objectives : This paper aims at introducing the students to some of the dominant issues in South Asia and their long-term implications on bilateral relations among the states of the region. A critical assessment of India's role in the region is the special focus of this course

INSTRUCTIONS FOR THE PAPER SETTER/EXAMINER

The question paper will consist of three units: A, B and C. Unit A & B will have four questions from the respective portion of the syllabus and will carry 10 marks each. Unit C will consist of 10 short-answer type questions which will cover the entire syllabus and will carry 30 marks in all. Each short answer type question will carry three marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from the Unit A & B of the question paper and the entire Unit C. The candidates are required to give answer of each short type question in 7-10 lines.

UNIT-I

1. Historical Background of South Asia during the Colonial Period.
2. Independence and the efforts at Constitution Making.
3. Nature of the Political System of South Asia: A Comparative Assessment.
4. Democracy in South Asia: Problems and Prospects.

UNIT-II

5. Role of Military and Nuclear Politics in South Asia.
6. Development Issues in South Asia.
7. Major Issues in South Asia: Language, Ethnicity and Religion.
8. Impact of Globalization in South Asia.

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READINGS

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MAPOLSCI-104 (iii) GLOBALISATION AND ITS IMPACT ON POLITICAL SYSTEM

Maximum Marks: 100	**Pass Marks: 35%**
Maximum External Marks: 70	**Pass Marks: 25**
Maximum Internal Marks: 30	**Pass Marks: 10**
Time: 3 Hours	**Total Lectures:75**

OBJECTIVES : This course is designed to introduce the students to the relevance and functioning of globalization in contemporary world politics. It takes up for the purpose a detailed study of some of the major specialized international agencies under the auspice globalization.

INSTRUCTIONS FOR THE PAPER SETTER/EXAMINER

The question paper will consist of Three Section: A, B and C. Sections A & B will have four questions from the respective portion of the Syllabus and will carry 10 marks each. Section C will consist of 10 short-answer type questions which will cover the entire syllabus and will carry 30 marks in all. Each short answer type question will carry three marks.

INSTRUCTIONS FOR THECANDIDATES

Candidates are required to attempt two questions each from the Sections A & B of the question paper and the entire Section C. The candidates are required to give answer of each short type question in 7-10 lines.

UNIT-I

1. Concept of Globalization and its Contours.
2. Factors leading to Globalization.
3. Globalization and Nation State: The Question of National Sovereignty.
4. Political Economy and Globalization: Role of TNCs and MNCs.

UNIT-II

5. Role of WTO, IMF.
6. Global Conflicts and their Management-Military Power and National Security, Coercive Diplomacy and Intervention.
7. Critics of Globalization.
8. New World Global System: Women and Environment Groups.

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READINGS

1. P. Aghin and J. Williamson: *Growth and Inequality and Globalization,* Cambridge, Cambridge University Press, 1999.

2. M. Albrow: *The Global Age,* Cambridge, Policy, 1996.

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MAPOLSCI-104(IV) INTERNATIONAL LAW

Maximum Marks: 100 **Pass Marks: 35%**

Maximum External Marks: 70 **Pass Marks: 25**

Maximum Internal Marks: 30 **Pass Marks: 10**

Time: 3 Hours **Total Lectures:75**

OBJECTIVES : this paper introduces the students to the fundamentals and various other aspects of public international law

INSTRUCTIONS FOR THE PAPER SETTER/EXAMINER

The question paper will consist of Three Section: A, B and C. Sections A & B will have four questions from the respective portion of the Syllabus and will carry 10 marks each. Section C will consist of 10 short-answer type questions which will cover the entire syllabus and will carry 30 marks in all. Each short answer type question will carry three marks.

INSTRUCTIONS FOR THECANDIDATES

Candidates are required to attempt two questions each from the Sections A & B of the question paper and the entire Section C. The candidates are required to give answer of each short type question in 7-10 lines

UNIT-1

1. Definition, Nature, Basis and Sanctions of Observance of International Law
2. Relation between International Law and Municipal Law.
3. Subjects of International Law and its Changing Nature.
4. Sources of International Law.
5. Codification and Progressive Development of International Law

UNIT-11

6. Jurisdiction of State : Law of Sea, Extradition and Asylum

7. Laws of Land and Air Warfare.

8 State Succession : Definition, Theories, Kinds and Consequences of State Succession

9. War Crimes and provisions of International Law: Nuremberg and Tokyo Trials.

10. Neutrality and Intervention.

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READINGS

1. J.G. Starke, *Introduction to International Law,* London, Butterworths, First Indian Reprint, 1994
2. Oppenhei. *International Law,* Vol. I & II, Longman Green and Company, London, 1955
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MAPOLSCI-104(V) SIKH POLITICAL THOUGHT (1469 -1708)

Maximum Marks: 100 **Pass Marks: 35%**

Maximum External Marks: 70 **Pass Marks: 25**

Maximum Internal Marks: 30 **Pass Marks: 10**

Time: 3 Hours **Total Lectures:75**

OBJECTIVES : The course aims at introducing students to the key concepts which are the building blocks of the Sikh Political Thought. Each concept will be studied in terms of the main debates over its nature and scope in the discipline and its relationship with other concepts. After doing this course, the student will be able to discern the conceptual debates which underlie Sikh Political Phenomena.

INSTRUCTIONS FOR THE PAPER SETTER/EXAMINER

The question paper will consist of Three Section: A, B and C. Sections A & B will have four questions from the respective portion of the Syllabus and will carry 10 marks each. Section C will consist of 10 short-answer type questions, which will cover the entire syllabus and will carry 30 marks in all. Each short answer type question will carry three (3) marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from the Sections A & B of the question paper and the entire Section C. The candidates are required to give answer of each short type question in 50 words i.e. in 7-10 lines.

UNIT-1

1. Contemporary Socio: Political conditions during the in the time period of the Sikh Gurus.
2.Miri-Piri, Akal Takhat and Creation of Khalsa.

3.Singh Sabha Movement, Gurduwara Reform , Sarbat Khalsa and Dharam yudh.

4.Gender Equality and Environment Concerns: Sikh Perspective.

UNIT-11

5. Concept of State.
6. Secularism and Multicultural ethos in sikhsim.

7.Status of Women and Sikhism.

8. Environmental Issues and Sikh Perspective.

9. Relevance of Sikh Gurus' Teachings.

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READINGS

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SEMESTER-II

MAPOLSCI- 201: INDIAN POLITICAL THOUGHT-I1

Maximum Marks: 100 **Pass Marks: 35%**

Maximum External Marks: 70 **Pass Marks: 25**

Maximum Internal Marks: 30 **Pass Marks: 10**

Time: 3 Hours **Total Lectures:75**

OBJECTIVES: the paper introduces the major themes of Indian political thought particularly during the Indian national movement through a study of the contribution of key thinkers during this period

INSTRUCTIONS FOR THE PAPER SETTER/EXAMINER

The question paper will consist of Three Units: A, B and C. Unit A & B will have four questions from the respective portion of the Syllabus and will carry 10 marks each. Unit C will consist of 10 short-answer type questions which will cover the entire syllabus and will carry 30 marks in all. Each short answer type question will carry three marks.

INSTRUCTIONS FOR THE CANDIDATED

Candidates are required to attempt two questions each from the Unit A & B of the question paper and the entire Unit C. The candidates are required to give answer of each short type question in 7-10 lines.

UNIT-I

1. Bal Gangadhar Tilk
2. Ravinder Nath Tegore
3. M.K. Gandhi
4. Arbundo Gosh

UNIT-11

5. Muhamad Iqubal
6. M.N.Roy
7. V. D. Savarker
8. B. R. Ambedkar

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READINGS

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MAPOLSCI - 202: CONTEMPORARY ISSUES IN INTERNATIONAL RELATIONS

Maximum Marks: 100 **Pass Marks: 35%**

Maximum External Marks: 70 **Pass Marks: 25**

Maximum Internal Marks: 30 **Pass Marks: 10**

Time: 3 Hours **Total Lectures:75**

OBJECTIVES : the purpose of this paper is to provide an historical overview of major contemporary in international relations since the beginning of the twentieth century.

INSTRUCTIONS FOR THE PAPER SETTER/EXAMINER

The question paper will consist of Three Section: A, B and C. Sections A & B will have four questions from the respective portion of the Syllabus and will carry 10 marks each. Section C will consist of 10 short-answer type questions which will cover the entire syllabus and will carry 30 marks in all. Each short answer type question will carry three marks.

INSTRUCTIONS FOR THECANDIDATES

Candidates are required to attempt two questions each from the Sections A & B of the question paper and the entire Section C. The candidates are required to give answer of each short type question in 7-10 lines

UNIT-I

1. Cold War and Post Cold War Era.
2. Global Politics: International to Global
3. Role of Non-State Actors in International Politics.
4. Gender Issues: Empowerment of Women.

UNIT-II

5. Climate Change and Environmental Concerns.
6. Human Rights, Migration and Refugees.
7. International Terrorism.
8. Role of Religion, Culture and Identity Politics.

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READINGS

1. Parmjit Kaur Gill and Sheveta Sehgal: *Dynamics of International RelationsMoving From International to Global: Theory and Issues*, New Delhi: Atlantic, 2012.

2. Charles Kegley W. Jr. and Shannon L.: *World Politics Trends and Transformation*, Blanton New York: Wadsworth, 2011.

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MAPOLSCI – 203: LIBERAL POLITICAL THEORY

Maximum Marks: 100	**Pass Marks: 35%**
Maximum External Marks: 70	**Pass Marks: 25**
Maximum Internal Marks: 30	**Pass Marks: 10**
Time: 3 Hours	**Total Lectures:75**

OBJECTIVES: This paper aims to introduce to the students the major themes of liberal political Theory. For this purpose, the paper undertakes a study of the key thinkers of this tradition.

INSTRUCTIONS FOR THE PAPER SETTER/EXAMINER

The question paper will consist of Three Units A, B and C. Unit A & B will have four questions from the respective portion of the Syllabus and will carry 10 marks each. Unit C will consist of 10 short-answer type questions which will cover the entire syllabus and will carry 30 marks in all. Each short answer type question will carry three marks.

INSTRUCTIONS FOR THE CANDIDATED

Candidates are required to attempt two questions each from the Unit A & B of the question paper and the entire Section C. The candidates are required to give answer of each short type question in 7-10 lines.

UNIT-I

1. Liberalism: Meaning, Genesis, Development of Classical Liberalism.
2. Development of Modern Liberalism, Liberalism and Welfare State, Contemporary Liberalism.
3. Locke
4. Rousseau

UNIT-II

5. Montesquieu
6. Bentham
7. J.S. Mill
8. T.H Green.

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READINGS

1. Arblaster, A., *The Rise and Decline of Western Liberalism,* Oxford: Basil Blackwell 1984.
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3. Crowling, M., *Mill and Liberalism*, Cambridge, Cambridge University Press, 1963.
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ELECTIVE PAPERS

MAPOLSCI- 204 (i) POLITICAL PROCESS IN INDIA

Maximum Marks: 100	**Pass Marks: 35%**
Maximum External Marks: 70	**Pass Marks: 25**
Maximum Internal Marks: 30	**Pass Marks: 10**
Time: 3 Hours	**Total Lectures:75**

OBJECTIVE OF THE COURSE: This course aims to introduce students to politics in india as it has evolved after decolonization. The themes discussed during the course will be those that are crucial to the understanding of the way political processes in the largest democracy of the world unfold in varying form. The paper takes up the issues for discussion related to the way democratic politics in India has evolved and been shaped in an underdeveloped, multi-ethnic setting along the lines of caste, class, and linguistic and religious identities. It also focuses on the way India's democratic state has fared in promoting economic development, both growth and equity.

INSTRUCTIONS FOR THE PAPER SETTER/EXAMINER

The question paper will consist of Three Units A, B and C. Sections A & B will have four questions from the respective portion of the Syllabus and will carry 10 marks each. Unit C will consist of 10 short-answer type questions which will cover the entire syllabus and will carry 30 marks in all. Each short answer type question will carry three marks.

INSTRUCTIONS FOR THE CANDIDATED

Candidates are required to attempt two questions each from the Units A & B of the question paper and the entire Unit C. The candidates are required to give answer of each short type question in 7-10 lines.

UNIT-I

1. Nature of Indian States: Development Planning Model and New Economic Policy.
2. Process of Globalization: Social and Economic Implications.
3. Identity Politics: Religion, Caste, Region, and Language.
4. Social Movements: Dalit, Tribales, Women and Farmers.

UNIT-I I

5. Regionalization of Indian Politics: Reorganization of Indian States, Regional Disparities, Demand for new States.
6. Gender and Politics in India: Issues of Equality and Representation.
7. Electoral Politics: Participation, Representation, Emerging Trends and Party Politics.
8. Civil Society Groups: Non- Governmental Organizations (NGOs) and Social action Groups.

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READINGS

1. Grover (Ed.) V., *Federal System, State Autonomy & Centre- State Relations in India*.
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MAPOLSCI – 204 (ii) HUMAN RIGHTS IN INTERNATIONAL RELATIONS

Maximum Marks: 100 **Pass Marks: 35%**

Maximum External Marks: 70 **Pass Marks: 25**

Maximum Internal Marks: 30 **Pass Marks: 10**

Time: 3 Hours **Total Lectures:75**

OBJECTIVES : The purpose of this paper is to provide an historical overview of major Human Rights in international relations since the beginning of the twentieth century. This paper will also analysis the role of UN in Human Rights.

INSTRUCTIONS FOR THE PAPER SETTER/EXAMINER

The question paper will consist of three Units: A, B and C. Unit A & B will have four questions from the respective portion of the syllabus and will carry 10 marks each. Unit C will consist of 10 short-answer type questions which will cover the entire syllabus and will carry 30 marks in all. Each short answer type question will carry three marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from the Unit A & B of the question paper and the entire Unit C. The candidates are required t o give answer of each short type question in 70-80 words i.e. in 7-8 lines.

UNIT-I

1. Concept and Philosophy of Human Rights.
2. Historical Development : Magna Carta, the British Bill of Rights, French and American Declarations
3. Theoretical Foundations : Natural Rights Theory; Liberal/Neo Liberal Theory; Legal/Positive Theory; Marxist Theory
4. Internationalisation of Human Rights : UN Commission on Human Rights; UN Declaration of Human Rights (UNDHR 1948); UN Human Rights Council

UNIT -11

5. Human Rights Enforcement : International Convention on Civil and Political Rights; Humanitarian Intervention by Security Council
6. Problems of Forced Disappearance, State Terrorism, International Terrorism The Feminist Critique of Human Rights
7. International Politics of Human Rights.

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READINGS

1. Arjun Devet al., *Human Rights: A Source Book*, New Delhi; NCERT, 1996.
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MAPOLSCI-204 (iii) FOREIGN POLICY OF USA, RUSSIA, CHINA AND JAPAN

Maximum Marks: 100	**Pass Marks: 35%**
Maximum External Marks: 70	**Pass Marks: 25**
Maximum Internal Marks: 30	**Pass Marks: 10**
Time: 3 Hours	**Total Lectures:75**

Objectives : The course tries to underline the changes, which the shifting nature of world order has induced into the more enduring elements and themes of Indian foreign policy. At the same time, India’s growing assertion on the world stage as an important international actor is assessed in the light of its role in various global regimes

INSTRUCTIONS FOR THE PAPER SETTER/EXAMINER

The question paper will consist of three units: A, B and C. Unit A & B will have four questions from the respective portion of the syllabus and will carry 10 marks each. Unit C will consist of 10 short-answer type questions which will cover the entire syllabus and will carry 30 marks in all. Each short answer type question will carry three marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from the Unit A & B of the question paper and the entire Unit C. The candidates are required to give answer of each short type question in 7-10 lines.

UNIT-I

1. Meaning, Nature and Determinants of Foreign Policy
2. Changing Global and Regional Goals of Foreign Policy
3. USA Foreign Policy : Main Features, Continuity and Change
4. USA Economic Policy, Threat Perceptions and Security Interests

UNIT-11

5. Foreign Policy of Russia: Main Features and Threat Perceptions**.**
6. Russian Security and Economic Interests**.**
7. Foreign Policy of China : Main Features : Her Relations with Regional Powers ; Economic Policy
8. Foreign Policy of Japan, Main Features : Security and Economic Policy

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READINGS

1. John Dimbress, American Foreign Policy: Carter to Clinton, Houndsmill : Macmillan, 1997.
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MAPOLSCI-204 (iv) INTERNATIONAL ORGANISATION

Maximum Marks: 100	**Pass Marks: 35%**
Maximum External Marks: 70	**Pass Marks: 25**
Maximum Internal Marks: 30	**Pass Marks: 10**
Time: 3 Hours	**Total Lectures:75**

Objectives : This course is designed to introduce the students to the relevance and functioning of international organizations in Contemporary World Politics. It takes up for the purpose a detailed study of some of the major specialized international agencies under the auspices of the United Nations.

INSTRUCTIONS FOR THE PAPER SETTER/EXAMINER

The question paper will consist of three units: A, B and C. Unit A & B will have four questions from the respective portion of the syllabus and will carry 10 marks each. Unit C will consist of 10 short-answer type questions which will cover the entire syllabus and will carry 30 marks in all. Each short answer type question will carry three marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from the Unit A & B of the question paper and the entire Unit C. The candidates are required to give answer of each short type question in 7-10 lines.

UNIT-1

1. Evolution of International Organizations.
2. The League of Nations: its Origin, Working and Failure.
3. United Nations: its Genesis, Structure and Functions.
4. United Nations and Pacific Settlement of Disputes.

UNIT-11

5. U.N. and Collective and Security: Collective Security or its alternative.
6. Major U.N. Agencies : UNESCO, IMF, IBRD, WHO
7. U.N. peace-keeping forces in domestic affairs.
8. Revision of U.N. Charter and United Nations in The Post-cold war Era

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READINGS

1. Mangone Gerardji, *A Short History of International Organisation,* New York, McGraw Hill, 1954.
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MAPOLSCI-204(V) : POLITICAL SOCIOLOGY

Maximum Marks: 100 **Pass Marks: 35%**

Maximum External Marks: 70 **Pass Marks: 25**

Maximum Internal Marks: 30 **Pass Marks: 10**

Time: 3 Hours **Total Lectures:75**

Objectives: This paper aims at highlighting some of the major areas in the domain of political sociology with reference to India. The paper intends to familiarize the students with the social, cultural and economic structures of power in the Indian society and their mechanism of functioning in a critical perspective.

INSTRUCTIONS FOR THE PAPER SETTER/EXAMINER

The question paper will consist of three units: A, B and C. Unit A & B will have four questions from the respective portion of the syllabus and will carry 10 marks each. Unit C will consist of 10 short-answer type questions which will cover the entire syllabus and will carry 30 marks in all. Each short answer type question will carry three marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from the Unit A & B of the question paper and the entire Unit C. The candidates are required to give answer of each short type question in 7-10 lines.

UNIT–1

1. Political Sociology: Meaning, Nature, Emergence & Scope; Relationship between Sociology and Political Science.
2. Max Weber's contribution to Political Sociology
3. Marxian approach to Political Sociology.
4. Talcott Parsons: Structural-functional Approach.

UNIT-11

5. Caste, Class & Politics: A study of inter-relations.
6. Political Culture: concept and types, Secularisation of Political Culture and Political Socialization: Meaning & Agencies.
7. Legitimacy
8. Political Violence: Meaning and nature and its types.

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Sri Guru Tegh Bahadur Khalsa College
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P.G. Department of Political Science
Syllabus For
M.A. (Political Science)
Part 2 (Semester III & IV)
2020-21 Session

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M.A.(POLITICAL SCIENCE): PART-II
(SEMESTER SYSTEM)
Sessions: 2020-21

Note: Complete M.A. (Political Science) Course carries 92 credits and each paper carries 5 Credits (4 Lectures + 1 Tutorial).

Credit Scheme

			Hours			Marks
S. No.	**CODE**	**PAPERS TITLE SEMISTER – III**	**Credits (L+T)**	**Ext. Marks**	**Int. Marks**	**Total**
		CORE PAPERS				
	MAPOLSCI – 301	**CONTEMPORARY POLITICAL THOUGHT**	**4+1=5**	**70**	**30**	**100**
2	**MAPOLSCI – 302**	**MODERN POLITICAL ANAYLSIS**	**4+1=5**	**70**	**30**	**100**
3	**MAPOLSCI – 303**	**PUNJAB POLITICS**	**4+1=5**	**70**	**30**	**100**
4	**MAPOLSCI – 304**	**ELECTIVE PAPERS: ANY ONE OF THE FOLLOWINGS:**				
	MAPOLSCI – 304 (i)	**FOREIGN POLICY OF INDIA**	**4+1=5**	**70**	**30**	**100**
	MAPOLSCI- 304 (ii)	**THEORY AND PRACTICE OF DIPLOMACY**	**4+1=5**	**70**	**30**	**100**
	MAPOLSCI- 304 (iii)	**POLITICAL PARTIES AND PRESSURE GROUPS IN INDIA**	**4+1=5**	**70**	**30**	**100**
	MAPOLSCI-305	**INTERDISCIPLIINARY SEMINAR**	**3**	**----**	**50**	**50**
		SEMESTER – IV				
		CORE PAPERS				
1.	**MAPOLSCI – 401**	**POLITICAL THEORY**	**4+1=5**	**70**	**30**	**100**
2.	**MAPOLSCI – 402**	**COMPARATIVE POLITICS**	**4+1=5**	**70**	**30**	**100**
3.	**MAPOLSCI – 403**	**POLITICAL IDEOLOGIES**	**4+1=5**	**70**	**30**	**100**
4.	**MAPOLSCI-404**	**ELECTIVE PAPERS: ANY ONE OF THE FOLLOWINGS:**				
	MAPOLSCI – 404 (i)	**STATE POLITICS IN INDIA**	**4+1=5**	**70**	**30**	**100**
	MAPOLSCI – 404 (ii)	**RESEARCH METHODOLOGY**	**4+1=5**	**70**	**30**	**100**
	MAPOLSCI – 404 (iii)	**THEORY AND PRACTICE OF PUBLIC ADMINISTRATION**	**4+1=5**	**70**	**30**	**100**
5.	**MAPOLSCI – 405**	**INTERDECIPLINARY SEMINAR**	**03**	**-------**	**50**	**50**

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SEMESTER-III

Course Objectives:

The main objective of Political Science Department prepares students to become informed active citizens. Postgraduate and graduate programs emphasize the comprehension of political thinking, the application of communication and analytical skills, and the understanding of cultural diversity. To Increase knowledge of the political science discipline; its principal theoretical frameworks and applications, conceptual vocabulary, and methods of inquiry; its major subfields of study; and its interrelationships with the other social science fields. To increase understanding of basic facts and concepts about Indian political system, including its history, philosophical, constitutional and legal foundations, leading political values and ideas, governing institutions, and policymaking processes. Students will come to understand the means of inquiry in the social sciences generally, and in political science in particular. This will include an understanding of how knowledge about politics and government is generated by political scientists working within their discipline. Students will be prepared to take entry level jobs in the public or private sector or to undertake graduate study, whether academic (e.g., master's or doctoral programs in political science) or professional (e.g., law or public administration).

1. To increase understanding of political science research and analytical skills, including the ability to think critically; to construct logical arguments; to collect, analyze, and interpret evidence and data; and to formulate reasoned conclusions.
2. To increase development of writing skills through research papers, essay exams, senior projects in political science topics, and collaborative research/writing opportunities with faculty.
3. To provide opportunities to undergraduate and graduate students to link theory and practice and to apply political science knowledge and skills to actual problem-solving and community service
4. To increase awareness of career options available with an undergraduate degree in political science; its utility in the public and private sectors; and its value as entry into a range of graduate programs, teaching positions, and legal education.

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MAPOLSCI- 301: CONTEMPORARY POLITICAL THOUGHT

Maximum Marks: 100	**Pass Marks: 35%**
Maximum External Marks: 70	**Pass Marks: 25**
Maximum Internal Marks: 30	**Pass Marks: 10**
Time: 3 Hours	**Total Lectures:75**

OBJECTIVES: This paper aims to introduce to the students to the major themes of comparative political thought. This will be done by undertaking an in depth study of the key thinkers of this tradition

INSTRUCTIONS FOR THE PAPER SETTER/EXAMINER

The question paper will consist of Three Section: A, B and C. Sections A & B will have four questions from the respective portion of the Syllabus and will carry 10 marks each. Section C will consist of 10 short-answer type questions, which will cover the entire syllabus and will carry 30 marks in all. Each short answer type question will carry three (3) marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from the Sections A & B of the question paper and the entire Section C. The candidates are required to give answer of each short type question in 50 words i.e. in 7-10 lines.

UNIT-1

1. Hegel
2. Marx
3. Lenin
4. Mao
5. Gramsci

UNIT-11

6. Hannah Arendt
7. Frantz Fanon
8. Rawls
9. Michael Oakeshott
10. Nozick

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READINGS

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MAPOLSCI- 302: MODERN POLITICAL ANALYSIS

Maximum Marks: 100	**Pass Marks: 35%**
Maximum External Marks: 70	**Pass Marks: 25**
Maximum Internal Marks: 30	**Pass Marks: 10**
Time: 3 Hours	**Total Lectures: 75**

OBJECTIVES : The course aims at introducing students to the key concepts which are the building blocks of modern political analysis. Each concept will be studied in terms of the main debates over its nature and scope in the discipline and its relationship with other concepts. After dong this course, the student will be able to discern the conceptual debates which underlie political phenomena.

INSTRUCTIONS FOR THE PAPER SETTER/EXAMINER

The question paper will consist of Three Section: A, B and C. Sections A & B will have four questions from the respective portion of the Syllabus and will carry 10 marks each. Section C will consist of 10 short-answer type questions, which will cover the entire syllabus and will carry 30 marks in all. Each short answer type question will carry three (3) marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from the Sections A & B of the question paper and the entire Section C. The candidates are required to give answer of each short type question in 50 words i.e. in 7-10 lines.

UNIT-1

1. Modern Political Analysis: Meaning, Nature, Assumptions and major concerns.
2. Behavioural Revolution in Political Science: Behavioural Approach and Post Behavioural Reactions to it.
3. System Approach of David Easton and Structural Functional Approach of G.A. Almond.
4. Marxian Approach.

UNIT-11

5. Concept of Political System: Meaning, Features and Functions of Political System.
6. Traditional and Modern Interpretations of Politics.
7. Political Culture and Political Socialization.
8. Political Development and Modernization.

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READINGS

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MAPOLSCI- 303: PUNJAB POLITICS

Maximum Marks: 100 **Pass Marks: 35%**
Maximum External Marks: 70 **Pass Marks: 25**
Maximum Internal Marks: 30 **Pass Marks: 10**
Time: 3 Hours **Total Lecturs:75**

OBJECTIVES : The course aims at introducing students to the key concepts which are the building blocks of the Punjab Politics. Each concept will be studied in terms of the main debates over its nature and scope in the discipline and its relationship with other concepts. After dong this course, the student will be able to discern the conceptual debates which underlie political phenomena.

INSTRUCTIONS FOR THE PAPER SETTER/EXAMINER

The question paper will consist of Three Section: A, B and C. Sections A & B will have four questions from the respective portion of the Syllabus and will carry 10 marks each. Section C will consist of 10 short-answer type questions, which will cover the entire syllabus and will carry 30 marks in all. Each short answer type question will carry three (3) marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from the Sections A & B of the question paper and the entire Section C. The candidates are required to give answer of each short type question in 50 words i.e. in 7-10 lines.

UNIT-I

1. Socio-Economic bases of Punjab Politics.
2. Reorganization of Punjab on Linguistic Basis and its Impact on Punjab Politics.
3. Dynamics of Party System in Punjab: INC, BJP, BSP, SAD, AAP, Their Ideologies, Organisation, Changing Support Base and Electoral Performance..
4. Demand for State Autonomy: Anandpur Sahib Resolution, Akali Political Impacts Government's Memorandum to Sarkaria Commission and its Recommendations.

UNIT-II

5. Nature and Impact of Sikh Militant Movement in Punjab.
6. Working of Coalition Governments in Punjab.
7. Issues in Punjab Politics: Mining, Environment Degradation, Farmers Suicide and Drug addiction.
8. Emerging trends in Punjab Politics.

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READINGS

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MAPOLSCI- 304(I): FOREIGN POLICY OF INDIA

Maximum Marks: 100	**Pass Marks: 35%**
Maximum External Marks: 70	**Pass Marks: 25**
Maximum Internal Marks: 30	**Pass Marks: 10**
Time: 3 Hours	**Total Lectures:75**

Objectives : The course tries to underline the changes, which the shifting nature of world order has induced into the more enduring elements and themes of Indian foreign policy. At the same time, India's growing assertion on the world stage as an important international actor is assessed in the light of its role in various global regimes.

INSTRUCTIONS FOR THE PAPER SETTER/EXAMINER

The question paper will consist of Three Section: A, B and C. Sections A & B will have four questions from the respective portion of the Syllabus and will carry 10 marks each. Section C will consist of 10 short-answer type questions, which will cover the entire syllabus and will carry 30 marks in all. Each short answer type question will carry three (3) marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from the Sections A & B of the question paper and the entire Section C. The candidates are required to give answer of each short type question in 50 words i.e. in 7-10 lines.

UNIT-I

1. Historical, Cultural and Philosophical Foundations of India's Foreign Policy.
2. Determinants of India's Foreign Policy: Internal and External.
3. Role and Relevance of NAM.
4. Globalization and Changing Goals of India's Foreign Policy: Security and Economic Dimensions.

UNIT-II

5. India and Major World Powers: US, Russia and China.
6. India's Relations with Neighbors: Pakistan and Bangladesh, Nepal and Sri Lanka.
7. Contemporary Challenges for India's Foreign Policy.

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READINGS

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MAPOLSCI-304(ii): THEORY AND PRACTICE OF DIPLOMACY

Maximum Marks: 100	**Pass Marks: 35%**
Maximum External Marks: 70	**Pass Marks: 25**
Maximum Internal Marks: 30	**Pass Marks: 10**
Time: 3 Hours	**Total Lectures:75**

Objectives: The course tries to underline the changes, which the shifting nature of world order has induced into the more enduring elements and themes of Diplomacy.

INSTRUCTIONS FOR THE PAPER SETTER/EXAMINER

The question paper will consist of Three Section: A, B and C. Sections A & B will have four questions from the respective portion of the Syllabus and will carry 10 marks each. Section C will consist of 10 short-answer type questions, which will cover the entire syllabus and will carry 30 marks in all. Each short answer type question will carry three (3) marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from the Sections A & B of the question paper and the entire Section C. The candidates are required to give answer of each short type question in 50 words i.e. in 7-10 lines.

UNIT-1

1. Diplomacy and International Relations.
2. Meaning, Nature and Historical Evolution and Diplomacy.
3. Diplomacy as an Instrument of Foreign Policy.
4. Diplomatic Immunities and Privileges.

UNIT-11

5. Post Cold War Diplomacy.
6. Open Diplomacy; Democratic Diplomacy.
7. Conference Diplomacy; Summit Diplomacy.
8. Issues in Contemporary Diplomacy.
9. Economic aid as an important instrument of Diplomacy.

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MAPOLSCI - 304 (III) POLITICAL PARTIES AND PRESSURE GROUPS IN INDIA

Maximum Marks: 100	**Pass Marks: 35%**
Maximum External Marks: 70	**Pass Marks: 25**
Maximum Internal Marks: 30	**Pass Marks: 10**
Time: 3 Hours	**Total lectures:75**

OBJECTIVES : It helps the students to understand the evolution and transformation of political parties in india. It also analyses different issues that impinge on party politics and challenges posed by parties and party system to indian democracy.

INSTRUCTIONS FOR THE PAPER SETTER/EXAMINER

The question paper will consist of Three Section: A, B and C. Sections A & B will have four questions from the respective portion of the Syllabus and will carry 10 marks each. Section C will consist of 10 short-answer type questions, which will cover the entire syllabus and will carry 30 marks in all. Each short answer type question will carry three (3) marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from the Sections A & B of the question paper and the entire Section C. The candidates are required to give answer of each short type question in 50 words i.e. in 7-10 lines.

UNIT-1

1. National Political Parties-Their origin, programmes, structural organisation and support base. Congress, B.J.P., CPI, CPI (M), B.S.P., N.C.P.

2. Regional Political Parties-Their origin, programmes, structural organisation and support base. Akali Dal, National Conference, AIADMK & DMK, Assam Gana Parishad (AGP), Telgu Desam Party(TDP).

3. Patterns of the interactions between national and regional political parties.

UNIT-11

1. Pressure Groups in India: Nature, Types, Strategy and Tactics.

2. Major Pressure Groups in India with special reference to Trade Unions, Chambers of Commerce and Agrarian interest groups.

3. Dalit Organizations, Human Rights Groups and Environment Protection Groups with special reference to Narmada Bachao Andolan.

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MA POLSCI- 305: INTER- DISCIPLINARY COURSE -V

Objectives: **Internal: 50 Marks**

A. To enhance the presentation skills of the students.

B. To make the students do extensive research on various political issues.

C. To improve the research aptitude of the students.

D. To make the students do extensive research on various national and international problems.

E. To increase understanding of political science research and analytical skills, including the ability to think critically.

F. To construct logical arguments, collect, analyze, and interpret evidence, data, and formulate reasoned conclusions.

The followings are the suggested topics for seminar. Students are free to choose their topics with the help of their teachers.

1. Surplus Theory of Karl Marx
2. Lenin's view about Party Organisation
3. People's Democracy Theory of Lenin
4. New Democracy Concept of Mao
5. Revolution Theory of Herbert Marcuse
6. Assumptions of Modern political Analysis
7. Post Behaviour Approach
8. Types of Political Culture
9. Agencies of Political Socialization
10. Functions of Political System

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11. Patterns of State Politics
12. Council of Ministers
13. Emerging Trends In State Politics
14. Demand For State Autonomy
15. Types of Pressure Groups
16. Interaction Between Regional And National Parties
17. Relevance of Nam
18. Internal Determinants of India’s Foreign Policy
19. Contemporary Challenges For Indian Foreign Policy
20. Historical And Cultural Foundation of India’s Foreign Policy

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SEMESTER- IV MAPOLSCI- 401 : POLITICAL THEORY

Maximum Marks: 100	**Pass Marks: 35%**
Maximum External Marks: 70	**Pass Marks: 25**
Maximum Internal Marks: 30	**Pass Marks: 10**
Time: 3 Hours	**Total Lectures:75**

OBJECTIVES : The objective of the course is to familiarize students with recent debates and theories concerning advanced industrial societies, and this will be undertaken in a comparative framework**.** Objective: In order to analyze various issues and phenomenon political theory plays very significant role. The paper will delineate various theories evolved in the field of political science.

INSTRUCTIONS FOR THE PAPER SETTER/EXAMINER

The question paper will consist of Three Section: A, B and C. Sections A & B will have four questions from the respective portion of the Syllabus and will carry 10 marks each. Section C will consist of 10 short-answer type questions, which will cover the entire syllabus and will carry 30 marks in all. Each short answer type question will carry three (3) marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from the Sections A & B of the question paper and the entire Section C. The candidates are required to give answer of each short type question in 50 words i.e. in 7-10 lines.

UNIT-1

1. Political Theory: An Introduction

2. Liberty and Equality

3. Justice and Rights

4. Democracy

5. Citizenship

UNIT-11

6. Liberalism and Conservatism
7. Feminism
8. Multiculturalism
9. Postmodernism
10. State of Political Theory Today: An Analysis

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MAPOLSCI- 402: COMPARATIVE POLITCS

Maximum Marks: 100	**Pass Marks: 35%**
Maximum External Marks: 70	**Pass Marks: 25**
Maximum Internal Marks: 30	**Pass Marks: 10**
Time: 3 Hours	**Total Lectures:75**

OBJECTIVES : The objective of the course is to familiarize students with recent debates and theories concerning advanced industrial societies, and this will be undertaken in a comparative framework**.**

INSTRUCTIONS FOR THE PAPER SETTER/EXAMINER

The question paper will consist of Three Section: A, B and C. Sections A & B will have four questions from the respective portion of the Syllabus and will carry 10 marks each. Section C will consist of 10 short-answer type questions, which will cover the entire syllabus and will carry 30 marks in all. Each short answer type question will carry three (3) marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from the Sections A & B of the question paper and the entire Section C. The candidates are required to give answer of each short type question in 50 words i.e. in 7-10 lines.

UNIT-1

1. Comparative Politics: Emergence of Comparative Politics as specialized branch of Political Science.
2. Meaning, Nature and Scope of Comparative Politics.
3. Political Elites
4. Power, Influence, Authority and Legitimacy Effectiveness and their impact on the stability of Political System.

UNIT-11

5. Political Economy.
6. Political Regimes: Democratic and Non Democratic.
7. Political Parties.
8. Pressure Groups.

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MAPOLSCI - 403 : POLITICAL IDEOLOGIES

Maximum Marks: 100	**Pass Marks: 35%**
Maximum External Marks: 70	**Pass Marks: 25**
Maximum Internal Marks: 30	**Pass Marks: 10**
Time: 3 Hours	**Total Lectures: 75**

OBJECTIVES : This paper aims to introduce to the students to the major themes of Political Ideology. This will be done by undertaking an in depth study of the various ideologies of this tradition **.**

INSTRUCTIONS FOR THE PAPER SETTER/EXAMINER

The question paper will consist of Three Section: A, B and C. Sections A & B will have four questions from the respective portion of the Syllabus and will carry 10 marks each. Section C will consist of 10 short-answer type questions, which will cover the entire syllabus and will carry 30 marks in all. Each short answer type question will carry three (3) marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from the Sections A & B of the question paper and the entire Section C. The candidates are required to give answer of each short type question in 50 words i.e. in 7-10 lines.

UNIT-1

1. Ideology : Meaning, characteristics and end of Ideology debate.
2. Liberalism
3. Nationalism
4. Fascism & Nazism

UNIT-11

5. Marxism
6. New Leftism
7. Feminism
8. Debate about the end of ideology.

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READINGS

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Elective Papers: MAPOLSCI-404 (1): STATE POLITICS IN INDIA

Maximum Marks: 100 **Pass Marks: 35%**
Maximum External Marks: 70 **Pass Marks: 25**
Maximum Internal Marks: 30 **Pass Marks: 10**
Time: 3 Hours **Total Lectures:75**

OBJECTIVES : The course aims at introducing students to the key concepts which are the building blocks of the State Politics of India. Each concept will be studied in terms of the main debates over its nature and scope in the discipline and its relationship with other concepts. After dong this course, the student will be able to discern the conceptual debates which underlie political phenomena.

INSTRUCTIONS FOR THE PAPER SETTER/EXAMINER

The question paper will consist of Three Section: A, B and C. Sections A & B will have four questions from the respective portion of the Syllabus and will carry 10 marks each. Section C will consist of 10 short-answer type questions, which will cover the entire syllabus and will carry 30 marks in all. Each short answer type question will carry three (3) marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from the Sections A & B of the question paper and the entire Section C. The candidates are required to give answer of each short type question in 50 words i.e. in 7-10 lines.

UNIT-1

1. Significance of State Politics and Theoretical Framework for the study of State Politics.
2. Patterns of State Politics in India
3. Constitutional Framework for the State: Governor, State Legislature: Chief Minister, Council of Minister.
4. Emerging Trends in the politics of the states in India.

UNIT-11

5. Ideology, Organization, Support Base and Electoral Performance of Regional Political Parties in North India with special reference to SAD, DMK, AIADMK, TDP and National Conference.
6. Centre- State relations: Areas of Tension and demand for State Autonomy.
7. Determinants of State Politics.
8. Recommendations of National Commission on Constitutional Review on the State Politics.

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READINGS

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MAPOLSCI-404 (ii) : RESEARCH METHODOLOGY

Maximum Marks: 100	**Pass Marks: 35%**
Maximum External Marks: 70	**Pass Marks: 25**
Maximum Internal Marks: 30	**Pass Marks: 10**
Time: 3 Hours	**Total Lectures:75**

OBJECTIVES : This paper aims to introduce to the students to the major themes of Research Methodology. This will be done by undertaking an in depth study of the various Research Methods and Techniques **.**

INSTRUCTIONS FOR THE PAPER SETTER/EXAMINER

The question paper will consist of Three Section: A, B and C. Sections A & B will have four questions from the respective portion of the Syllabus and=\=== will carry 10 marks each. Section C will consist of 10 short-answer type questions, which will cover the entire syllabus and will carry 30 marks in all. Each short answer type question will carry three (3) marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from the Sections A & B of the question paper and the entire Section C. The candidates are required to give answer of each short type question in 50 words i.e. in 7-10 lines.

UNIT-1

1. Ethics in Social Sciences Research.
2. Types of Research: Quantitative and Qualitative.
3. Scientific Method
4. Hypothesis

UNIT-11

5. Research Design
6. Sampling : Meaning and Kinds
7. Tools and Techniques of Data collection : Observation, Questionnaire ,Interview and Schedule.
8. Report Writing and Thesis Writing

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READINGS

[Type text]

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MAPOLSCI-404 (III) : THEORY AND PRACTICE OF PUBLIC ADMINISTRATION

Maximum Marks: 100	**Pass Marks: 35%**
Maximum External Marks: 70	**Pass Marks: 25**
Maximum Internal Marks: 30	**Pass Marks: 10**
Time: 3 Hours	**Total Lectures:75**

OBJECTIVES : This paper will introduce students to different aspects of public administration with special reference to India.

INSTRUCTIONS FOR THE PAPER SETTER/EXAMINER

The question paper will consist of Three Section: A, B and C. Sections A & B will have four questions from the respective portion of the Syllabus and will carry 10 marks each. Section C will consist of 10 short-answer type questions, which will cover the entire syllabus and will carry 30 marks in all. Each short answer type question will carry three (3) marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from the Sections A & B of the question paper and the entire Section C. The candidates are required to give answer of each short type question in 50 words i.e. in 7-10 lines.

UNIT-I

1. Meaning, Nature and Scope of Public Administration: Its Role in Developed and Developing Countries

2.Administrative Culture

3. Development Administration: Meaning, Nature, scope and significance.
4. Comparative Administration: Meaning, nature and scope.

UNIT-II

5. Decision Making and Ecological Approach.
6. Disaster Management in Contemporary world.
7. Public Policy: Meaning, Nature, Importance, policymaking factors and institutions.
8. Impact of Information Technology on Public Administration.

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READINGS

[Type text]

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Dr.Gurpreet Singh Dr.Virpal Singh S. Mohan Singh Diksha

MA POLSCI-405: INTER- DISCIPLINARY COURSE-V

Objectives: **Internal: 50 Marks**

A. To enhance the presentation skills of the students.

B. To make the students do extensive research on various political issues.

C. To improve the research aptitude of the students.

D. To make the students do extensive research on various national and international problems.

E. To increase understanding of political science research and analytical skills, including the ability to think critically.

F. To construct logical arguments, collect, analyze, and interpret evidence, data, and formulate reasoned conclusions.

The followings are the suggested topics for seminar. Students are free to choose their topics with the help of their teachers.

1. Administrative Culture
2. Fred Riggs Ecological Approach
3. Impact of Information Technology On Public Administration
4. Significance Of Development Administration
5. Concept Of Power
6. Meaning And Nature Of Comparative Politics
7. Define Political Modernization
8. Concept Of Political Elites
9. Types Of Research
10. Sampling
11. Report Writing
12. Define Classical Liberalism

Dr. Sunita Rani Dr. Jagroop Kaur Dr. J.A. Khan Dr. SSNarang

Dr.Gurpreet Singh Dr.Virpal Singh S. Mohan Singh Diksh

13. Debate About End Of Ideology
14. Three Waves Of Feminism
15. Determinants Of Foreign Policy
16. Regional Goals Of Foreign Policy
17. Economic Policy Of Japan
18. Anandpur Sahib Resolution
19. Socio Bases Of Punjab Politics
20. Issue Of Farmer Suicide In Punjab Politics

Dr. Sunita Rani Dr. Jagroop Kaur Dr. J.A. Khan Dr. SSNarang

Dr.Gurpreet Singh Dr.Virpal Singh S. Mohan Singh Diksha

B.Sc. (Hon’s in Agriculture)
Session 2018-2019, 2019-2020& 2020-21
PART - III (Semester-V)
STAT-301 STATISTICAL METHODS

L	T	P
2	0	2

Total marks: 100
External Marks: 45
Internal Marks : 15
Practical Marks: 40
External Passing Marks: 18
Internal Passing Marks: 06
Practical Passing Marks: 16

Time Allowed: 3 hours
(Credit Hours – 30 L+ 15P)

NOTE : *Pass Percentage : 40 %

INSTRUCTIONS FOR PAPER SETTER

The question paper will consist of three sections A, B and C. Section A and B each will have four questions from the respective sections of the syllabus and will carry 9 marks each. Section C will consist of 9 short-answer type questions of 1 mark each which will cover the entire syllabus uniformly and will carry 9 marks in all.

INSTRUCTIONS FOR CANDIDATES

The Candidates are required to attempt two questions from each section A and B and the entire section C.

SECTION-A

Introduction to Statistics and its Applications in Agriculture, graphically representation, Measure of Central Tendency and Measure of Dispersion

Definition of probability, Addition and Multiplication theorem (without proof).

Define Binomial Distribution, Normal Distribution and Poisson Distribution.

Definition of correlation, scatter diagram, Karl Pearson’s correlation coefficient and rank correlation coefficient.

SECTION B

Define regression coefficient, principal of least square method.

Introduction to test of significance, one sample and two sample test-t for mean.

Definition of chi- squire test and goodness of fit test, define analysis of variance.

Introduction to sampling methods, sampling versus complete enumeration, simple random sampling with replacement and without replacement.

Signature: Dr. Shaveta Kaushal (Chairperson) Dr. Jasdeep Singh Toor (VC Nominee)
Ms. Navjit Kaur (Nominee of Academic Council) Dr. Paramjit Singh, (Nominee of Academic Council)
Navjit Kaur
Mr. KC Katna (Industrial Expert), Ms Ruby Kaushal (Student Alumni) Ruby Kaushal
Ms. Anchal (Assistant Professor) Mr. Devinderpal Singh

PART - III (Semester-V)
STAT-301 STATISTICAL METHODS
Practical

Max. Marks: 40 **NOTE : *Pass Percentage : *40* %**

Pass Marks: 16 **Duration of the Paper: 3 Hours**

- Graphical Representation Data
- Calculate Mean, Median And Mode
- Calculate of Correlation Coefficient With Karl's Pearson And Rank Correlation.
- Calculate Regression With Least Square Methods.
- Calculate Quartile, Deciles And Percentiles.
- Chi-Squire with Goodness Of Fit.
- Calculate Binomial, Normal Distribution.
- Calculate ANOVA With One Way Classification.

BOOKS RECOMMENDED

- Panse and Sukhtame : Statistical Methods for Agricultural Works
- C.B. Gupta : Statistical Method
- Croxton& Cowden : Applied General Statistics
- Chandel : A Hand book of Agricultural Statistics

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Session 2018-2019, 2019-2020 & 2020-21
B.Sc. (AGRICULTRE) PART-IV
B.Sc. (AGRICULTRE) PART-IV (Sem VII)
2014-15, 2015-16 & 2016-17 EXAMINATIONS

PAPER-V: FARM MANAGEMENT AND PRODUCTION ECONOMICS

Total marks: 150

L T P

External Marks: 75

6 0 3

Internal Marks : 25
Practical Marks: 50

Time Allowed: 3 hours
(Credit Hours – 90 L+ 45P)

External Passing Marks: 30
Internal Passing Marks: 10
Practical Passing Marks: 20

*Note: Pass Percentage- 40 %

INSTRUCTIONS FOR PAPER SETTER

The question paper will consist of three sections A, B and C. Each Section A and B will have four questions from the respective sections of the syllabus and will carry 12 marks each. Section C will consist of 9 short-answer type questions which will cover the entire syllabus uniformly and will carry 27 marks in all.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions from each section A and B and the entire section C.

Theory
Section - A

- Definition and scope of Farm Management, relation of farm management with other social sciences and agricultural sciences. Typical farm management decisions on a farm. Economic principles applied in Farm Management: Concept of variable proportions, factor substitution, equimarginal returns, combining enterprises, time.
- Factor-Factor relationship: meaning and objectives and choosing of minimum cost combination inputs for the analysis given level of inputs. Product-Product relationships and determination of optimum product combination.
- Selection of farm, farm size and affecting it ways of increasing the farm business. Farming systems and types of farming areas. Factors affecting the choice of farming.
- Farm Finance, its classification, Sources of farm finance – Institutional and Non-Institutional. The 3 R's of Credit.

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Section - B

- Farm Labour: Types of Labour, factors affecting labour efficiency, problems of farm Labourers with special reference to India.
- Farm Business Analysis: Efficiency measures for land use, capital, income and farm fitability.
- Agricultural price policy: Objectives, instruments and evaluation of agricultural price policy in India. Peculiarities of demand and supply of agricultural products and its impact on agricultural prices.
- Farm planning and Budgeting, Section II budgeting, enterprise budgets and complete budgeting. Steps in farm planning and organization of farm business.

PRACTICALS

Max. Marks: 50 Duration of paper: 3 hrs
Pass Marks : 20
*Note: Pass Percentage- 40%

- Each student must study the management of a farm block of at least 10 acres of the college farm, and makes its different kind of soil location, its part of cropping. Present cropping plan and management. He must be familiar with the programme at work. He should have acquaintance with the farm, the profit and loss account, balance sheets and other final statements of financial importance for the farm. He must undertake the survey of the cultivation and management practices of at least five farmers and prepare a note in improved practices of oral production and farm management.
- Handling a farm machinery, selection of good seeds, Judging and valuing crops grading of farm produce, study market rates and marketing of produce.
- Preparation of dropping scheme and working out seed, manure, labour and capital requirements for different conditions in Punjab, study tour of marketing centres and research stations of the states.

BOOKS RECOMMENDED

- Tandon, P.K. &Dhandyal, S.P. : Principles and Methods of Farm Management, 1971, Joshi, 3A/24 Azad Nagar, Kanpur.
- Joshi, S.S. &Kapur, T.R. : Fundamentals of Farm Business Management, 1979, Kalyani Publishers, Ludhiana/Delhi.
- Dhandyal, S.P. : Farm Management, 1979, Achal Prakashan Mandir, Kanpur.

Signature: Dr. Shaveta Kaushal (Chairperson) Dr. Jasdeep Singh Toor (VC Nominee)
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Navjit Kaur
Mr. KC Katna (Industrial Expert), Ms Ruby Kaushal (Student Alumni) Ruby Kaushal
Ms. Anchal (Assistant Professor) Mr. Devinderpal Singh

- Kahlon, A.S. & Singh, K : Economics of Farm Management in India, 1980, Allied Publishers, Delhi.
- Govt. of India Directorate of Eco. India, New Delhi. : Farm Management Studies, 1981, & stat. Ministry of Food & Agri. Govt. of
- Efferson, J.N. : Farm Records & Accounts, John Wiley & Sons.
- Adams : Farm Management, John Wiley & Sons.
- Hart Bond &Cunnighum : Farm Management.

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SRI GURU TEG BAHADUR KHALSA COLLEGE, SRI ANANDPUR SAHIB

An Autonomous College

NAAC Accredited 'A' Grade

College with Potential for Excellence Status by UGC

SYLLABUS

FOR

BA (Economics)

Part I (Semester I & II)

Part II (Semester III& IV)

Sessions: 2020-21 and 2021-22

Sri Guru Teg Bahadur Khalsa College, Sri Anandpur Sahib
An Autonomous College
College with Potential for Excellence Status by UGC
E-mail: sgtb321@gmail.comWebsite:www.sgtbcollege.org.in
PG Department of Economics
SGTB Khalsa College Sri Anandpur Sahib, Ropar (Punjab)

Signature: Dr. Shaveta Kaushal (Chairperson) Dr. Jasdeep Singh Toor (VC Nominee)
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Navjit Kaur
Mr. KC Katna (Industrial Expert), Ms Ruby Kaushal (Student Alumni) Ruby Kaushal
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B.A. (Economics): Credit Scheme
Session 2020-21 and 2021-22

SR. NO.	Sem.	Paper Title	Hours			Theory Marks		Practical Marks	
			Lect.	Tut.	Total Credit	Ext. Marks	Int. Marks	Dissertation	VIVA
	Core Papers								
I	Eco:106	**Micro Economics And Indian Economy – I**	4	1	5	75	25	-	-
II	Eco:206	**Micro Economics And Indian Economy - II**	4	1	5	75	25	-	-
III	Eco:306	**Macro Economics And Public Finance**	4	1	5	75	25	-	-
IV	Eco:406	**Money And Banking And International Economics**	4	1	5	75	25	-	-

Note:

***** Under Choice Based Credit System

* Complete BA (Economics) as an elective Course carries 30 credits and each semester carries 5 Credits (4 Lectures + 1 Tutorial), (4*15=60 lectures + 1*15= 15 Tutorials)

* The Break-up of 25 Marks for Internal Assessment (Theory papers), is as below:

1.	Two Mid-Semester Tests	12 Marks
2.	Class Attendance	06 Marks
3.	Project Work/Assignment Seminar/Field Work etc.	07 Marks

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Ms. Anchal (Assistant Professor)
Mr. Devinderpal Singh

B.A. PART - I (FIRST SEMESTER)
MICRO ECONOMICS AND INDIAN ECONOMY – I
Code: ECO-106

L	T	P	
4	1	0	

External Marks: 75
Internal Marks: 25
Time Allowed: 3 hours — **External Passing Marks: 26**
(Credit Hours – 60 L+15 T) — **Internal Passing Marks: 09**

Objectives: The purpose of this course is to give students a thorough understanding of the principles of economics that apply to the decisions of individuals--both consumers and producers--within the larger economic system.

INSTRUCTIONS TO THE PAPER-SETTER

The question paper will consist of three sections: A, B and C. Sections A and B will have four questions each. Each question shall carry 12 marks. Section C will consist of 09 short-answer type questions which will cover the entire syllabus uniformly and will carry 30 marks in all. Each short answer type question will carry 3 marks. The candidate are required to give answer of each short type question in about 100 words

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each of the Section A and B and the entire section C.

SECTION -A

Meaning and Scope of Economics: Definitions of Economics (Adam Smith, Marshall and Robbins).

Demand: Types, Law of Demand, Shift and Change in Demand**,** Elasticity of Demand and its measurement.

Utility Analysis: Law of Diminishing Marginal Utility, Law of Equi-Marginal Utility.

Indifference Curve Analysis: Meaning, Assumptions and Properties of Indifference Curve; Conditions of Equilibrium, Indifference Curve and Law of Demand. Breaking up Price Effect into Income and Substitution Effect

Production Function: Concept and Types of Production Function, Laws of Returns to Scale and Law of Variable Proportions.

Cost & Revenue: Concepts, Relationship between Average Revenue, Marginal Revenue and Elasticity of Demand.

Section B

Indian Economy: Nature and Characteristics of Indian Economy on the eve of independence.

Signature: Dr. Shaveta Kaushal (Chairperson) Dr. Jasdeep Singh Toor (VC Nominee)
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Navjit Kaur
Mr. KC Katna (Industrial Expert), Ms Ruby Kaushal (Student Alumni) Ruby Kaushal
Ms. Anchal (Assistant Professor) Mr. Devinderpal Singh

Green Revolution: Objectives, Impact and Recent Development in Agriculture Sector, Environment Degradation.

Industrial Policy: Industrial Policy of India 1991.

Industries: Role and Problems of Small and Large Scale Industries.

Public and Private sector: Role of Public and Private Sector in Industrial Development of India, Problems and Suggestions.

RECOMMENDED READINGS

1.	A.W. Stonier and D.C.Hauge	:	A Text Book of Economic Theory (Fourth edition) Part-I. (2009)
2.	K.S. Gill	:	Evaluation of Indian Economy, NCERT(2019)
3.	A.N. Aggarwal	:	Indian Economy, Wiley Eastern Ltd., (1990)
4.	Rudder Datt& K.P.M. Sundaram	:	Indian Economy, S. Chand & Co, (2018)
5.	Misra and Puri	:	Indian Economy, Himalyan Publishing House, latest edition.(2005)
6.	B.B. Tandon and Kulwinder Kaur	:	Indian Economy, Tata McGraw, (1997)

SUPPLEMENTARY READINGS

1. Government of India: Economic Survey (latest Edition)

Signature: Dr. Shaveta Kaushal (Chairperson) Dr. Jasdeep Singh Toor (VC Nominee)
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B.A. PART - I (SECOND SEMESTER)
MICRO ECONOMICS AND INDIAN ECONOMY – II
Code: ECO-206

L	T	P	
4	1	0	

External Marks: 75
Internal Marks: 25
Time Allowed: 3 hours
External Passing Marks: 26
(Credit Hours – 60 L+15 T)
Internal Passing Marks: 09

Objective: The main objective of this subject is to create awareness about developments in Indian Economy in a simple way. Inadequate understanding of economic issues and concepts develop wishful thinking about various economy topics among learners.

INSTRUCTIONS TO THE PAPER-SETTER

The question paper will consist of three sections: A, B and C. Sections A and B will have four questions each. Each question shall carry 12 marks. Section C will consist of 09 short-answer type questions which will cover the entire syllabus uniformly and will carry 30 marks in all. Each short answer type question will carry 3 marks. The candidate are required to give answer of each short type question in about 100 words

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each of the Section A and B and the entire section C.

SECTION -A

Competition: Price and Output Determination of the Firm and Industry under Perfect Competition, Monopoly, Monopolistic competition in the Short and Long run.

Theory of Distribution: Marginal Productivity Theory of Distribution

Theories of Rent: Ricardian theory of Rent, Modern theory of Rent

Theories of Interest: Classical Theory of Interest, Loanable Funds Theory of Interest

Theories of Profit: Risk and Uncertainty Theories.

SECTION - B

Indian Tax Structure: An Introduction, Objectives, Features and Drawbacks of Indian Tax Structure.

Foreign Trade: Direction and Composition of trade changes therein since Independence.

Balance of Payments: Concept, Trends, causes, measure of its disequilibrium.

Niti Ayog: An Introduction, Objectives, Composition and Functions.

Signature: Dr. Shaveta Kaushal (Chairperson)
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Ms Ruby Kaushal (Student Alumni) Ruby Kaushal
Ms. Anchal (Assistant Professor)
Mr. Devinderpal Singh

Major Indian Economic Problems: Population Growth including Demographic transition Model, Poverty, unemployment and Inflation.

BOOKS RECOMMENDED

1.	A.W. Stonier and D.C.Hauge	:	A Text Book of Economic Theory (Fourth edition) Part-I.(2009)
2.	K.S. Gill	:	Evaluation of Indian Economy, NCERT(2019)
3.	A.N. Aggarwal	:	Indian Economy, Wiley Eastern Ltd., (1990)
4.	Rudder Datt& K.P.M. Sundaram	:	Indian Economy, S. Chand & Co, (2018).
5.	Misra and Puri	:	Indian Economy, Himalyan Publishing House, (2005)
6.	B.B. Tandon and Kulwinder Kaur	:	Indian Economy, Tata McGraw, (1997)

SUPPLEMENTARY READINGS

1.	R.G. Lipsey	**:**	An Introduction to Positive Economics (4th Edition), English Language Book Society.(1980)
2.	Government of India	**:**	Economic Survey (Latest Edition)

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B.A. PART-II (THIRD SEMESTER)
MACRO ECONOMICS AND PUBLIC FINANCE
Code: ECO-306

L	T	P	
4	1	0	

External Marks: 75
Internal Marks: 25
Time Allowed: 3 hours — **External Passing Marks: 26**
(Credit Hours – 60 L+15 T) — **Internal Passing Marks: 09**

Objectives:Students will be able to identify the determinants of various macroeconomic aggregates such as output, unemployment, inflation, productivity and the major challenges associated with the measurement of these aggregates. The goal of public finance is to recognize when, how and why the government should intervene in the current economy, and also understand the possible outcomes of making changes in the market.

INSTRUCTIONS TO THE PAPER-SETTER

The question paper will consist of three sections: A, B and C. Sections A and B will have four questions each. Each question shall carry 12 marks. Section C will consist of 09 short-answer type questions which will cover the entire syllabus uniformly and will carry 30 marks in all. Each short answer type question will carry 3 marks. The candidate are required to give answer of each short type question in about 100 words

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each of the Section A and B and the entire section C.

SECTION -A

Macro Economics: An Introduction, Salient feature of Macro economics, Scope of Macro Economics, Distinction between Micro and Macro Economics.

Determination of Income and Employment: Classical and Keynesian Models of Income and Employment. Says law of market.

Consumption and Investment Functions: Average and Marginal Propensity to Consume, Psychological law of Consumption

Multiplier :Static and Dynamic Multiplier.

Investment: Types, Investment Demand Schedule and Factors Affecting Investment Decisions.

Inflation: Theories of Inflation: Cost-push and Demand pull, and control of Inflation.

Trade Cycles: Meaning and Phases.

Signature: Dr. Shaveta Kaushal (Chairperson) Dr. Jasdeep Singh Toor (VC Nominee)
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SECTION-B

Introduction to Public Finance: Nature, Scope and its Importance.

Public Expenditure: Principles, Effects of Public Expenditure on Production and Distribution, Causes for the growth of Public expenditure.

Taxation: Classification, Canons and Characteristics of a good tax system. Incidence and Impact of Taxation

Public Debt: Its Types and Role. Burden and Methods of Redemption of Public Debt.

Deficit Financing: Objectives, Sources and Limitations.

RECOMMENED READINGS

1.	T.F. Durnbarg and McDougal	**:**	Macro Economics, McGraw Hill, New York, 1976
2.	M.C.Vaish	**:**	Macro Economic Theory, Oxford University Press.(2017)
3.	Harvey J and Johnsson M	**:**	Introduction to Macro Economics, McMillan and London(1971)

SUPPLEMENTARY READINGS

1.	Gardner Ackley	:	Macro Economic Theory, Macmillan, New York, 1985
2.	C.W.Baird	:	Elements of Macro Economics, West Publishing Company, 1977 (Ch.2.11)
3.	A.R. Musgrave and P.B.Musgrave	:	Public Finance in Theory and Practice, McGraw Hill, International Student's Edition, 1976, Chs. 9 and 16-20.
4.	H.Dalton	:	Principles of Public Finance, London, Routeledge and Kegan Paul, 1936

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B.A. PART - II (FOURTH SEMESTER)
MONEY AND BANKING AND INTERNATIONAL ECONOMICS
Code: ECO-406

L	T	P	
4	1	0	

Time Allowed: 3 hours
(Credit Hours – 60 L+15 T)

External Marks: 75
Internal Marks: 25
External Passing Marks: 26
Internal Passing Marks: 09

Objectives: Students will be able to comprehend theory of decision-making under conditions of scarcity and uncertainty; Analyze choice and demand, production, cost, the firm; market structure; market failure; and develop analytic tools used to understand how the economy functions in aggregate.

.INSTRUCTIONS TO THE PAPER-SETTER

The question paper will consist of three sections: A, B and C. Sections A and B will have four questions each. Each question shall carry 12 marks. Section C will consist of 09 short-answer type questions which will cover the entire syllabus uniformly and will carry 30 marks in all. Each short answer type question will carry 3 marks. The candidate are required to give answer of each short type question in about 100 words

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each of the Section A and B and the entire section C.

SECTION A

Money:. Evolution and Types, Functions of Money. Concepts and Difference Money Market and Capital Market. Theories of Money: Fisher's and Cambridge's equations.

Banking: Definition, types, functions of Banks and Credit Creation. Commercial banks. **Policies:** Monetary and Fiscal Policies: objectives and instruments.

SECTION B

Theories of International Trade: Classical and Heckscher and Ohlin Theories: The Principles of Reciprocal Demand and Terms of Trade.

Balance of Payments: Meaning, Concepts and Components of Balance of Payments, Causes of disequilibrium and its measures

Rate of Exchange: Meaning and its determination, Purchasing Power Parity Theory.Fixed V's Flexible Exchange Rate.

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Navjit Kaur
Mr. KC Katna (Industrial Expert), Ms Ruby Kaushal (Student Alumni) Ruby Kaushal
Ms. Anchal (Assistant Professor) Mr. Devinderpal Singh

Institutions: IMF and IBRD: Objectives, working and achievements. W.T.O : An Introduction and Objectives.

RECOMMENDED READINGS

1. C.P.Kindleberger **:** International Economics, Richard Irwin Homeswoodilinios, Indian Edition, 1977, Part II, III, IV and V.
2. BoSodersten **:** International Economics, Macmillan Press Ltd. 1990, Parts I, III, IV and V.

SUPPLEMENTARY READINGS

1. Gardner Ackley **:** Macro Economic Theory, Macmillan, New York, 1985
2. C.W.Baird **:** Elements of Macro Economics, West Publishing Company, 1977 (Ch.2.11)

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SRI GURU TEG BAHADUR KHALSA COLLEGE, SRI ANANDPUR SAHIB

SYLLABUS
FOR
MA (Economics)

2020-21 and 2021-22 Sessions

MAECO

Sri Guru Teg Bahadur Khalsa College
SriAnandpur Sahib, Ropar (Punjab)
An Autonomous College
NAAC Accredited 'A'Grade
College with Potential for Excellence Status by UGC

Member's Signature:

19/6/19

1. Dr. Shaveta Kaushal
2. Dr. Balwinder Singh Tiwana
3. Dr. Lakhwinder Singh Gill
4. Dr. Sharanjit Singh Dhillon
5. Mr. K. C. Katna
6. Ms Ruby Kaushal

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PG Department of Economics
SGTB Khalsa College SriAnandpur Sahib, Ropar (Punjab)

Programme Structure

The M.A. Economics Programme is a two-year Programme divided into four semesters. A student is required to complete 100 credits for the completion of Programme and the award of degree.

PART	YEAR **YEAR**	**SEMESTER**	**SEMESTER**
Part – I	First Year	Semester I	Semester II
Part – II	Second Year	Semester III	Semester IV

Total Credit Scheme
M.A. (ECONOMICS) : PART I and II
(SEMESTER SYSTEM)
Sessions: 2020-21 & 2021-22

Semester	**Core Courses**			**Elective Course**			
	No. of papers	**Credits (L+T)**	**Total Credits**	**No. of papers**	**Credits (L+T)**	**Total Credits**	**Total Credits**
I	3	12+3	15	02	8+2	10	**25**
II	3	12+3	15	02	8+2	10	**25**
III	3	12+3	15	02	8+2	10	**25**
IV	3	12+3	15	02	8+2	10	**25**
Total Credits for the Course	12	**60**		08	**40**		**100**

Note:

*** Under Choice Based Credit System**

*** Complete M.A. (Economics) Course carries 100 credits and each paper carries 5 Credits (4 Lectures + 1 Tutorial), (4*15=60 lectures + 1*15= 15 Tutorials)**

*** Total Credits = 60 (Core Courses) + 40 (Elective Courses) = 100**

The Break-up of 30 Marks for Internal Assessment (Theory papers), is as below:

50 per cent weightage given to Mid Semester Tests (Best of Two)	(15 marks)
20 per cent weightage given to Attendance	(6 marks)
20 per cent weightage given to Assignment/ Seminar/ Co-Curricular activities/ Class tests/ NSS/ NCC	(6 marks)
10 per cent weightage given to Class Behavior	(3 marks)

Paper Scheme

- Duration of examination of each paper shall be 3 hours.
- Each paper shall be of 100 marks, out of which 70 marks, shall be allocated for semester examination and 30 marks for internal assessment.

Member's Signature:

19/6/19

1. Dr. Shaveta Kaushal 2. Dr. Balwinder Singh Tiwana 3. Dr. Lakhwinder Singh Gill
4. Dr. Sharanjit Singh Dhillon 5. Mr. K. C. Katna 6.Ms. Ruby Kaushal

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M.A. (ECONOMICS) : PART I and II
(SEMESTER SYSTEM)
Sessions: 2020-21 & 2021-22

REVISED SCHEME OF STUDIES

Semester: III										
			Total Marks	Min. Marks	Max.Marks	Min. Marks	Max.Marks	Min. Marks	Max.Marks	Min. Marks
Sr. No.	**Paper Code**	**Paper Title**	**Theory**		**Theory Marks**		**Practical Marks**		**Assessment**	
	Core Papers									
III	**Eco.-301**	**Political Economy of Development-I**	100	35	70	25	-	-	30	10
III	**Eco.-302**	**Evolution and Structure of Indian Economy-I**	100	35	70	25	-	-	30	10
III	**Eco.-303**	**Public Economics- I**	100	35	70	25	-	-	30	10
	Eco.-304 Elective Papers: Any one of the following paper									
	Eco.-304(i)	**International Economics**	100	35	70	25	-	-	30	10
	Eco.-304(ii)	**Computer Applications for Economists -I**	100	35	70	25	-	-	30	10
III	**Eco.304(iii)**	**Regional Economics and Punjab Economy**	100	35	70	25	-	-	30	10
	Eco.-305 Elective Papers: Any one of the following paper									
III	**Eco.-305(i)**	**Money and Banking**	100	35	70	25	-	-	30	10

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	Eco.-305(ii)	**Theory of Statistics**	100	35	70	25	-	-	30	10
	Eco.305(iii)	**Mathematical Economics**	100	35	70	25	-	-	30	10
	Eco.305(iv)	**Econometrics**	100	35	70	25	-	-	30	10
Semester: IV										
			Total Marks	**Min.Marks**	**Max. Marks**	**Min.Marks**	**Max. Marks**	**Min.Marks**	**Max. Marks**	**Min.Marks**
Sr. No.	**Paper Code**	**Paper Title**	**Theory**		**Theory Marks**		**Practical Marks**		**Assessment**	
IV	**Eco.-401**	**Political Economy of Development-II**	100	35	70	25	-	-	30	10
IV	**Eco.-402**	**Evolution and Structure of Indian Economy-II**	100	35	70	25	-	-	30	10
IV	**Eco.-403**	**Public Economics- II**	100	35	70	25	-	-	30	10
	Eco- 404: Any one of The following paper									
	Eco.-404(i)	**International Economics**	100	35	70	25	-	-	30	10
	Eco.-404(ii)	**Computer Applications for Economists -I**	100	35	70	25	-	-	30	10
IV	**Eco.404(iii)**	**Regional Economics and Punjab Economy**	100	35	70	25	-	-	30	10
	Eco- 405: Any one of The following paper									
	Eco.-405(i)	**Money and Banking**	100	35	70	25	-	-	30	10
	Eco. 405(ii)	**Theory of Statistics**	100	35	70	25	-	-	30	10
	Eco.-405(iii	**Mathematical Economics**	100	35	70	25	-	-	30	10
IV	**Eco.405(iv)**	**Econometrics**	100	35	70	25	-	-	30	10

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6.Ms Ruby Kaushal

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MA Economics

Part II

Semester III
Semester IV

Member's Signature:

Balwinder

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ECONOMICS
POLITICAL ECONOMY OF DEVELOPMENT-I

			Code: ECO-301	**Total Marks :100**
L	**T**	**P**		**External Marks : 70**
4	**1**	**0**		**Internal Marks : 30**
Time Allowed: 3 hours				**External Pass Marks: 25**
(Credit Hours – 60 L+15 T)				**Internal Pass Marks: 10**

Objective: Political economy perspectives can help in developing greater clarity about the forces promoting and impeding better development outcomes and to focus on what smart contributions could be made to strengthen existing or potential drivers of progress.

INSTRUCTIONS TO THE PAPER-SETTER

The question paper will consist of three sections: A, B and C. Sections A and B will have four questions each. Each question shall carry 10 marks. Section C will consist of 10 short-answer type questions which will cover the entire syllabus uniformly and will carry 30 marks in all. Each short answer type question will carry 3 marks. The candidate are required to give answer of each short type question in about 100 words.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each of the Section A and B and the entire section C.

SECTION-A

Scientific Socialist World Outlook: World outlook, Idealism and Materialism, Metaphysics and Dialectics, Laws of dialectics, Categories of philosophy, Theory of cognition.

Dialectical and Historical Materialism: Its theory and method, Dialectical materialism (Materialistic conception of human/social history), Nature and role of contractions.

Mode of Production and Social Superstructure: Factors constituting and forces governing modes of production, Social superstructure and its elements, Dialectical interaction of base and superstructure, About economic development, social transition and system transformation. Development through Social Formations.

Historical Social Formations: Rise of private property, Classes and the State, Distinguishing features of Primitive Communism/ Society, Slavery, Feudalism/serfdom, Capitalism/Imperialism and Socialism/Communism.

Asiatic Mode of Production: The concept and controversy, Characteristics of Asiatic mode. Its specific nature.

SECTION-B

Non-Marxian Theories of Development. Critique of the Bourgeois Economics:Basic assumptions, Theoretical gaps, Unscientific theoretical gaps, Unscientific theoretical structure, Inadequate guide to practice.

Mode of Punjab Economy: Its social implications, Genesis of economic development in Punjab, towards industrialization urbanization and socialization. Transition from Agrarian to Industrial Economy.

T.W. Schultz; Transformation of Traditional Agriculture: The problem, the associative efficiency, Farm size, control and incentives, Role of technological change and investment in

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human agent, A Critique.

Joseph A. Schumpeter; Nature & process of Capitalist Development: Framework of Analysis, Prime factors in development, Nature of development, Process of decline/end, A Critique.

W .W. Rostow; Transition to Capitalism through stages of Growth: The traditional society, The pre-conditions for take -off, The take-off, The drive to maturity, The age of high mass consumption, A critique.

RECOMMENDED READINGS

1. Karl Marx & F. Engels : Manifesto of the Communist Party, Progress Publishers, Moscow, 2nd edition, pp. 34-74 (1848)
2. Joseph Stalin : Dialectical Materialism, National Book Agency, Pvt. Ltd., Calcutta, pp.5 to 48.(1978)
3. Maurice Cornforth : Dialectical Materialism, National Book Agency, Pvt. Ltd. , Calcutta, 3rd edition, Vol. 1, Chs. 2-9, Vol. II, Chs. 3-10.(1971)
4. John Eaton : Political Economy, International Publishers, New York, revised edition, Chps. 2-11.(1966)
5. J.A. Schumpeter : Theory of Economic Development & Capitalism, Socialism and Democracy.(1942)
6. W.W. Rostow : The Stages of Economic Growth, Cambridge University Press, 2nd edition, Chs. 1,2 and 10. (1960)
7. T.W. Schultz : Transforming Traditional Agriculture, Lyall Book Depot, Ludhiana, Ist Indian edition, Chs. 1-12. (1929)
8. Paul M. Sweezy : The Theory of Capitalist Development, K.P.Bagchi & Co., New Delhi, Ist Indian reprint, ,Chps. 1,2,4,5,6,8,9,14,15 & 17.(1988)
9. V.I. Lenin : Imperialism: The Highest Stage of Capitalism,Progress Publishers, Moscow, 17th ed., Chs. 1 to 10 or Lenin's Collected Works(1963)
10. Andre Gunder Frank : On Capitalist Underdevelopment, Oxford University Press, Delhi.(1975)
11. Balbir Singh : Vikas di Rajnitik Arthikta, Publication Bureau, Punjabi University, Patiala.(2018)
12. John S. Augustine (ed.) : Punjab Economy of Punjab: Some Fundamental Issues(menogragh), Department of Economics, Punjabi University, Patiala.(1983)

SUPPLEMENTARY READINGS

1. Karl Marx : Capital, Vol, I Progress Publishers, Moscow, Chs. I,V,VII &VIII.(1867)
2. Paul A, Baran : The Political Economy of Growth, People's Publishing House, New Delhi, Indian edition, Chs. 12,5 & 8.(1962)
3. Leo Huberman : Man's Worldly Goods, People's Publishing House, New Delhi, Ist Indian edition (reprint), Parts I and II.(1935)
4. G.M.Meier (ed.) : Leading Issues in Development Economics, Oxford University Press , New York, pp.,3-47.(1964)
5. Ernest Mandel : Marxist Economy Theory, Rupa & Co., Delhi, 2nd edition.(2008)
6 Maurice Dobb, Routledge& Kegan Paul : Studies in the Development of Capitalism, Chs, 1 to 6.(1963)
7. Harry Madgoff : The Age of Imperialism, Monthly Review Press, 2nd edition New York and London.(1970)
8. R.S. Johar and J.S. : Studies in Punjab Economy. Guru Nanak Dev University,

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Khana (ed.) Amritsar.(1983)

9. G.K Chadha : The State and Rural Economy Transformation:A Case of Punjab 1950 -85, Sage Publications, New Delhi. (1989)

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EVOLUTION AND STRUCTURE OF INDIAN ECONOMY-I

Code: ECO-302 **Total Marks :100**
L T P **External Marks : 70**
4 1 0 **Internal Marks : 30**
Time Allowed: 3 hours **External Pass Marks: 25**
(Credit Hours – 60 L+15 T) **Internal Pass Marks: 10**

Objective: To check how inequalities of income and wealth reduced and provide equal opportunities for all, how planning is done and what is the role of Indian planning, to study the basic structure of the Indian Economy.

INSTRUCTIONS TO THE PAPER-SETTER

The question paper will consist of three sections: A, B, and C. Sections A and B will have four questions each. Each question shall carry 10 marks. Section C will consist of 10 short-answer type questions, which will cover the entire syllabus uniformly and will carry 30 marks in all. Each short answer type of question will carry 3 marks. The candidate is required to answer each short type question in about 100 words

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each of the Section A and B and the entire section C.

SECTION-A

Economic Development during 1857-1947: Evolution of the land tenure system. Commercialization of agriculture. The trend towards a market economy. Demographic development. Rural indebtedness. Role of foreign capital. Economic consequences of British Rule. Need for planned economic development.

SECTION-B

Agrarian reforms: New Agricultural strategy and green revolution. Production structure of Indian agriculture. Terms of trade between agriculture and industry. Development of irrigation. Nature and extent of industrialization in India. Existing production structure of the industry.

Industrial policy, 1948: Economic Reforms. Growth of large industrial houses. MSMED Act, 2006.

Role of planning commision in plan formulation.

NITI Aayog: Introduction, Objectives, Composition and Functions. Role of public and private sectors in India.

RECOMMENDED READINGS

1.	Jagdish, N. Bhagwati & Sukhamoy Chakravarty	:	Contributions to Indian Economic Analysis: A survey.(1969)
2.	Krishna Bhardwaj	:	Production Conditions in Indian Agriculture, Cambridge University Press.(1974)
3.	D.R.Gadgil	:	The Industrial Evolution in India in Recent Times: 1862-1939; Oxford University Press.
4.	P.C.Joshi	:	Land Reforms in India, Vikas Publishing Co.(1982)
5.	David Lehmenn (ed)	:	Agrarian Reforms and Agrarian Reformism.(1980)
6.	V.B. Singh (ed)	:	Economic History of India 1952-1957, allied Publishers.

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7. Charan D. Wadhwa : Some problems of India's Economic Policy, Tata Mc Graw Hills Publishing Co.(1978)
8. Ruddar Datt & KP.M Sudharam : Indian Economy, S. Chand & Co.(2004)
9. Romesh Dutt : The Economic History of India, Vols. I &II(1994)
10. Surendra J. Patel : Agricultural Labourers in Modern India and Pakistan.(1952)

SUPPLEMENTARY READINGS

1. M.K.Chaudhary : Trends of Socio-Economic Changes In India
2. S.Katovsky : Reforms in India.(2019)
3. Charan Singh : India's Economic Policy: The Gandhian Blue-Print, Vikas Publishing House.(1978)
4. Daniel Thorner : The Agrarian Prospects in India.(1956)
5. E.M.S. Namboodripad : Economics and Politics of India's Socialist Pattern, Chaittnay Publications.(1975)
6. Premit Chaudhry : Some Aspects of India Development, George Allen & Unwin, Bleckie (1933)
7. K.N. Raj : India, Pakistan and China: Economic Growth and Outlook. (1951)
8. Bhawani Sen : Evolution of Agrarian Relations of India, People's Publishing House.(1956)
9. P. Singh & V.B. Singh (ed.) : Social and Economic Change: Poverty and Social Change, A Study in the Economic Reorganization of Indian Rural Society, Macmillan Press.(2012)
10. Theodor Bergmann : Agrarian Reforms in India, Agricole Publishing Academy.(1984)
11. Sukhamoy Chakravarty : Development Planning: The Indian Experience, 1987,Oxford.
12. Terence J. Byres (ed.) : The State, Development Planning and Liberalization in India, Oxford, 1999.

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PUBLIC ECONOMICS-I

Code: ECO-303

L	T	P	
4	1	0	

Total Marks :100
External Marks : 70
Internal Marks : 30
External Pass Marks: 25
Internal Pass Marks: 10

Time Allowed: 3 hours
(Credit Hours – 60 L+15 T)

Objective: Public sector economics is concerned with justifying the existence of governments and explaining how they can affect economic activity. Traditionally, public-sector economics has been involved with the study of how governments can deal with the failure of markets to achieve efficient outcomes.

INSTRUCTIONS TO THE PAPER-SETTER

The question paper will consist of three sections: A, B, and C. Sections A and B will have four questions each. Each question shall carry 10 marks. Section C will consist of 10 short-answer type questions, which will cover the entire syllabus uniformly and will carry 30 marks in all. Each short answer type of question will carry 3 marks. The candidate is required to answer each short type question in about 100 words.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each of the Section A and B and the entire section C.

SECTION-A

Changing perspective about the Role of the Government. The government in a mixed economy; public and private sector, cooperation or competition; Government as an agent for economic planning and development; Private goods, public goods, and merit goods; Market failure and imperfections; decreasing costs, externalities of public goods.

Public Choice & Rationale of Public Policy: Private and Public mechanism for allocating resources; Problems of preference revelation and aggregation of preferences; Voting systems; Arrow impossibility theorem. Allocation of resources-provision of public goods; Market Voluntary exchange models; Achieving Social goals: poverty alleviation; provision of infrastructural facilities, removing distributional inequalities and regional imbalances. Sources of Public Revenue.

SECTION-B

Taxation: Theory of incidence: Alternative concepts of incidence; Taxable capacity: Meaning and determinants, Effects of taxation-tradeoff between equity and efficiency. Theories of taxation: Benefit and ability to pay approaches. The problem of double taxation.

Public Expenditure: Rationale for the growth of public expenditure, Wagner's law of increasing state activities: Wiseman-Peacock hypothesis; Pure theory of public spending. Planning and Programme budgeting and Zero Base budgeting. Incidence and Effects of Public Expenditure.

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BASIC READINGS LIST

1. Gupta J.R. And Harvinder Kaur : Punjabi Suba (Sarabjanak Arthvigyan) Century, Patiala Latest Edition (Regional Language)(2019)
2. Buchanan, J.M. : The Demand and Supply of Public Goods. Rand Mc Nally, Chicago.(1968)
3. Mueller, D.C : Public Choice, Cambridge University Press, Cambridge.(2003)
4. Stiglitz, J.E. : Economics of Public Sector, Norton, New York.(2015)
5. Atkinson, A.B. and J.E. Siglitz : Lectures on Public Economics, Tata Mc Graw Hill, New York.(1980)
6. Auerbach, A.J. and M. Feldstern (eds.) : Handbook of Public Economics. Vol. 1, North Holland, Amsterdam.(1985)
7. Buchanan, J.M. : The Public Finances, Richard D. Irwin, Homewood.(1958)
8. Goode, R. : Government Finance in Developing Countries, Tata Mc Graw Hill, New Delhi.(1986)
9. Houghton, J.T. : The Public Finance: Selected Readings, Penguin, Harmondsworth,(1990)
10. Jha, R. : Modern Public Economics, Routledge, London(1998)
11. Menutt, P. : The Economics of Public Choice, Edward Elgar, U.K.(2002)
12. Musgrave, R.A : The Theory of Public Finance, McGraw Hill Kogakusha, Tokyo.(1989)
13. Musgrave, R.A. and P.B. Musgrave : The Theory of Public Finance, McGraw Hill Kogakhusa, Tokyo.(1989)
14. Shoup, C.S : Public Finance, Aldine, Chicago.(1969)
15. Shome, P (ed.) : Tax Policy: Handbook, Tax Division, Fiscal Affairs Department, International Monetary Fund, Washington D.C.(2016)
16. Myles G.D : Public Economics, Cambridge university Press, U.K,2008
17. John Leach, : A Course in Public Economics, cambridge University Press, U.K,2004
18. Salanie B : The Economics of Taxation, MIT Press(US),2011

ADDITIONAL READING LISTS

1. Dorfman, R.(ed.) : Measuring the Benefits of Government Investment, Brookings Institution, Washingtion.(1967)
2. Duff; L. : Government and Market, Orient Longman. New Delhi.(1997)
3. Friedman, A : Welfare Economics; and Social Choice Theory, Martins; Nijhoff, Boston.(1980)
4. Glennester, H. and J. Hills : The State of Welfare: The Economic and Social spending, Oxford University Press, London.(1995)
5. Cornes, R. anT. Sandler : The Theory of Externalities, Public Goods and Club goods, Cambridge University Press, Cambridge.(1996)
6. Dutt. L. : Government and Market, Orient Longman, New Delhi.
7. Herber, B.P. : Modern Public Finance, Richard D. Irwin. Homewood.(1967)
8. Spulber, N : Redefining the State, Cambridge University Press,

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6.Ms Ruby Kaushal

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			Cambridge.(1997)
9.	Gupta J.R.	:	Burden of Tax in Punjab, Concept Publishing Company, New Delhi.(1983)
10.	Mishan E.J.	:	Cost-benefit Anaysis: An Informal Introduction. George Allen and Unwin, London.(1971)
11.	Peacock, A. and D.J. Robertson (eds.)	:	Public-Expenditure: Appraisal and Control, Oliver and Boyd, Edinburgh.(1963)
12.	Phyrr. P.	:	Zero Base Budgeting: A Practical Management(1977)
13.	Premachand, A	:	Control of Public Expenditure in India, Allied Publishers, New Delhi.(1966)
14.	Sahni, B.S. (ed.)	:	Public Expenditure Analysis: Selected Readings, Rotherdam University Press.(1972)
15.	Bird. R. and O. Oldman	:	Readings on Taxation in Developing Countries, The John Hopkins University Press, Baltimore.(1956)
16.	Cutt. J.	:	Taxation and Economic Development in India,(1969)
17.	Frederic A	:	Praegar Publishers, New York.(1994)

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Any two of the following:

INTERNATIONAL ECONOMICS

Code: ECO-304 (i) **Total Marks :100**

L	T	P	
4	1	0	

External Marks : 70
Internal Marks : 30
Time Allowed: 3 hours **External Pass Marks: 25**
(Credit Hours – 60 L+15 T) **Internal Pass Marks: 10**

Objective: It helps in assessing economic and political effects and the implication to the international trade for goods and services, finance, and foreign investment.

INSTRUCTIONS TO THE PAPER-SETTER

The question paper will consist of three sections: A, B, and C. Sections A and B will have four questions each. Each question shall carry 10 marks. Section C will consist of 10 short-answer type questions, which will cover the entire syllabus uniformly and will carry 30 marks in all. Each short answer type of question will carry 3 marks. The candidate is required to answer each short type question in about 100 words

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each of the Section A and B and the entire section C.

SECTION-A

Pure Theory of International Trade: Classical, Comparative cost advantage, Opportunity cost, and factor-endowments. Theory of factor price equalization, reciprocal demand, offer curve analysis, and determination of international prices.

New Theories of International Trade: Market structure, economies of scale, intra-industry trade, product differentiation, and technology.

Gains from trade and their distribution: Terms of trade, concepts and measurement. Secular deterioration thesis of terms of trade. Emmanuel's theory of unequal exchange.

SECTION-B

Commercial policy: Free trade vs protection. Theory of tariffs: effects of tariffs; partial and general equilibrium analysis. Optimum and effective rates of tariffs. Stolper Samuelson theorem. Political economy of non-tariff barriers.

Theory of regional economic integration: Forms of integration, static and dynamic effects of customs union. Bilateral and Multilateral agreements. UNCTAD, GATT and WTO. Regional economic grouping: EU,SAARC, NAFTAand BRICS.

RECOMMENDED READINGS

1.	A.E.A (ed.)	:	Readings in Theory of International Trade, George Allen & Unwin, 1970.
2.	Jadish N. Bhagwati (ed.)	:	International Trade, Penguin, London, 1969.
3.	Bo Sodersten & Geoffrey Reed	:	International Economics, Macmillian, London. 1994.

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4. C.P. Kindleberger : International Economics, Richard Irwin, 1973, IIIinois.
5. I.F.Pearce : International Trade Book I and II. Norton, N.Y. 1970.
6. Sidney J. Wells : International Economics, George Allen & Unwin, London, 1996.
7. R.S.Ghuman : International Economics (Punjabi) Publication Bureau, Punjabi University, Patiala, 1996.
8. Dominic K. Salvatore : International Economics , John Wiley and Sons. 7th edition, Singapore, 2001.
9. Paul Krugman and Maurice : International Economics: Theory and Policy, Addison Wesley Longman, Singapore, Indian Re-print, 2000.

SUPPLEMENTARY READINGS

1. Anbne C. Kruger : WTO As an Organization, Oxford University Press, Delhi, 1999.
2. Robert Heller: : International TradeTheory and Empirical Evidence. Prentice Hall, N.J. 1973.
3. S.Mookerjee : Factor Endowments and International Trade, Asia Publishing House, Bombay, 1958.
4. J.Vanek: : International Trade Theory and policy, Richard Irwin, IIIinois, 1962.
5. J.E. Meade : Theory of Customs Union, North Holland Publishing Co., Amesterdam, 1955.
6. V.N. Balasuramanyam (ed.) : Writings of International Economics by Jagdish Bhagwati, Oxford University Press, Mumbai; 1998.
7. David Greenway and L.A Winters (ed.) : Survey in International Trade, Blackwell, Oxford, 1994.

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COMPUTER APPLICATIONS FOR ECONOMISTS–I

Code: ECO-304 (ii) **Total Marks :100**

L	**T**	**P**	**External Marks : 70**
4	**1**	**0**	**Internal Marks : 30**

Time Allowed: 3 hours **External Pass Marks: 25**
(Credit Hours – 60 L+15 T) **Internal Pass Marks: 10**

Objective: This course is useful for recording and storing economic information, especially when it pertains to a small group (such as a business) or an individual. It can be utilized in research of trends, prices, sales, and more. It can be even used to set various transactions. It also helps in calculating degree of correlation between variables

INSTRUCTIONS TO THE PAPER-SETTER

The question paper will consist of three sections: A, B and C. Sections A and B will have four questions each. Each question shall carry 10 marks. Section C will consist of 10 short-answer type questions which will cover the entire syllabus uniformly and will carry 30 marks in all. Each short answer type question will carry 3 marks. The candidate are required to give answer of each short type question in about 100 words

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each of the Section A and B and the entire section C.

SECTION-A

Computer Fundamentals: Basic Computer Organization. Evolution of computers; steps in problems solving on a computer and basic computer terminology: input and output devices, storage devices.

Introduction to Software: Computer software and its types. Planning a computer program. Computer programming languages. Operating system-functions and types; commonly used DOS Commands, Broad Structure of a Statistical/ econometric package.

SECTION-B

Algorithm and Interpretation of Result: Simple Karl Pearson's Correlation; Two Variable regression, Multivariate Regression. Analysis of Variance.

Multiple Regression Analysis: Meaning, Objective, Research design of multiple regression analysis, assumptions, method and algorithm of estimation and overall model fit; Interpretation of regression output, validation of results.

BASIC READINGS

1.	V. Rajaraman	:	Fundamentals of Computers, P-III (2014)
2.	P.K.Sinha	:	Computer Fundamentals, BPB.(2018)
3.	E. Balaguruswamy	:	Computer Oriented Statistical and Numerical Mehods. Macmillan.(2000)
4.	Johan Methew	:	Numberical Methods, P-III(2000)
5.	Manuals of various packages.		

Member's Signature:

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Balwinder Singh

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4. Dr. Sharanjit Singh Dhillon

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PG Department of Economics
SGTB Khalsa College SriAnandpur Sahib, Ropar (Punjab)

REGIONAL ECONOMICS AND PUNJAB ECONOMY

Code: ECO-304 (iii) **Total Marks :100**

L	**T**	**P**	**External Marks : 70**
4	**1**	**0**	**Internal Marks : 30**
Time Allowed: 3 hours			**External Pass Marks: 25**
(Credit Hours – 60 L+15 T)			**Internal Pass Marks: 10**

Objective: To study its flashback which shows that it had an eminent role in economic progress of India and its contribution to agriculture and to Indian economy was remarkable.Punjab is one of the prominent northern agrarian State of India.

INSTRUCTIONS TO THE PAPER-SETTER

The question paper will consist of three sections: A, B and C. Sections A and B will have four questions each. Each question shall carry 10 marks. Section C will consist of 10 short-answer type questions which will cover the entire syllabus uniformly and will carry 30 marks in all. Each short answer type question will carry 3 marks. The candidate are required to give answer of each short type question in about 100 words

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each of the Section A and B and the entire section C.

SECTION-A

Concept of Region: Type of region-homogeneous, nodal, programming, administrative and natural regions.

Regional Allocation of resources:Balanced regional development; Regional linkage-spread and backwash effects; Convergence and Divergence.

SECTION-B

Transport costs and location: Weber's theory of location; Locational and weight triangles; Locational interdependence.

Urban Development: Regional imbalance in India; Regional planning; Rural urban inequality; Growth poles and development process.

RECOMMENDED READINGS

1.	Richardson, Harry W., (1976)	:	Regional Economics, Weidenfeld
2.	Isard, Welter, (1976),	:	Methods of Regional Analysis, The M.I.T. Press Massachusetts and London, England, Chaps, 4,6,7,9 & 11.
3.	Smith, David, (1971),	:	Industrial Location: An Economic Geography Analysis, Hohn Wiley, New York.

SUPPLEMENTARY READINGS

1.	Parioff, Harvey et. al.	:	Regions, Resources and Economic Growth. University of Nebraska Press, Lincoin USA. Part II, pp.55-104.(1976)
2.	Needleman,L., (ed.), 1968)	:	Regional Economics, Penguin Books Ltd., Part-II, Cha. 4.
3.	Isard, Walter, (1956)	:	Location and Space Economy, Cambridge, Mass: MIT Press.
4.	Hoover, Edgar M.	:	An Introduction to Regional Economics. New York. Alfred A. Knopf, 2nd edition.(1971)

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MONEY AND BANKING

Code: ECO-305 (i) **Total Marks :100**

L	**T**	**P**	
			External Marks : 70
4	**1**	**0**	**Internal Marks : 30**

Time Allowed: 3 hours **External Pass Marks: 25**
(Credit Hours – 60 L+15 T) **Internal Pass Marks: 10**

Objective: The objective of this paper is to acquaint the students with the concepts, operations, and role of money and banks. The aim is to study and appreciate their key role,especially after the implementation of economic reforms. The paper integrates theory, institutions and policy.

INSTRUCTIONS TO THE PAPER-SETTER

The question paper will consist of three sections: A, B and C. Sections A and B will have four questions each. Each question shall carry 10 marks. Section C will consist of 10 short-answer type questions which will cover the entire syllabus uniformly and will carry 30 marks in all. Each short answer type question will carry 3 marks. The candidate are required to give answer of each short type question in about 100 words

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each of the Section A and B and the entire section C.

SECTION-A

Money: Origin, Kinds, Functions, Near Money.

Theory of Money: Classical quantity theory of money: Keynesian theory: contribution of Tobin; Modern quantity theory (Friedman's Restatement):Liquidity theory of money (Radcliffe-Sayers and Gurley-Shaw thesis).

Supply of Money: Measures of Money supply, H-theory of money supply: (High powered money, money multiplier process, factors affecting high powered money).

SECTION-B

Commercial Banks: Definition, Classification, functions (including credit creation and its control). Theories of commercial banking, innovations in commercial banking services.

Demonetisation: Concept, Logic, Impact on Economy.

Non-Bank Financial Intermediaries: Definition, types, impact on India’s economic development, measures taken to control their operations.

BASIC READINGS LIST

1.	Suraj B. Gupta	:	Monetary Economics-Institutions, Theory and Policy. S.Chand and Company Ltd. Delhi,2003
2.	Dudley G. Luckett:	:	Money and Banking.Mcgraw Hill, 1976.
3.	Jayati Ghosh, C.P.Chandrasekhar and Prabhat Patnraik	:	Demonetisation Decoded. A Critique of India’s Currency Experiment. Routledge, New York,2017.
4.	Fred R. Glahe	:	Macroeconomics.Harcourt Brace Jovanovich,1985.
5.	H.R. Suneja	:	Innovations in Banking Services.Himalaya Publishing House,1994
6.	C.Rana Manohar Reddy	:	Demonetisation and Black money.Orient Blackswan (2018)
7.	Ramagopal Agarwala	:	Demonetisation: A Means to an End. Sage Publications (2017)

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SUPPLEMENTARY READINGS

1. R. Glenn Hubbard : Money, the Financial System and the Economy.(2007)
2. Ritter and Silber : Principles of Money, Banking and Financial Markets.(2008)
3. H.R. Machiraju : Indian Financial System.(2018)
4. R.W. Clower : Monetary Theory.(1973)
5. Srivastava, R.M : Management of Indian Financial Institutions.(1991)
6. Gurley G.J. and S.E Shaw : Money in a Theory of Finance.(1975)
7. Radcliffe : Report of Committee on the Working of Monetary System..(1959)

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THEORY OF STATISTICS

Code: ECO-305 (ii) **Total Marks :100**

L	**T**	**P**	
4	**1**	**0**	

External Marks : 70
Internal Marks : 30
Time Allowed: 3 hours **External Pass Marks: 25**
(Credit Hours – 60 L+15 T) **Internal Pass Marks: 10**

Objective: The aim of this course is to introduce students with the Mathematical concepts and methods used to analyse correlation, regression and attributes. The primary goal is to strengthen student's solving techniques and reasoning skills by studying probability and applications of distributions.

INSTRUCTIONS TO THE PAPER-SETTER

The question paper will consist of three sections: A, B and C. Sections A and B will havefour questions each. Each question shall carry 10 marks. Section C will consist of 10 short-answer type questions which will cover the entire syllabus uniformly and will carry 30 marks inall. Each short answer type question will carry 3 marks. The candidate are required to give answerof each short type question in about 100 words

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each of theSection A and B and the entire section C.

SECTION-A

Regression Analysis: Multiple regression and correlation. Partial regression and correlation. Step-wise regression analysis and Dummy dependent variable regression analysis.
Theory of attributes: Basic ideas, Association of attributes (excluding partial association); Manifold classification and coefficient of mean square contingency.
Curve fitting: Exponential and logarithmic, Growth curves: Gompertz, Logistic and Pareto type. Time series forecasting.

SECTION-B

Probability: Addition & Multiplication theorems; Conditional probability, Bay's theorem, Properties & application of Normal distribution. General characteristics and applications of Binomial, Poisson, normal distributions.

RECOMMENDED READINGS

1.	F.E. Croxton & D.J. Cowden	:	Applied General Statistics Prentice HallLondon and Prentice Hall of India.(1967)
2.	J.N. Kapur & H.C. Sexena	:	Mathematical Statistics, S. Chand & Co., Pvt. Ltd. New Delhi.(2015)
3.	S.P.Gupta	:	Statistics, Sultan Chand & Sons, New Delhi, 2006.
4.	M.R. Spegial	:	Theory and Problems of Statistics.(1992)
5.	S.C.Gupta & V.K.Kapoor	:	Fundamental of Applied Statistics, Sultan Chand & Sons , New Delhi.(2014)
6.	Mills, F.C	:	Statistical Methods, Henry Hold& Co. New York(1965)
7.	T. Wonnacott& R. Wonnacott	:	Introductory Statistics for Business and Economics. John Wiley & Sons.(1969)
8.	G.U. Yule	:	An Introduction to Theory of Statistics (for theory of attributes).

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OTHER BOOKS

1	J.E. Freund & F.J. Willian	:	Modern Business Statistics, Prentice Hall, Englewood.(1969)
2	P.G.Hoel	:	Elementary Statistics, John Wiley & Sons.(1976)
3	P.H.Carmal	:	Applied Statistics for Economics, Sir Issac Pitman and Sons Ltd. London.(2012)
4	J.B.Freund	:	Mathematical Statistics, Prentice Hall.(2007)
5	A.M. Mood & F.A. Graybill	:	Introduction to the Theory of Statistics. McGraw Hill.(1963)
6	Ya-Lun Chou	:	Statistics Analysis , Hold, Rinehart and Winston, New York.(1989)
7	Taro Yamane	:	Statistics: An Introductory Analysis, Harper and Row, New York.(1973)
8	R.L. Grant	:	Statistical Quality Control, McGraw Hill Book Company, New York. (1996)

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MATHEMATICAL ECONOMICS

Code: ECO-305 (iii) **Total Marks :100**

L	T	P
4	1	0

External Marks : 70
Internal Marks : 30
Time Allowed: 3 hours **External Pass Marks: 25**
(Credit Hours – 60 L+15 T) **Internal Pass Marks: 10**

Objective: The aim of this paper is to introduce students with the Mathematical concepts and methods used to analyse consumer behaviours, producer behaviours and determination of price in various markets.

INSTRUCTIONS TO THE PAPER-SETTER

The question paper will consist of three sections: A, B and C. Sections A and B will have fourquestions each. Each question shall carry 10 marks. Section C will consist of 10 short-answertype questions which will cover the entire syllabus uniformly and will carry 30 marks in all. Eachshort answer type question will carry 3 marks. The candidate are required to give answer of eachshort type question in about 100 words

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each of theSection A and B and the entire section C.

SECTION-A

Theory of Consumer Behaviour: Utility function-Behavioral postulates, nature and existence, demand function, compensated demand function, ordinal and cardinal utility maximization, Slutsky equation for a few and more commodities, traditional and modern derivation and its interpretation, elasticities, linear expenditure function and indirect utility function, Roy's identity, choice and risk, Von-Neuman utility function, Inter-temporal utility maximization, Revealed preference theory- the weak and strong order axioms, integrability problem, the composite commodity theorem.

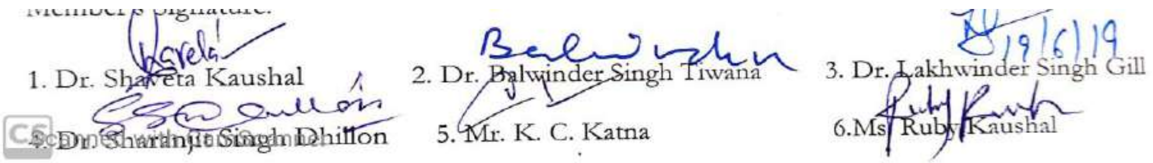
Production Analysis: Homogenous and homothetic production functions, elasticity of substitution, Cobb- Douglas and CES production functions, Output and profit maximization, cost minimization traditional and modern approach, duality in production.

SECTION-B

Market Equilibrium: Price and output determination under perfect competition, monopoly and price discrimination, oligopoly and duopoly, the Cournot-Nash equilibrium. Collusion and Stackleberg model. **Commodity market and factor market equilibrium,**existence and uniqueness of equilibrium, stability of equilibrium, dynamic equilibrium with lagged adjustment, the cobweb model. Multi-market equilibrium. Walras's law and the existence of general equilibrium.

BOOKSRECOMMENDED

1. Henderson, J.M & Quandt, R.B. : Micro Economic Theory: A Mathematical Approach (3rd ed.). (1980)



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2. Allen, R.G.D. : Mathematical Economics. (1974)
3. Silberberg, E. : Mathematical Economics. (1978)
4. Lancaster, V. : Mathematical Economics. (1965)
5. Taka- Yama, A . : Mathematical Economics. (1974)
6. Kogiku, K.C. : Micro Economic Models. (1971)
7. Chiang, A.C. : Fundamental Methods of Mathematical Economics (3rd ed)(1984)
8. Dorfman, R., Samuelson. P. and Sallow, R. : Linear Programming and Economic Analysis. (1968)
9. Quirk, J. and Saposnik, R. : Introduction to General Wquilibrium Theory and Welfare Economics. (1968)
10. Intriligatior, Michel d. : Mathematical Optimization and Economic Theory.. (1971)
11. Varian, H.R. : Mathematical Analysis. (1978)
12. Nehar, Phillips, A. : Economic: Microeconomic Models. (1971)
13. Mahesh Chand & Anand V.K. : Economic Theory -A Mathematical Approach. (1981)

OTHER BOOKS

1. Samuelson, Paul : Foundations of Economic Analysis. (1947)
2. Allen, R.G.D : Macro Economic Theory. (1967)
3. Malinvaud, E.D. : Lecture on Micro Economic Theory. (1972)
4. Pasinetti, L.L. : Lectures on the Theory of Production. (1977)
5. Hicks, J.R. : Value and Capital. (1946)
6. Baumol, N.J. : Economic Dynamics. (1970)
7. Nikaido, H. : Introduction to Sets and Mappingws in Modern Economics. (1972)
8. Luce, R. and Raiffa, H. : Games and Decision (ch. 14). (1957)
9. Todaro, M.P. : Development and Planning Models and Methods. (1971)
10. Baumol, W.J. (4th ed) : Economic Theory and Operations Analysis. (1978)
11. Gale, David : The Theory of Linear Economic Models. (1960)
12. Gauss, S.I. : Linear Programming: Methods and Applications. (1969)

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ECONOMETRICS

Code: ECO-305 (iv)

L	**T**	**P**	**Total Marks :100**
			External Marks : 70
4	**1**	**0**	**Internal Marks : 30**

Time Allowed: 3 hours — **External Pass Marks: 25**

(Credit Hours – 60 L+15 T) — **Internal Pass Marks: 10**

Objectives: The purpose of studying Econometrics is that it explores the relationship between statistical analysis and empirical content. It analyzes economic variables using mathematical models to make predictions and forecasts and to explain consistently occurring incidents.

INSTRUCTIONS TO THE PAPER-SETTER

The question paper will consist of three sections: A, B and C. Sections A and B will have four questions each. Each question shall carry 10 marks. Section C will consist of 10 short-answer type questions which will cover the entire syllabus uniformly and will carry 30 marks in all. Each short answer type question will carry 3 marks. The candidate are required to give answer of each short type question in about 100 words.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each of the Section A and B and the entire section C.

SECTION-A

Basic Econometrics: Meaning and scope of econometrics. Two Variable Linear Regression Model: assumption; Least squares estimation; Gauss Markov Theorem; Inference in the two variable model; Goodness of fit; Concept and derivation of R^2 and adjusted R^2: Concept of analysis; Prediction with two variables; linear regression model.

General Linear Model: General K-Variable Regression ; Model; Matrix formulation of K-variables model; assumptions; Least squares estimation; Properties of least squares estimators; Inference in the K-Variable model; Goodness of fit; prediction; Introduction to fitting of restricted regression.

Specification Error: concept of specification error in K-Variable Linear Equation; Tests for parameter consistency; Tests for structural change. Dummy explanatory variables.

SECTION-B

Problems of Regression Analysis: nature test consequences and remedial steps to the problems of Heteroscedasticity, multicollinearity, auto-correlation and Errors of measurement; Aitkin's Generalized Least Squares estimator.

University Time Series Modeling: Introduction to ARIMA modeling; Properties of ARIMA and ARIMA processes; testing for stationarity; Identification, estimation and Testing of ARIMA (1,1,0) processes.

RECOMMENDED READINGS

1.	Damodar Gujarati	:	Basic Econometrics. McGraw Hill, New Delhi, 2017.
2.	J. Johnston & J. Dinardo	:	Econometric Methods, McGraw Hill, New Delhi, 1997.
3.	Koutsyiannis	:	Theory of Econometrics, Macmillan, New Delhi, 2003.

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SUPPLEMENTARY READINGS

1. J.Johnston : Econometric Methods. McGraw Hill, New Delhi, 1992.
2. L.R.Klien : A textbook of Econometrics, Prentice Hall, New Delhi, 1978.
3. G.S.Maddala : Econometrics, McGraw Hill, New Delhi, 1977.
4. K.F. Wallis : Topics in applied Econometrics. Bray Hills, London, 1988.

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POLITICAL ECONOMY OF DEVELOPMENT

Code: ECO-401 **Total Marks :100**
L T P **External Marks : 70**
4 1 0 **Internal Marks : 30**
Time Allowed: 3 hours **External Pass Marks: 25**
(Credit Hours – 60 L+15 T) **Internal Pass Marks: 10**

Objectives of the Paper: Aim to study Political Economy and Development track is that it studies how the interplay between the economic system, politics, and institutions allocates resources and generates incentives.

INSTRUCTIONS TO THE PAPER-SETTER

The question paper will consist of three sections: A, B and C. Sections A and B will have four questions each. Each question shall carry 10 marks. Section C will consist of 10 short-answer type questions which will cover the entire syllabus uniformly and will carry 30 marks in all. Each short answer type question will carry 3 marks. The candidate are required to give answer of each short type question in about 100 words

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each of the Section A and B and the entire section C.

SECTION-A

Marxian Political Economy: Basic Analysis of Capitalism: The context, Approach and methodology, Capitalism and commodity production, Labour and Law of value, Commodity fetishism, Surplus-value, socio-economic crisis Contradictions of capitalist development. Third World (late) capitalism,

Analysis of Capitalist Agriculture: Capitalism in general and capitalism in agriculture. Its essence, manifestations and consequences, Its limitations and contradictions.

Process of Market Mechanism and Planning: Nature of market mechanism, Evolution of planning, Aims and forms of planning, Interaction of planning and market mechanism.

Nature and Process of Development

Nature of Capital Accumulation : Primitive capital (its) accumulation and its methods, Methods of capitalist accumulation and its limits, Methods of primitive social (its) accumulation and its limits, Features of socialist accumulation and its problems.

Process of Reproduction: Nature of reproduction Forms of reproduction, Simple and expanded reproduction, Process of capitalist reproduction and its crisis, Process of socialist reproduction and its implications.

SECTION-B

Imperialism and the Third World: Transition of Imperialism: Origin of capitalism, Rise of monopoly capitalism, context of imperialism, Marxian and non-Marxian approaches, Lenin on imperialism, Colonialism and neo-Colonialism, Methods of neo-colonialism, Forces against imperialism/neo-colonialism.

Third World Underdevelopment: Imperialism and the Third World, Mode of;

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underdevelopment, Methods and process of exploitation, Structure of imperialist globalization, Dependent development in the Third World.

Capitalist Social Planning: The State and capitalist social planning. Its essence, purpose, substance and mode, it's alternative.

Transition of Socialism Dialectics of Transition: General consideration, Basic pre-requisites, Aims of post-revolutionary society (of socialism/communism).

Debate(S) on Transition: Need of a transition(al) period, Economic policies and tasks, Strategy of development.

Post-Revolutionary Society: Characteristics of post-capitalist society, Problems of transition, Structure of production relations under capitalism and socialism.

RECOMMENDED READINGS

1.	Karl Marx & F. Engels (1977)	:	Manifesto of the Communist Party, Progress Publishers, Moscow, 2n edition, pp. 34-74.
2.	John Eaton (1973)	:	Political Economy, International Publishers, New York, revised edition, Chs. 2-11.
3.	Paul M. Sweezy	:	The Theory of Capitalist Development,1991
4.	E. Preobrazhensky	:	The new Economics, Oxford University Press, London, Chas 1&2., 1965
5.	J. WEilczynski	:	The Economics of Socialism, S. Chand & Co. Ltd., New Delhi, Ist ed., Chs. 1 to 15., 1982
6.	V.I. Lenin	:	Imperialism: The Highest Stage of Capitalism, Chs 1 to 10,17th ed, Progress Publishers, Moscow, 1978.
7.	Ranjit Sau	:	Unequal Exchange: Imperialism and Underdeveloped, Oxford University press, Delhi, 1978.
8.	Paul M. Sweezy & Charles Bettelheim	:	On the Transition to Socialism, Monthly Review Press, New York & London. 2nd edition, 1972.
9.	Paul M. Sweezy	:	Post -Revolutionary Society, Cornerstone Publications, Kharagpur, India, 2000
10.	Samir Amin	:	Capitalism in the Age of Globalization, Madhya, Books , Delhi, 1997
11.	Prabhat Patnaik	:	Whatever Happened to Imperialism and other Essays, Tulika, New Delhi, 1995.
12.	Balbir Singh	:	Vikas di Rajnitik Arthikta, Publication Bureau. Punjabi University, Patiala, 2003.
13.	Nirmal s. Azad	:	On the Proletarian State and Socialism (monograph), Department of Economics, Punjabi University, Patiala, 2004.

SUPPLEMENTARY READINGS

1.	Karl Marx	:	Capital, Vol. I. Progress Publishers, Moscow (undated) Chs, I,V,VII& VIII.
2.	Paul A. Baran	:	The Political Economy of Growth, People's Publishing House, New Delhi, Indian edition, Chs,1,2,5 & 8, 1962.
3.	Leo Hubernman	:	Man's Worldly Goods, People's Publishing House,

19/6/19

			New Delhi, Ist Indian edition (reprint), Parts I and I,1969.
4.	Ernest Mandel	:	Marxist Economy Theory, Rupa & Co., Delhi, 2nd editon, 1971.
5.	Maurice Dobb	:	Studies in the Development of Capitalism, Routledge & Kegan Paul, London, Chs. 1to 6., 1978.
6.	Paul A . Baran &P.M . Sweezy	:	Monopoly Capital, Monthly Review Press, 2nd edition New York and London, 1984.
7.	Harry Mid-off	:	The Age of Imperialism, Monthly Review Press , 2nd edition New York and London.1982.
8.	Clive Y. Thomas	:	Dependence and Transformation. The Economics of the Transition of Socialism. Monthly Review Press, New York & London. 2nd modern edition, Chs, 1,2,5,6,9&10, 1976.
9.	Oskar Lange & F.M. Taylor	:	On the Economic Theory of Socialism, Tata McGraw Hill Publishing Company, New Delhi. Indian edition, pp, 39 to 54, 121 to 142, 1976.
10.	Oskar Lange (ed.)	:	Problems of Political Economy of Socialism, People's Publishing House, New Delhi, Indian edition, Chs 1to 4 &14., 1965.
11.	E.L. Wheelwright & Bruce McFarlane	:	The Chinese Road to Socialism, Monthly Review Press, New York & London, Penguin edition, Chs 5,8 & 10.1973.
12.	Mao Tse-Tung	:	A Critique of Soviet Economics, Monthly, Review Press, New York & London, Chs 1 to 5.1977.

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EVOLUTION AND STRUCTURE OF INDIAN ECONOMY-II

Code: ECO-402 **Total Marks :100**

L	**T**	**P**	**External Marks : 70**
4	**1**	**0**	**Internal Marks : 30**

Time Allowed: 3 hours **External Pass Marks: 25**
(Credit Hours – 60 L+15 T) **Internal Pass Marks: 10**

Objective: The aim of this paper is to show the working of banks and markets in India. It also studies the economic development and economic degradation.

INSTRUCTIONS TO THE PAPER-SETTER

The question paper will consist of three sections: A, B and C. Sections A and B will have four questions each. Each question shall carry 10 marks. Section C will consist of 10 short-answer type questions which will cover the entire syllabus uniformly and will carry 30 marks in all. Each short answer type question will carry 3 marks. The candidate are required to give answer of each short type question in about 100 words

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each of the Section A and B and the entire section C.

SECTION-A

Saving and capital formation in Indian Economy: Commercial banking system. Money and capital markets in India. Role of SEBI.
Infrastructure in Indian economy: Energy, Power, Transport and Communication.
Urbanisation in India: Natural Resources. Economic development and environmental degradation.

SECTION-B

Foreign Capital in India: Foreign Direct Investment and Portfolio Investment,
Concentration of economic power: Economic Inequalities, Regional imbalances, Population, Inflation, Black Money.
Current Issues: Impact of global issues on Indian Economy. Atam Nirbhar Scheme

RECOMMENDED READINGS

1.	Jagdish N. Bhagwati &Sukhamoy Chakravarty	:	Contribution to Indian Economic Analysis: Survey.
2.	Krishna Bhardwaj	:	Production Conditions in Indian Agriculture, Cambridge University Press, 1974.
3.	V.B Singh	:	Economic History of India 1857-1957, Allied Publishers, 1965.
4.	Charan D. Wadhwa	:	Some Problems of India's Economic Policy, Tata McGraw Hills Publishing Co., 1973.
5.	Ruddar Datt & K.P.M	:	Indian Economy(67th ed) , S. Chand & Co., 2013

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6.	J. Patel	Agricultural Labourers in Modern India andPakistan, Current Book House, 1952.

SUPPLEMENTARY READINGS

1.	S.C.Jha	Studies in the Development of Capitalism in India, People's Publishing House.
2.	Michael Kidron	Foreign Investment in India, Oxford University Press.
3.	Ranjit Sau	Indian Economic Growth: Constraints and Prospects, Orient Longman.
4.	Premit Chaudhry	Some Aspects of India Development, George Allen &Unwin , Blackie (Index).
5.	K.N.Raj	India: Pakistan and China: Economic Growth and outlook .
6.	B. Singh & V.B.Singh	Social and Economic Change: Poverty and Social Change, a Study in the Economic Reorganization of India Rural Society, Macmillan Press.
7.	Daniel Thomer & Alice Thurner	Labour in India. Vol. 16, 1981.
8.	Arun Kumar	Black Economy in India. 1999, Penguin, New Delhi.
9.	Amit Bhaduri and Deepak Nayar	Intelligent Readers Guide to Liberalization, Penguin, New Delhi. 1996.
10.	Dreze, Jean and Amartya	Economic Development and Social Opportunity , Oxford University Press, New Delhi, 1995.

Member's Signature:

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2. Dr. Balwinder Singh Tiwana
3. Dr. Lakhwinder Singh Gill
4. Dr. Sharanjit Singh Dhillon
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6. Ms. Ruby Kaushal

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PUBLIC ECONOMICS-II

Code: ECO-403 **Total Marks :100**

L	T	P	
4	1	0	

External Marks : 70
Internal Marks : 30
Time Allowed: 3 hours **External Pass Marks: 25**
(Credit Hours – 60 L+15 T) **Internal Pass Marks: 10**

Objective: The objective of studying this course is that it tells us about public debts, redemption methods and policies used to reduce the budgetary deficits. This paper also explains the various tax systems prevailing in India.

INSTRUCTIONS TO THE PAPER-SETTER

The question paper will consist of three sections: A, B and C. Sections A and B will have four questions each. Each question shall carry 10 marks. Section C will consist of 10 short-answer type questions which will cover the entire syllabus uniformly and will carry 30 marks in all. Each short answer type question will carry 3 marks. The candidate are required to give answer of each short type question in about 100 words

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each of the Section A and B and the entire section C.

SECTION-A

Public Debt: Classical view of public debt; Compensatory aspect of debt policy; Classification of public debt; effects of public debt. Burden of public debt. Principles of debt management. Methods of debt redemption.

Fiscal Policy: Objectives of fiscal policy- full employment, anti-inflation, economic growth, redistribution of income and wealth; Interdependence of fiscal and monetary policies; Budgetary deficits and their implications. Balanced budget multiplier.

SECTION-B

Fiscal Federalism: Principles of multi-unit finance; Fiscal federalism in India-constitutional provisions and challenges; Assignment of functions and sources of revenue; Finance Commission and Planning Commission. Reports of Finance Commission in India- Criteria for transfer of resources; Centre-state financial relations in India; Problems and prospects; Transfer of resources from Union to States and local bodies.

Indian Public Finances: Indian tax system, Revenue of the Union, State and local bodies; Major taxes in India: taxation of agriculture, expenditure tax, VAT and taxes on services; Elementary Introduction to GST, Analysis of Centre and State government budgets. Trends in public expenditure and public debt; Fiscal crisis and fiscal sector reforms in India.

BASIC READINGS LIST

1. Musgrave, R.A and Masgrace. P.B. : Public Finance in Theory and Practice, McGraw Hill, Kogakusha, Tekye,1976.
2. Shoup, C.S. : Public Finance, Aldine, Chicago, 1970.

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3. **3.** Kaldor, N. : An Expenditure Tax, George Allen and Unwin; London.1955.
4. Musgrave R.A and C. Shoup : Readings in the Economics of Taxation, George Allen and Unwin, London.
5. Barman, K. : Public Debt Management in India, Uppal Publishing House, New Delhi, 1986.
6. Buchanan J.M. : Public Principles of Public Debt. A Defence And Restatement. Richaard D Irwin Homewood, 1958.
7. Ferguson, J.M. : Public Debt and Future Generations, North Carolina University Press. Chapel Hill, 1964.
8. Sreekantaradhya, B.S : Public Debt and Economic Development in India, New Delhi, 1972.
9. American Economic Association : Readings in Fiscal Policy, George Allen and Unwin, London, 1955.
10. Government of India : Long Term Fiscal Policy, New Delhi, 1985.
11. Gupta J.R. : Fiscal Deficits of State in India, Atlantre Publishers. Publishers, 2001.
12. Peacock, A and G.K, Shaw : The Economic Theory of Fiscal Policy, George Allen and Unwin, London, 1976.
13. Bhargave, R.N. : The Theory and Working of Union Finance in India Chatanya Publishing House, Allahabad, 1967.
14. Bhargava, P.K. : Centre State Resouce Transfers in India. The Academic Press. Gurgaon, 1982.
15. Chelliah, Raja J. : Trends and Issues in India's Federal Finance, National Institute of Public Finance and Policy, New Delhi, 1981.
16. Gulati, I.S. : Centre State Financial Relations: An assessment of the Role of Finance Commission, M.S. University of Baroda, Baroda, 1979.
17. Lakdawala; D.T. : Essays in Fiscal Federalism, Greenwood West Port, 1977.
18. Oates, W.E. : Fiscal Federalism, Harcourt Brace and Johanowich, New York, 1972.

Reports of various Finance Commission.

1. Srivastava, D.K. : Fiscal Federalism in India, Har-Anand Publication Ltd. New Delhi. (2000)
2. Myles G.D : Public Economics, Cambridge university Press, U.K,2008
3. John Leach : A Course in Public Economics, cambridge University Press, U.K,2004
4. Salanie B, : The Economics of Taxation, Mit Press,2011
5. Gupta J.R. And Harvinder Kaur : (Sarabjanak Arthvigyan) Century, Patiala Latest Edition (Regional Language)

ADDITIONAL READING LIST

1. Bhargava, R.N. : Indian Public Finances, B.D. Bhargava and Sons, Chandausi,1969.
2. Bhargava P.K : Taxation of Agriculture in India. Vora and Co. Bombay.1976.

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3. Bhargava, P.K : Some Aspects of Indian Public Finances, Uppal Publishing House, New Delhi, 1984.
4. Chelliah, R.J. : Towards Sustainable Growth, Oxford University Press, New Delhi, 1977.
5. Gandhi , V.P . : Some Aspects of India's Tax Structure, Vora and company, Bombay, 1970.
6. Government of India : Reports of the Tax Reforms Committee Interim and Final (Chairman: Raja J. Chelliah), 1992.
7. Jain , A.K. : Taxation of Income in India, Macmillan Company of India Ltd. , New Delhi, 1975.
8. Jain.I . : Resource Moblization and Fiscal Policy in India, Deep & Deep Publication, New Delhi, 1988.
9. Kumar, A : Public Finance Policy: Issues for India, Oxford University Press, New Delhi, 1999.
10. Sinch T. : The Corporation Tax in India, Classical Publishing company, New Delhi, 2000.

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INTERNATIONAL ECONOMICS-II

Code: ECO-404 (i) **Total Marks :100**

L	T	P	
4	1	0	

External Marks : 70
Internal Marks : 30
Time Allowed: 3 hours **External Pass Marks: 25**
(Credit Hours – 60 L+15 T) **Internal Pass Marks: 10**

Objectives of the Paper: This paper aims at showing the economic interactions of a nation and its consequences on international issues. It also helps in assessing economic and political effects and the implication to the international trade for goods and services, finance and foreign investment.

INSTRUCTIONS TO THE PAPER-SETTER

The question paper will consist of three sections: A, B and C. Sections A and B will have four questions each. Each question shall carry 10 marks. Section C will consist of 10 short-answer type questions which will cover the entire syllabus uniformly and will carry 30 marks in all. Each short answer type question will carry 3 marks. The candidate are required to give answer of each short type question in about 100 words

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each of the Section A and B and the entire section C.

SECTION-A

Foreign Exchange Market: Organization, SWIFT and functions. Exchange Rate: Spot and forward, fixed and flexible, Foreign exchange risks, hedging and speculation, Foreign exchange options and futures, Determination of exchange rate: Mint parity, purchasing power parity, monetary approach and portfolio balance. Optimum currency areas.

Balance of payments: Concepts and components, Equilibrium and disequilibrium in balance of payments. Adjustments under different exchange rate systems. Policy for correcting disequilibrium in balance of payments: expenditure reduction and switching, devaluation and absorption approach, exchange controls and monetary approach.

SECTION-B

International Capital Movement: Long term and short term, portfolio and direct investing public and private flows. Multinational Corporation: causes for foreign investment, effects on the investing and host country. International Transfer Problem. Analysis of foreign aid.

International Monetary System: Gold Standard, Bretton Woods system and Post-Bretton Woods System.

IMF: Functions, Organization and lending mechanism. International Liquidity. International Institutions: IBRD, ADB, IFC and IDA. Theory of International reserves. WTO and global situation.

RECOMMENDED READINGS

1. Bo Soderten & Geoffrey Reed : International Economics, Macmillan, London. 1994.

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2. C.P. Kindle berger : International Economics, Richard Irwin, 1973,Illinois.

3. R.S. Ghuman. : International Economics, John Wiley and Sons, 7th edition, Singapore,. 2001.

4. Paul Krugman and Maurice Obstfeld : International Economics: Theory and Policy, Addison Wesley Longman, Singapore, Indian Re-Print, 2000

SUPPLEMENTARY READINGS

1. Anbne O. Kruger : WTO as an Organization, Oxford University Press, Delhi, 1999.

2. Richard Caves : Trade and Economic Structure, Harvard University Press, 1963.

3. R.N. Cooper : International Finance, Penguin Book, Baltimore, 1969.

4. Robert Helier : International Trade Theory and Empirical Evidence, Prentice Hall, N.J. 1973.

5. J.E.Meade : The Theory of International Economic Policy, Vol.1 and Balance of Payments Vol .II Oxford University Press, London 1970.

6. R.A Mundel& J.J. Polek : The New International Monetary System. Columbia University Press N.Y., 1977.

7. L.B. Yeager : International Monetary Relations, Harper & Row, 1966, N. York.

8. Maurice D. Levi : International Finance, McGraw- Hill, New Delhi, 1996.

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COMPUTER APPLICATIONS FOR ECONOMISTS-II

Code: ECO-404 (ii) **Total Marks :100**
L T P **External Marks : 70**
4 1 0 **Internal Marks : 30**
Time Allowed: 3 hours **External Pass Marks: 25**
(Credit Hours – 60 L+15 T) **Internal Pass Marks: 10**

Objective: The aim to study computer applications is that it helps in solving simultaneous linear equations, creating research designs, interpreting the factors and validating the results.

INSTRUCTIONS TO THE PAPER-SETTER

The question paper will consist of three sections: A, B and C. Sections A and B will have four questions each. Each question shall carry 10 marks. Section C will consist of 10 short-answer type questions which will cover the entire syllabus uniformly and will carry 30 marks in all. Each short answer type question will carry 3 marks. The candidate are required to give answer of each short type question in about 100 words

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each of the Section A and B and the entire section C.

SECTION-A

Factor Analysis: Meaning of factor analysis, Objective and research design; assumptions; Procedure of deriving factor and assessing overall fit, interpretation of factor, validation of factors.

Multi-Dimensional Scaling: Working of MDS; Objective, Research design of MDS; Assumptions, Procedure of Deriving MDS solution and assessing overall fit; Interpretations of MDS results, validation of MDS solution and assessing overall fit; Interpretations of MDS results, validation of MDS results. The concept of correspondence analysis.

SECTION-B

Multivariate Analysis of Variance: Meaning, assumptions, Procedure of estimation of MANOVA model, interpretation of MANOVA results, Validation of results; the concept of logistic regression.

Multiple Discriminate Analysis: Meaning, Objective, Research Design for discriminate analysis, assumptions, interpretation of results, validations of results.

BASIC READINGS

1.	M.G.Kendal	:	Multivariate Analysis, PHI
2.	Fruchter	:	Introduction to Factor Analysis, East-West Press.
3.	E Balaguruswany	:	Computer Oriented Statistical and Numerical Methods, Macmillan.
4.	Johan Methew	:	Numerical Methods, PHI.
5.	Garret and Wood worth	:	Statistics in Psychology and Education DEC.

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REGIONAL ECONOMICS AND PUNJAB ECONOMY

Code: ECO-404 (iii) **Total Marks :100**

L	**T**	**P**	**External Marks : 70**
4	**1**	**0**	**Internal Marks : 30**
Time Allowed: 3 hours			**External Pass Marks: 25**
(Credit Hours – 60 L+15 T)			**Internal Pass Marks: 10**

Objective: This paper will help the students in assessing the growth of the Punjab economy as this paper contains the concepts of both agricultural development and industrial developmement of Punjab. It also shows the tax structure and tax collection pattern of Punjab.

INSTRUCTIONS TO THE PAPER-SETTER

The question paper will consist of three sections: A, B and C. Sections A and B will have four questions each. Each question shall carry 10 marks. Section C will consist of 10 short-answer type questions which will cover the entire syllabus uniformly and will carry 30 marks in all. Each short answer type question will carry 3 marks. The candidate are required to give answer of each short type question in about 100 words

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each of the Section A and B and the entire section C.

SECTION-A

Structure of Punjab Economy: Nature of Punjab economy after re-organization of Punjab; Occupational Pattern and unemployment; Impact of liberalization, privatization and globalization.

Agriculture: Nature and problems of Punjab agriculture: Cropping pattern; Capital formation; Productivity, Land reforms; Agricultural finance; Agricultural labour; Role of organizations. Agrarian Distress and its implications.

SECTION-B

Industrial Development: Industrial pattern; Major industries; Role of public and private sector, Industrial employment; Industrial labour; Trade unions and their role; Capital formation.

Tax structure and tax collection in Punjab; Public Expenditure; Public Debt.

Urbanization: Nature and problems; Population and its composition; Human Resource Development

BOOKS

1.	Johar, R.S. and J.S. Khana	:	Studies in Punjab Economy, Guru Nanak Dev University , Amritsar.
2.	Bawa, R.S. and P.S. Raikhy	:	Punjab Economy: Emerging Issues, Guru Nanak Dev University, Amritsar, 2000.
3.	Jammu, P.s.	:	Globalisation and Punjab, Punjab Academy of Social Science, Literature and Culture, 2001.
4.	R.N. Soni	:	Leading Issues in Agricultural Economics, (1997).
5.	Johl, S.S.	:	Future of Punjab Agricultural, CRRID, Chandigarh.

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6. Johi, S.S and S.K. Ray : Future of Agriculture in Punjab CRRID, Chandigarh, 2002.
7. All India Kissan Sabha : Golden Jubilee Series, New Delhi, 1986.
8. Singh, Master Hari : Agricultural Workers Struggle in Punjab PPH, New Delhi, 1980.
9. Surjeet, H.K.S. : The History of the Kisan Sabha, National Book Agency, New Delhi, 1996.
10. Singh, Pritam, : Political Economy of Punjab, M.D. Publications Pvt. Ltd., 1997.
11. A Report : Agricultural Production : Pattern, Adjustment Programme in Punjab for Productivity and Growth. (Govt. of Punjab, Oct. 2002).
12. Lakhwinder Singh and Nirvikar Singh : Economic Transformation of a Developing Economy: The Experience of Punjab, India, Springer, 2016.
13. Singh, L., K.S. Bhangoo and R. Sharma : Agrarian Distress and Farmers Suicides in North India, Routledge, New Delhi. 2016.

JOURNALS

1 PSE Economy Analyst, Guru Nanak Dev University, Amritsar.
2. Indian Journal of Labour Economics.

DOCUMENTS

1. Reports and other relevant documents of the different Kisan Unions/ Organization, Agricultural Workers Union/ Organization and Industrial Workers Trade Unions/Organization.

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MONEY AND BANKING

Code: ECO-405(i) **Total Marks :100**

L T P **External Marks : 70**
4 1 0 **Internal Marks : 30**
Time Allowed: 3 hours **External Pass Marks: 25**
(Credit Hours – 60 L+15 T) **Internal Pass Marks: 10**

Objective: The objective of the paper is to acquaint the students with the concepts, operations, and role of money and banks. The aim is to study and appreciate their key role, especially after the implementation of economic reforms. The paper integrates theory, institutions and policy.

INSTRUCTIONS TO THE PAPER-SETTER

The question paper will consist of three sections: A, B and C. Sections A and B will have four questions each. Each question shall carry 10 marks. Section C will consist of 10 short-answer type questions which will cover the entire syllabus uniformly and will carry 30 marks in all. Each short answer type question will carry 3 marks. The candidate are required to give answer of each short type question in about 100 words

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each of the Section A and B and the entire section C.

SECTION-A

Central Bank: Definition, functions, techniques of monetary management. Reserve Bank of India.

Monetary Policy: Concept, goals, targets and indicators, instruments, recent trends in monetary policy of Reserve Bank of India.

Financial System and Markets: Structure, money market and capital market: problems and recent developments.

Banking Sector Reforms in India: Review of Narasimham Committee Reports (1991 and 1998),

Regulation of Banking System (Laissez Faire Banking).

SECTION-B

International Monetary System: Historical background, Bretton Woods System and its breakdown, contemporary monetary system. Working and lending operations of IMF, IBRD, IDA, IFC, MIGA and Asian Development Bank.

International Banking: Evolution, Alternative organizational formats, control of International Banks.

BASIC READINGS LIST

1.	Suraj B. Gupta	:	Monetary Economics- Institutions, Theory and Policy. S. Chand and Company Ltd., New Delhi, 2003.
2.	L.M.Bhole	:	Financial Institutions and Markets.Tata Mcgraw Hill Publishing Co. Delhi,2004.
3.	Govt. of India	:	Report of the Committee on the Financial System, 1991.
4.	Kevin Dowd	:	Laissez-Faire Banking.Routledge London,1993.
5.	GauravDatt,Ashwani	:	Indian Economy (latest edition.)S. Chand and Company Ltd.,

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	Mahajan and Datt and Sundharam		New Delhi, 2003.
6.	John S. Evans	:	International Finance.The Dryden Press, USA,1992.
7.	V.Sharan	:	International Financial Economics.Prentice Hall of India, 2001.
8.	Bo Sodersten and G. Reed	:	International Economics, Paperbacks, 1974.
9.	Royal Economic Society	:	The Economic Journal, Vol. 106.No. 436, May 1996.
10.	Krugman.P., Obstfeld.M., Melitz.M.	:	International Economics Theory and Policy, Pearson Education of India, ISBN: 9789332586550.

SUPPLEMENTARY READINGS

1.	Govt. of India	:	Economic Survey (various issues):
2.	Economic and Political Weekly	:	Specific Issues on Money Banking and Finance.
3.	S.S Tarapore	:	Issues in Financial Sector Reforms.
4.	David Glasner	:	Free Banking and Monetary Reforms.
5.	Reserve Bank of India	:	Report on Trend and Progress and Banking in India (Various issues)

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THEORY OF STATISTICS

Code: ECO-405 (ii) **Total Marks :100**

L	**T**	**P**	**External Marks : 70**
4	**1**	**0**	**Internal Marks : 30**

Time Allowed: 3 hours **External Pass Marks: 25**
(Credit Hours – 60 L+15 T) **Internal Pass Marks: 10**

Objective: The primary goal is to strengthen student's critical thinking and reasoning skills at planning economic research and to enable them to communicate resultseffectively. The basic aim to study statistics is that it provide methods of organizing and simplifying data so that their significance is comprehensible.

INSTRUCTIONS TO THE PAPER-SETTER

The question paper will consist of three sections: A, B and C. Sections A and B will have four questions each. Each question shall carry 10 marks. Section C will consist of 10 short-answer type questions which will cover the entire syllabus uniformly and will carry 30 marks in all. Each short answer type question will carry 3 marks. The candidate are required to give answer of each short type question in about 100 words

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each of the Section A and B and the entire section C.

SECTION-A

Estimation: Point estimation and interval estimation, Properties of point estimates, Maximum likelihood estimates.

Statistical hypothesis: Two-tailed and one-tailed tests.

Types I and II Errors: Level of significance. Critical region.

Large and small samples. Tests of significance based on Normal,'t', 'F' and 'Z' distributions. Testing the significance of means, proportions, correlation and regression coefficients and their interpretation.

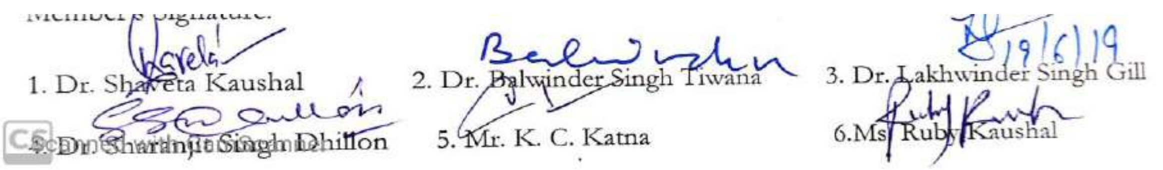
SECTION-B

Elementary knowledge of quality control and its simple applications. Planning and organization of socio-economic surveys. Preparation of questionnaire, Type of sampling.

Elementary knowledge of Analysis of Variance (one-way and two way classification) and Analysis of Covariance, Non-Parametric Tests-Chi-square test, and sign-test.

RECOMMENDED READINGS

1.	F.E.Croxton & D.J. Cowden	:	Applied General Statistics. Prentice Hall London and Prentice Hall of India.
2.	J.N. Kapur& C. Sexena	:	Mathematical Statistics, S. Chand & Co. Pvt. Ltd., New Delhi.
3.	S.P. Gupta	:	Statistical Sultan Chand & Sons New Delhi, 2006.
4.	M.R.Speigal	:	Theory and Problems of Statistics.
5.	S.C. Gupta & V.K.	:	Fundamental of Applied Statistics, Sultan Chand &



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Kapoor : Sons, New Delhi.

6. F.C. Mills : Statistical Methods. Henry Hold & Co., New York.

7. T. Wonnacott and R. Wonnacott : Introductory Statistics for Business and Economics, John Wiley & Sons.

8. G.U. Yule & M.G.Kendall. : An Introduction to Theory of Statistics (for theory of attributes).

Supplementary Readings:

1. J.E. Freund & F.J. William : Modern Business Statistics, Prentice Hall , Englewood.

2. P.G. Hoel : Elementary Statistics, John Wiley & Sons.

3. P.H. Carmal : Applied Statistics for Economics, Sir Issac Pitman and Sons Ltd., London.

4. J.E. Freund : Mathematical Statistics, Prentice Hall.

5. A.M. Mood and F.A.Graybill : Introduction to the Theory of Statistics, McGraw Hill.

6. Ya Lun Chou : Statistical Analysis, Hold, Rinehart and Winston, New York.

7. Taro Yamane : Statistics, An Introductory Analysis, Harpar and Row New York.

8. R.L. Grant : Statistical quality Control, McGraw Hill Book Company,

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MATHMATICAL ECONOMICS

Code: ECO-405 (iii)

L	T	P		
4	1	0		

Total Marks :100
External Marks : 70
Internal Marks : 30
Time Allowed: 3 hours — **External Pass Marks: 25**
(Credit Hours – 60 L+15 T) — **Internal Pass Marks: 10**

Objective of this Paper: The objective of this paper relies on statistical observations to prove and predict economic behavior. It also explains the observable phenomenon and provides the backbone for theoretical interpretation.

INSTRUCTIONS TO THE PAPER-SETTER

The question paper will consist of three sections: A, B and C. Sections A and B will have four questions each. Each question shall carry 10 marks. Section C will consist of 10 short-answer type questions which will cover the entire syllabus uniformly and will carry 30 marks in all. Each short answer type question will carry 3 marks. The candidate are required to give answer of each short type question in about 100 words

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each of the Section A and B and the entire section C.

SECTION-A

Macro Economics: The Classical model and the Keynesian model, Hicks-Hansen version of the Keynesian model , the fiscal policy and the balanced budget theorem, liquidity trap and the efficiency of monetary policy, comparative static's in the classical and Keynesian models, stability analysis and the correspondence principle.

Growth models: Harrod-Domar growth model and its stability, the Solow model, basic neo-classical growth models, the Golden Age problem, technical progress and stability of neo-classical models.

Trade Cycles: General concepts, Hicks-Samuelson multiplier-accelerator interaction model.

SECTION-B

Linear Programming: Activity analysis interpretation of a linear program, the simplex method and the revised simplex, the dual and its economic interpretation, complimentary slackness conditions, duality theorems and application of linear programming to the theory of firm. Introduction to non-linear programming, Kuhn-Tucker conditions.

Input-Output analysis: Static-open and closed models, viability conditions, activity analysis, interpretation of input-output model, aggregation problem, substitution theorem, cost and price determination.

Game Theory: Two person zero-sum non-co-operant game, pure and mixed strategies, loner programming formulation of a matrix, methods of solving a game problem, fair game and conversion of linear programming problem, fair game and conversion of linear programming problem into game and conversion of linear programming problem into game problem.

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RECOMMENDED BOOKS

1. Henderson, J.M.& Quandt, R.B. : Micro Economic Theory: A Mathematical Approach (3rd ed.), 1980.
2. Allen, R.G.D. : Mathematical Economics, 1974.
3. Silberberg, E. : The Structure of Economics- A Mathematical Analysis, 1978.
4. Lancaster, V. : Mathematical Economics,1965.
5. Take-Yama, A. : Mathematical Economics, 1974.
6. Kogiku, K.C. : Micro Economic Models, 1971.
7. Chiang, A.C. : Fundamental Methods of Mathematical Economics (3rd ed.), 1984.
8. Dorfman,R., Samuelson, P. and Sallow, R. : Linear Programming and Economic, 1968.
9. Quirk, J. and Saposnik, R. : Introduction to General Theory and Welfare Economics, 1968.
10. Intriligator, Michel D. : Mathematical Optimization and Economic Theory, 1971.
11. Green, H.A.J. : Consumer Theory, 1971.
12. Varian, H.R. (1978) : Microeconomic Analysis, 1978.
13. Nehar, Phillips,A. : Economic Growth and Development : A Mathematical Introduction, 1971.
14. Mehta, B.C. : Mathematical Economics: Microeconomic Models, 1987.
15. Mahesh Chand & Anand V.K. : Economic Theory-A Mathematical Approach, 1981.

OTHER BOOKS

1. Samuelson, Paul : Foundations of Economic Analysis, 1974.
2. Allen, R.G.D. : Macro Economic Theory, 1967.
3. Malinvaud, E.D. : Lecture on Micro Economic Theory, 1972.
4. Pasinetti, L.L. : Lectures on the Theory of Production, 1977.
5. Hicks J.R. : Value and Capital, 1946.
6. Baumol, N.J. : Economic Dynamics, 1970.
7. Nikaido, H. : Introduction to Sets and Mappings in Modern Economics, 1972.
8. Leontief, W.W. : Input-Output Economics, 1966.
9. Luce, R. and Raiffa, H. : Games and Decision (Ch.14), 1957.
10. Todaro, M.P. : Development and Planning Models and Methods, 1971.
11. Baumol, W.J. : Economic Theory and Operations Analysis, 4th ed., 1978.
12. Gale, David : The Theory of Linear Economic Models, 1960.
13. Gauss, S.I. : Linear Programming Methods and Applications, 1969.

Member's Signature:

19/6/19

1. Dr. Shaveta Kaushal   2. Dr. Balwinder Singh Tiwana   3. Dr. Lakhwinder Singh Gill
4. Dr. Sharanjit Singh Dhillon   5. Mr. K. C. Katna   6.Ms Ruby Kaushal

CS Scanned with CamScanner

ECONOMETRICS

Code: ECO-405 (iv)

L	**T**	**P**	**Total Marks :100**
4	**1**	**0**	**External Marks : 70**
			Internal Marks : 30
Time Allowed: 3 hours			**External Pass Marks: 25**
(Credit Hours – 60 L+15 T)			**Internal Pass Marks: 10**

Objective: This paper helps in the development of analytical skills to a level where students can evaluate critically any econometrics research output and design and carry out themselves the research projects.

INSTRUCTIONS TO THE PAPER-SETTER

The question paper will consist of three sections: A, B and C. Sections A and B will have four questions each. Each question shall carry 10 marks. Section C will consist of 10 short-answer type questions which will cover the entire syllabus uniformly and will carry 30 marks in all. Each short answer type question will carry 3 marks. The candidate is required to give answer of each short type question in about 100 words.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all selecting two questions from each of the Section A and B and the entire section C.

SECTION-A

Dynamic Econometric Models: Auto regressive and Distributive Lag Models-Koyck Model, Partial adjustment and adaptive expectation model, Problems of auto-correlation; Almond approach to distributed lag models.

Simultaneous Equation Models: Structural form and reduced form; Concept of identification; Methods for estimation –Indirect Least Squares, Two Stage Least Squares.

SECTION-B

Discrete and Limited Dependent Variables Models: Type of discrete choice models; the linear probability model; Introduction to formulation of regressions with dummy dependent variables-Probity, Legit and Obit models.

Panel Data Techniques: Sources and types of panel data; Fix effects model; Random effect model; Random coefficients model.

Multivariate Analysis: Principle Components; Discriminate Analysis.

RECOMMENDED READINGS

1. Damodar Gujarati : Basic Econometrics, McGraw Hill, New Delhi, 1995.
2. J. Johnston & J. Dinardo : Econometric Methods, McGraw Hill, New, Delhi, 1997.
3. Koutsoyiannis : Theory of Econometrics, Macmillan, New Delhi, 1978

SUPPLEMENTARY READINGS

1. J.Johnston, : Advanced Econometric Methods, McGraw Hill, New

Member's Signature:

19/6/19

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2. Dr. Balwinder Singh Tiwana
3. Dr. Lakhwinder Singh Gill
4. Dr. Sharanjit Singh Dhillon
5. Mr. K. C. Katna
6.Ms Ruby Kaushal

Scanned with CamScanner

	Carter Hill, et.al.		Delhi, 1992, Springer-Verlag New York Inc., ISBN : 9780387968681.
2.	L.R. Klien	:	A Textbook of Econometrics, Vol 1, Issue 2, Peterson & Co.,1954.
3.	G.S. Maddala	:	Econometrics. McGraw Hill, New Delhi, 1977.
4.	K.F.Wallis	:	Topics in Applied Econometrics, Bray Hills, London, 1980. ISBN: 10.0816610177

Member's Signature:

19/6/19

1. Dr. Shaveta Kaushal
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BA PART 2
SEMESTER III
DEFENCE STUDIES

Max. Marks: 100	**Pass Marks: 35%**
Theory: 56 Marks	**Pass Marks:20**
Internal Assessment: 25 Marks	**Pass Marks:9**
Duration: 3 hrs.	**Total Lecture:75**
Practical Examination: 19 Marks	

Credits:4 Lectures of Theory +2 Lectures of Practical = 5 Credits

INSTRUCTION FOR PAPER SETTER/EXAMINER/STUDENTS

The question paper covering the entire syllabus of the concern semester shall be divided into three Sections I.e. Section **A, B & C.** Section **A & B** will consist of 08 questions i.e. 04 questions from each Section of the syllabus. The candidates are required to attempt at least 2 questions from each section **A & B**. Each question will carry 09 marks. Section C will consist of 10 short answer type questions covering the entire syllabus. The candidates are required to attempt all the questions. Each question will carry 2 marks.

PAPER-I:
EVOLUTION OF WARFARE-I
SECTION - A

i. Military organisations and techniques of fighting of Macedonians and Persians with particular reference to the Battle of Arbella 331 BC:
    a. Introduction - Opposing forces and their deployment
    b. Description of the battle
    c. Analysis (Strategy, tactics, application of principles of war and causes of defeat and victory).

ii. Military organisations and techniques of fighting of Romans and Carthaginians with particular reference to the Battle of Cannae 216 B.C.:
    a. Introduction - Opposing forces and their deployment
    b. Description of the battle
    c. Analysis(strategy, tactics, application of principles of war and causes of Defeat and victory).

iii. Military organisations and techniques of fighting of the English and Normans with particular reference to the Battle of Hastings, 1066 A.D.:
    a. Introduction - Opposing forces and their deployment
    b. Description of the battle
    c. Analysis (Strategy, tactics, application of principles of war and causes of defeat and victory).

iv. The Mongol art of war under Changez Khan.
  a. Organisation of Mongol Armies.
  b. Mongol Art of War.

SECTION - B

i. Industrial Revolution and its impact:
  a. Impact on Society
  b. Impact on Weapons of land and naval warfare
  c. Impact on means of communications
  d. Impact on tactics of land and naval warfare.

ii. Napoleon's Art of Warfare:
  a. Elements of Napoleonic Warfare.
  b. Principles of Napoleonic Warfare.

iii. Naval warfare with particular reference to the Battle of Trafalgar 1805 A.D.:
  a. Background of the English and Franco-Spanish rivalry for naval supremacy.
  b. Introduction - Opposing forces and their deployment
  c. Description of the battle.
  d. Analysis (Strategy, tactics, application of principles of war and causes of defeat and Victory)

iv. American Civil War (1861-65).
  a. Introduction
  b. Causes
  c. Events in brief
  d. The character of Civil War.
  e. Tactical developments.

SUGGESTED READINGS:

Das, S.T.(1970) An Introduction to the Art of War , Sagar Publishers, New Delhi Dupuy, R.Earnest (1970) The Encyclopedia of Military History, Macdonold, London.

Fuller, J.F.C.(1960) Conduct of War, Army Publishers, New Delhi.

Fuller, J.F.C.(1959) The American Civil War, Natraj Publishers, Dehradun.

Fuller, J.F.C.(1958) The Generalship of Alexander The Great, Natraj Publishers, Dehradun. Fuller, J.F.C(1971) Armament and History, Sagar Publishers, New Delhi.

Fuller, J.F.C.(1954) The Decisive Battle of the Western World Vol.I & II, Eyre and Spottiswoode, London.

Montgomery, Viscount (1968) A History of Warfare, William Collins, London.

Ropp, Theodore(2000) War in the Modern World, The John Hopkins University Press Baltimore. Sarkar, J.N.(1960) Military History of India, M.C. Sarkar, Calcutta.

heppard, E.W(1966) The Study of Military History, Natraj Publishers, New Delhi

Singh, Savita.(2015) Decisive Indian battles and Wars: From Kurukshetra to Kargil, Atlantic publishers, New Delhi.

PAPER-II: PRACTICAL EXAM

Duration: 03Hours
Written Test: 01 Hours
Viva-voce: 02 Hours

Max. Marks:19
Written Test: 10 Marks
Viva-voce: 05 Marks
Record Book: 04 Marks

Note: The practical exam will be conducted by both one External and One Internal Examiner.

INSTRUCTIONS TO THE STUDENTS

Students are required to bring four sheets of drawing papers, Geometry box and pencil. The instruments to the students for the practical examinations would be provided by the internal examiner.

i Bearing: Definition, Inter conversion of Bearing in detail.
ii. Liquid Prismatic Compass: Features and functions of its various parts.

Attempt following exercise on the LPC:

a. To determine magnetic north.
b. Setting of the Map.
c. To find out the bearing of a point from other point situated on the ground.
d. To determine one’s and enemy’s position on the map by resection and intersection methods with the help of compass.
e. To set the compass in a particular direction for night march

BA PART 2
SEMESTER IV
DEFENCE STUDIES

Max. Marks: 100	**Pass Marks: 35%**
Theory: 56 Marks	**Pass Marks:20**
Internal Assessment: 25 Marks	**Pass Marks:9**
Duration: 3 hrs.	**Total Lecture:75**
Practical Examination: 19 Marks	

Credits:4 Lectures of Theory +2 Lectures of Practical = 5 Credits

INSTRUCTION FOR PAPER SETTER/EXAMINER/STUDENTS

The question paper covering the entire syllabus of the concern semester shall be divided into three Sections I.e. Section **A, B & C.** Section **A & B** will consist of 08 questions i.e. 04 questions from each Section of the syllabus. The candidates are required to attempt at least 2 questions from each section **A & B**. Each question will carry 09 marks. Section C will consist of 10 short answer type questions covering the entire syllabus. The candidates are required to attempt all the questions. Each question will carry 2 marks.

PAPER-I: EVOLUTION OF WARFARE-II

SECTION-A

i. Macedonian and Indian Military Organisations and techniques of fighting with particular reference to the Battle of Hydaspes, 326 B.C.:
    a. Military Organisations and techniques of fighting of Macedonian and Indians.
    b. Battle of Hydaspes - Opposing forces and their deployment.
    C. Analysis (strategy, tactics, application of principles of war and causes of defeat and victory).

ii. Kautilya’s Philosophy of War:
    a. Diplomacy and Strategy.
    b. The institution of Spies.
    c. Army Organisation.
    d. Mode of Warfare.
    e. Forts- Types & Role.

iii. Military organisations and techniques of fighting of Rajputs and Turks with particular reference to the Battle of Terrain, 1192 A.D.:
    a. Military organisations and techniques of fighting of Rajputs and Turks
    b. Battle of Terrain - Opposing forces and their deployment.
    c. Analysis (strategy, tactics, application of principles of war and causes of defeat and victory.)

iv. Military organisations and techniques of fighting of Mughals and Afghans with particular reference to the First Battle of Panipat, 1526 A.D.:
    a. Military organisations of Mughals and Afghans.
    b. Battle of Panipat - Opposing forces and their deployment

c. Analysis (strategy, tactics, application of principles of war and causes of defeat and victory).

SECTION – B

i. Fighting Techniques of Southern Muslim Sultans with particular reference to the Battle of Talikota, 1565 A.D.:
    a. Military organisations and techniques of fighting of Rajputs and Turks
    b. Battle of Talikota - Opposing forces and their deployment
    c. Analysis (Strategy, tactics, application of principles of war and causes of defeat and victory.)

ii. Military organisations of Marathas under Shivaji and his techniques of fighting:
    a. Shivaji as a military leader.
    b. Higher defence organisation
    c. Military organisation.
    d. Techniques of fighting.

iii. Military organisation of Sikh Army and its fighting techniques under Maharaja Ranjit Singh:
    a. Maharaja Ranjit Singh as a Military leader.
    b. Growth and development of the Sikh Army from 1799-1849
    c. Organisation of the Army
    d. Fighting techniques of the Sikh Army (Strategy and tactics).

iv. Anglo-Maratha and Anglo-Sikh Warfare with particular reference to: Battle of Assaye,1803A.D.:
    a. Introduction - Opposing forces and their deployment
    b. Description of the battle
    c. Analysis (Strategy, tactics, application of principles of war and causes of defeat and victory)

    Battle of Chillianwala:
    a. Introduction - Opposing forces and their deployment
    b. Description of the battle
    c. Analysis (Strategy, tactics, application of principles of war and causes of defeat and victory.

SUGGESTED READINGS :

Alfred, David(1953) Indian Art of War, Atma Ram , Delhi.
Bajwa F.S.(1964) Military System of the Sikhs, Moti Lal,
Banarsi Dass, Delhi. Bruce, George(1969) Six Battles of India,
Rupa & Company, Calcutta.
Das, ST (1969) Indian Military- Its History and
Development, Sagar, New Delhi. Fuller, J.F.C.(1958) Generalship of
Alexander The Great, Natraj Publishes, Dehradun Kangle, R.P.(1963)
Kautilya`s Arth Shastra.University of
Bombay, Mumbai.
Majumdar, B.K.(1960) Military System in Ancient India, Firma
K.L.Mukhopadhyoy,, Calcutta. Majumdar B.N.(1963) Study of Indian
Military History. Army Educational Store, Delhi Majumdar B.N.(1965)
Military System of the Sikhs, Army Educational

Store, New Delhi.
Malleson (1969) Decisive, Battles of India,
Sagar, New Delhi. Sarkar, J.N (1960) Military History
of India,M.C.Sarkar, Calcutta.
Sen, S.N.(1977) Military System of Marathas, K.P.Bagchi
Publishers, Calcutta. Sharma Gautam (1966) Indian Army through
the Ages, Allied Publishers, Bombay.
Singh, Savita.(2015) Decisive Indian battles and Wars: From Kurukshetra to Kargil, Atlantic
publishers, New Delhi.

PAPER-II: PRACTICAL EXAM

Duration: 03Hours **Max. Marks:19**
Written Test: 01 Hour **Written Test: 10**
Viva-Voce: 02 Hours **Marks Viva- voce:05**
Marks Record Book: 04 Marks

Note: The practical exam will be conducted by both one External and One Internal Examiner.

1. Determination of individual compass error.
2.Service protector: Its type and uses.
3.Introduction to Field Engineering.
    a. Task preferred by Field Engineers
    b. Equipment used in
    C. Field Engineering

Syllabus of Fine Arts for BA

Part-II **Semester-III**

Paper Code- (FIN)-309 **Credit: 5 (2T+3P)**

Session 2020-21, 2021-22, 2022-23

Maximum Marks: 40 **Pass Marks: 14**

External Examination: 30 **Pass External Marks: 10.5**

Internal Assessment: 10 **Int. Assessment pass marks: 3.5**

Time: 3Hrs. **Number of lectures: 30**

OBJECTIVES:

- The objective of the course emphasizes on unfolding of the student's mind and inculcating in him involvement in the art processes by exploration in basic studies, training in observation and in articulation with emphasis on subjective and analytical study of material and objects.
- The range of experience covers two and three dimensional forms both the point of view of specially defined structural problems and their social and historic significance.
- In additional to the production of an artifact a student is required to do the mounting, framing and presentation of the artifacts in the form of exhibition and display.

OUTCOMES:

- The curricular area aims at enabling the students to develop their observation, imagination, creation and develop skills and sensitivity towards the use of visual elements for an effective work.
- Enable the student to pursue different career options such as Art director, Art therapist, Freelance Artist, Art Teacher, Art Designer, Caricaturist, Animator, Graphic Designer many more.
- Enhance skills to understand the concepts of principles, terminology of art and aesthetics.

Ambalika Jacob
Dr. Ambalika Sood Jacob

R K Sharma
(Ravinder Kumar Sharma)

Amneet Kaur

Kaur

Manpreet Kaur.

INSTRUCTIONS FOR PAPER SETTER FOR THEORY

The Question paper will consist of three sections A. B and C. Section A and B will have 4 Questions of 5 marks each from respective sections. Candidates will be given a choice to attempt two questions each from Section A & B. Section C will have 5 compulsory questions of 2 marks each covering entire syllabus.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt 2 Questions each from section A and B, which will be of 5 marks each. Section C is of 10 marks.

(Candidate must pass in Theory and Practical Separately)

Paper –A (Theory) *History of Indian Sculpture*

SECTION-A

1. Rashtrakuta Period: Brief history, introduction to Ellora and Elephanta caves and detailed study of

i. 'Ravana Shaking Mount Kailash' at Ellora

ii. Shiv Mahadeva (Trimurti) at Elephanta

iii. Ardhnarishvara at Elephanta

2. **Pallava Period**: Brief History, introduction to Mamallapuram(Mahabalipuram) and detailed study of

i. Descent of Ganges'

ii. Durga Mahishasurmardini

3. **Chola Period**: Brief History and detailed study of

i. Shiva Nataraja

ii. Parvati

Ambalica Jacob
Dr. Ambalica Sood Jacob

RK Sharma
(Ravinder Kumar Sharma)

Avneet Kaur

SKaur

Manpreet Kaur.

SECTION-B

1. Six Limbs of Indian Painting
2. Gestures and Postures
3. Beauty- Indian Concept of Beauty
4. Rasa and Bhava
5. Folk art

Suggested Readings

Sant Singh and Agya Kaur :	Bharti Murti Kala da Itihaas (Punjabi)
Read, Herbet :	Meaning of Art
Aggarwal, V.S. :	Bhartiya Kala(Hindi)
D. Barrett, and Gray B :	Painting of India
Ray, N.R. :	An approach of Indian Art
Dr. Saroj Rani :	Bharti Murti Kala ate Chiterkala
Saraswati ,S.K. :	A Survey of Indian Sculpture
Gardner,Helen :	Art through the ages
Gombrich, E.H. :	The Story of Art
Rowland, B :	The Art and Architecture of India
Aggarwal, V.S. :	Heritage of Indian Art
Aggarwal, V.S. :	Indian Art (English)
Chaman, Dr. Saroj :	Bharti Chiterkala ate Murti Kala da Itihaas ate Kala Tatava
Chaman, Dr. Saroj :	Soundariya Shastra

RKSharma
(Ravinder Kumar Sharma)

Ambalicka Jacob
Dr. Ambalicka Sood Jacob

Kaur

Amreet Kaur

Manpreet Kaur.

Class-BA **Subject- Fine Arts**
Part-II **Semester-III**

Paper Code- (FIN)-309P **Credit: 3**

Session 2020-21, 2021-22, 2022-23

Maximum Marks: 60 **Pass Marks: 24**

Time: 4Hrs + 4Hrs **Number of lectures: 90**

PAPER-B (PRACTICAL)

INSTRUCTIONS FOR THE PAPER SETTER

(For practical paper)

1. The syllabus is self-explanatory in the paper. Choice of medium should be left to the candidates.

2. While evaluation the examiner should see the competency, its technical, artistic, composition, tone, texture and quality.

OUTCOME: The course serves to extend the student's awareness of the visual arts and mechanism of Creativity, precision, tools and materials.

Section-A: HEAD STUDY

Time: 4 hrs **Max.marks-30**

(a) Study of human head (life/cast), Proportion, Balance, Study of joints and angle rhythmic rendering of structure through light and shade.

Medium: Oil, Water Colour, Pastel Colour

Size: 1/2 imperial

Ambalika Jacob
Dr. Ambalika Sood Jacob

(Ravinder Kumar Sharma)

Amneet Kaur

Kaur

Manpreet Kaur.

Section-B: LANDSCAPE/COMPOSITION

LANDSCAPE

Time: 4 hrs **Max.marks-30**

Landscape painting - to study relationship of Objects, their arrangement in the fore ground, middle distance, texture, relative size of masses, tones and colours, use of linear and aerial perspective**.**

Medium: Oil, Water, Poster Colours

Size: ½ imperial

OR

COMPOSITION

Arrangement of shapes based on subject figure, animal forms in landscape elements, like use of perspective, colour and its application in harmony.

Medium: Oil colour, water colour

Size: ½ imperial

Ambalika Jacob

Dr. Ambalika Sood Jacob

(Ravinder Kumar Sharma)

Manpreet Kaur.

Class-BA **Subject- Fine Arts**
Part-II **Semester-IV**

Paper Code- (FIN)-409 **Credit: 5 (2T+3P)**

Session 2020-21, 2021-22, 2022-23

Maximum Marks: 40 **Pass Marks: 14**

External Examination: 30 **Pass External Marks: 10.5**

Internal Assessment: 10 **Int. Assessment pass marks: 3.5**

Time: 3Hrs. **Number of lectures: 30**

OBJECTIVES:

- The objective of the course emphasizes on unfolding of the student's mind and inculcating in him involvement in the art processes by exploration in basic studies, training in observation and in articulation with emphasis on subjective and analytical study of material and objects.
- The range of experience covers two and three dimensional forms both the point of view of specially defined structural problems and their social and historic significance.
- In additional to the production of an artifact a student is required to do the mounting, framing and presentation of the artifacts in the form of exhibition and display.

OUTCOMES:

- The curricular area aims at enabling the students to develop their observation, imagination, creation and develop skills and sensitivity towards the use of visual elements for an effective work.
- Enable the student to pursue different career options such as Art director, Art therapist, Freelance Artist, Art Teacher, Art Designer, Caricaturist, Animator, Graphic Designer many more.
- Enhance skills to understand the concepts of principles, terminology of art and aesthetics.

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Dr. Ambalica Sood Jacob

RKSharma
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Manpreet Kaur

Instructions for Paper Setter for Theory

The Question paper will consist of three sections A. B and C. Section A and B will have 4 Questions of 5 marks each from respective sections. Candidates will be given a choice to attempt any 2 questions each from Section A & B. Section C will have 5 compulsory questions of 2 marks each covering entire syllabus.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt 2 Questions each from section A and B, which will be of 5 marks each. Section C is of 10 marks.

(Candidate must pass in Theory and Practical Separately)

Paper – A (Theory) History of Indian Miniature Painting

SECTION- I

1 Early Indian miniatures: Brief History of eastern and western manuscript paintings and detailed study of

i. Chaurapanchasika

ii. Decorative designs from 1439 Kalpasutra

2. Mughal miniature paintings: Brief history of the paintings during period of Akbar Jahangir and detailed study of

i. Akbar's adventure with elephant Hawa'i

ii. Jahangir seated on an allegorical throne

iii. Turkey Cock

iv. Death of Inayat Khan

V. Squirrels in a chinar tree

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Dr. Ambalika Sood Jacob

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SECTION-II

1. Rajasthani Paintings: Brief history of the paintings of Bundi and Kishangarh. Detailed study of

ii. Ragini Bhairavi (Bundi)

iii. Bani Thani (Kishangarh)

2. Pahari Paintings: Brief history of the paintings of Kangra, Basohli. Detailed study of

i. Krishna offering Tilka on Radha’s forehead (Kangra)

ii. Sita, Lava and Kusha in Valmiki’s hermitage (Basohli Ramayana)

Suggested Readings

Sant Singh and Agya Kaur :	Bharti Murti Kala da Itihaas (Punjabi)
Read, Herbet :	Meaning of Art
Aggarwal, V.S.:	Bhartiya Kala (Hindi)
D. Barrett, and Gray B:	Painting of India
Ray, N.R. :	An approach of Indian Art
Dr. Saroj Rani :	Bharti Murti Kala ate Chiterkala
Saraswati ,S.K. :	A Survey of Indian Sculpture
Gardner, Helen :	Art through the ages
Gombrich, E.H. :	The Story of Art
Rowland, B. :	The Art and Architecture of India
Aggarwal, V.S. :	Heritage of Indian Art
Aggarwal, V.S. :	Indian Art (English)
Chaman, Dr. Saroj :	Bharti Chiterkala ate Murti Kala da Itihaas ate Kala Tatava
Chaman, Dr. Saroj :	Soundariya Shastra

Ambalica Jacob

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(Ravinder Kumar Sharma)

Avneet Kaur

Kaur

Manpreet Kaur.

Class-BA **Subject- Fine Arts**
Part-II **Semester-IV**

Paper Code- (FIN)-409P **Credit: 3**

Session 2020-21, 2021-22, 2022-23

Maximum Marks: 60 **Pass Marks: 24**

Time: 4Hrs + 4Hrs **Number of lectures: 90**

PAPER-B (PRACTICAL)

INSTRUCTIONS FOR THE PAPER SETTER

(For practical paper)

1. The syllabus is self-explanatory in the paper. Choice of medium should be left to the candidates.
2. While evaluation the examiner should see the competency, its technical, artistic, composition, tone, texture and quality.

OUTCOME: The course serves to extend the student's awareness of the visual arts and mechanism of Creativity, precision, tools and materials.

Section-A: LIFE DRAWING

Time: 4 Hrs **Max.marks-30**

(a) Study of human, Birds, Animals (life/cast), Proportion, Balance, Study of joints and angle rhythmic rendering of structure through light and shade.

Medium: Pencil, Charcoal, Pencil or crayons colours

Size: 1/2 imperial

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Kaur

Manpreet Kaur.

Section-B: POSTER

Time: 4 Hrs **Max.marks-30**

Posters should convey theme/subject. Layout and Lettering should be used to endorse the subject.

Medium: Poster Colours

Size: 1/2 imperial

Ambalica Jacob

Dr. Ambalica Sood Jacob

RKSharma

(Ravinder Kumar Sharma)

Avneet Kaur

S Kaur

Manpreet Kaur.

Geography Syllabus for B.A. Course
Part-I (Semester-I)
Credits:- 05 (04L + 01P)
Session:- 2020-21, 2021-22, 2022-23

Total Marks - 100. **Minimum Pass Marks- 35**

Paper-I: Physical Geography-I: Geomorphology
Subject Code:- BA(GEO)-111
Credit:- 04

Total – 70 Marks.	Pass Percentage – 35%
Theory - 45 Marks	Theory Pass Marks - 16
Internal Assessment - 25Marks.	Internal Assessment Pass Marks - 08
Time Allowed- 3 hours.	Total Teaching Hours- 60

OBJECTIVES: -

1. To introduce the students to the basic concepts of Physical Geography mainly Geomorphology.
2. To make the students aware of the need of protection and conservation of different landforms.
3. To prepare the students for competitive exams.

INSTRUCTIONS FOR THE PAPER SETTER: -

1. The question paper will consist of three sections: A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus and will carry 7.5 marks each (Total 30 Marks). The students are required to attempt any two questions from each section. Section C is compulsory and will consist of 10 short answer type questions covering the entire syllabus uniformly. The answer of each question should be in about 30-35 words. Each question will carry 1.5 marks (Total 15 marks).
2. The paper setter should mention that the use of outlined stencil maps of the world/continents/countries by the candidates is allowed.

INSTRUCTIONS FOR THE CANDIDATES: -

1. Candidates are required to attempt two questions each from the sections A and B and section C is compulsory.
2. Candidates are allowed to use outlined stencil maps of world/continents/countries. They are also allowed to use simple calculators.
3. Credit will be given for suitable maps and diagrams.

PEDAGOGY: -

- Teacher should use the Audio-visual aids, maps, diagrams and other forms of Illustrations. Relevant educational field trips must be arranged to illustrate the theory being taught.

SECTION -A

1. Geography:- Definition, Nature and Scope of geography,
2. Divisions of Geography:- Regional, Systematic, Physical and Human Geography
3. Geomorphology: - Definition, Nature and Scope of Geomorphology.
4. The constitution of the Earth's interior:- Crust, Mantle and Core.
5. Continental Drift theory with special reference to Wagener's theory and Plate tectonic theory.
6. Movements of the Earth: - Endogenetic and Exogenetic forces.
7. Landforms resulting from forces of Compression and Tension.

SECTION –B

8. Rocks: - Origin, Rock Cycle, Classification and Characteristics.
9. Volcanoes:- Causes , Types.
10. Earthquakes: - Causes, Types.
11. Geomorphic processes: - Weathering, Erosion and Deposition.
12. Major land forms: - Mountains, Plateaus and Plains (Types and distribution).
13. Geomorphologic landscapes: - Fluvial, Glacial and Aeolian.
14. Applied Geomorphology:- Application to Transport (Highways and Railways).

BOOKS RECOMMENDED

1. Chawla, I.N.	:	*Bhautik Bhoogol* (in Punjabi), Bharat Prakashan Jalandhar
2. Gas, L.G.	:	*Understanding the Earth,* the Artemis Press Sunssex 1973
3. Hess, Darrel & Tasa, Dennis	:	Mcknight's Physical Geography: A landscape Appreciation, Pearson Education 2013.
4. Holmes, Arthur	:	*Principles of Physical Geology,*'Thomas Nelson & Sons, Ltd., NewYork, Latest Edition.
5. Kale, V. and Gupta, A.	:	*Elements of Geomorphology,* Oxford Gupta A. University Press, Calcutta, 2001.
6. Kaur, Dhian	:	*The Earth,* Edited by R.C. Chandna, Kalyani Publishers, Ludhiana, Delhi, 2000.
7. Khullar D.R.	:	*Physical Geography*, Kalyani Publisher, 2016
8. Monkhouse, F.J.	:	*Principles of Physical Geography,* Longman, New Delhi, Latest Edition.
9. Singh, Pritam & Bhatia, S.	:	*Bhautik Bhugol De Adhaar*, Punjabi University Bhatia Publication, Patiala.
10. Singh, Savindra	:	*Physical Geography*, Gynodya Prakashan, Gorakhpur, 1994.
11. Stamp, L. Dudley	:	*Applied Geography*, Penguin Victoria. 1960
12. Strahler, A.N. &	:	*Modern Physical Geography*, John Wiley, New York,

Strahler A.H. Latest Edition.

13. Thornbury, W.D. : *Principles of Geomorphology*, Second Edition, Wiley Eastern Ltd., New Delhi, 1993.

14. Singh, Malkit : *Essentials of Physical Geography*, Rasmeet Prakashan, Jalandhar, 2008.

Paper-II :- Practical Geography : Cartography-I
Subject Code:- BA(GEO)-111(P)
Credit:- 01

Total Marks- 30 | Min. Pass Percentage - 35%
Pass Marks - 11 | Total Teaching Hours - 30
Time Allowed- 4 Hours

Session-I (Morning):- Theory Paper. **Time:- 1½ Hours**
Total Marks- 12
Four questions/exercises should be given, out of the two sections, and candidates are required to attempt any three. Each question/exercise will carry 04 marks.
The paper will be set by the examiner at the time of examination.

Session-II (Evening):- Practical Record & Viva Voce **Time:- 2½ Hours**
Total Marks: 18
Practical Record- 06 Marks
Viva- Voce- 06 Marks
Field Survey and Plotting- 06 Marks

Objectives: -

1. To introduce the concept of maps and relevance of maps in Geography.
2. To explain the elements of Map (Scale and Orientation) and steps in Map making.
3. To introduce relief representation.

Pedagogy:-

- The use of topographical sheets of Survey of India.
- A well-equipped cartographic laboratory with necessary instruments to prepare exercise.

Note:-
Use of Stencils and calculator is allowed.

SECTION-A

1. History of Cartography .
2. Maps and their Types, Uses, Elements of Map design and Importance of maps.
3. Size and Shape of Earth.
4. Geometry of the Earth :- Latitudes and Longitudes, International Date Line, Time Zones.

SECTION- B

5. Scales:- Methods of representation of scale on the Maps (their Types).
6. Construction of Graphic Scale:- Plain scale, Comparative scale, Time scale and Diagonal scale,

7. Representation of Relief: - Methods of showing relief: Hachure's, Form lines, Hill-shading, Layers tints, Spot height, Benchmarks and Contours (Hill, Valley, Gentle & steep slope, concave & convex slope, uniform & terraced slope, U & V shaped valleys, cliff and Water fall).

8. Chain and Tape Survey:- Triangulation, Sketch and open Traverse method

BOOKS RECOMMENDED

1. Mishra, R.P. and Ramesh, A. : *Fundamentals of Cartography,* Concept Publishing Co., New Delhi, 1989.
2. Monkhouse, F.J. and Wilkinson, H.R. : *Maps and Diagrams,* Methuen and Co., London Third Edition, 1976.
3. Robinson, A.H. and Sale : *Elements of Cartography,* John Wi1eyRandall, D. Sons, New York (Sixth Edition, 1995)
4. Raisz, E. : *Principles of Cartography,* McGraw Hill, New York, 1962
5. Singh, Gopal : *Map work and Practical Geography* Vikas Publishing House Pvt.Ltd., New Delhi, 2001
6. Singh, L.R. and Singh Raghunandan : *Map work and Practical Geography,* Central Book Depot, Allahabad, 1993.
7. Khullar, D.R. : *Essentials of Practical Geography,* New Academic, Publishing Co., Jalandhar, Latest Edition.

Pedagogy of the Course Work:

1. Field visit to the natural environment (hills, mountains and deserts).

Geography Syllabus for B.A. Course
Part-I (Semester-II)
Credits:- 05 (04L + 01P)
Session:- 2020-21, 2021-22, 2022-23

Total Marks - 100. **Minimum Pass Marks- 35**

Paper-III: Physical Geography-II: Climatology and Oceanography
Subject Code:- BA(GEO)-211
Credits:- 04

Total – 70 Marks.	Pass Percentage – 35%
Theory - 45 Marks	Theory Pass Marks - 16
Internal Assessment - 25Marks.	Internal Assessment Pass Marks - 08
Time Allowed- 3 hours.	Total Teaching Hours-60

OBJECTIVES: -

1. To introduce the students to the basic concepts of Physical Geography.
2. To acquaint the students with the elements and attributes of climatology and oceanography.
3. To underscore the role of climate in human life.
4. To emphasize the significance of oceans within the global environment system.

INSTRUCTIONS FOR THE PAPER SETTER: -

1. The question paper will consist of three sections: A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus and will carry 7.5 marks each (Total 30 Marks). The students are required to attempt any two questions from each section. Section C is compulsory and will consist of 10 short answer type questions covering the entire syllabus uniformly. The answer of each question should be in about 30-35 words. Each question will carry 1.5 marks (Total 15marks).
2. The paper setter should mention that the use of outlined stencil maps of the world/continents/countries by the candidates is allowed.

INSTRUCTIONS FOR THE CANDIDATES: -

1. Candidates are required to attempt two questions each from the sections A and B and section C is compulsory.
2. Candidates are allowed to use outlined stencil maps of world/continents/countries. They are also allowed to use simple calculators.
3. Credit will be given for suitable maps and diagrams.

PEDAGOGY: -

- Use P.P.Ts, Videos, Maps and documentaries on climate and oceans.

SECTION-A

1. Climatology: - Definition of Climatology, Concept of weather & climate.
2. Elements and Controls of Climate & Weather.
3. Atmosphere: - Origin, Composition & Structure.
4. Insolation: - Meaning and Factors controlling its horizontal distribution.
5. Atmospheric Pressure and Planetary & Local winds.
6. Atmospheric disturbances: - Tropical cyclones, Temperate cyclones and Anticyclones.
7. Atmospheric moisture: - Humidity and its types, Forms of condensation; cloud, dew, fog and frost.
8. Precipitation: - Forms and Types, world patterns of annual rainfall.
9. Climatic Classifications and their Bases:- Elementary discussion of Koppen’s classification of climates and climatic types.

SECTION-B

10. Oceanography: - Meaning and Definition of oceanography.
11. Topography of the ocean basins: - Continental shelf, Continental slope, Deep sea plain, Oceanic deep features; Trench, Trough, Oceanic ridge, Guyots, Seamount.
12. Factors controlling the world patterns of distribution of temperature and salinity in the ocean waters (Horizontal and vertical).
13. Movements of oceanic waters: - Waves, Tides and Currents (Types and Effects).
14. Surface currents of the oceans:- Pacific Ocean, Atlantic Ocean and Indian Ocean.
15. Marine Deposits and Corals: - Formation, Types and Distribution.
16. Oceans as storehouse of resources for the future: - Benefits of Ocean resources to human beings.

BOOKS RECOMMENDED

1. Bhutani, Smita	:	*Our Atmosphere* Edited by R.C. Chandna, Kalyani Publishers, Ludhiana, Delhi, 2000.
2. Critchfield, H.J.	:	*General Climatology*, Prentice Hall of India, Pvt.Ltd., New Delhi, 1975.
3. Khullar D.R.	:	*Physical Geography*, Kalyani Publisher, 2016
4. Gross, Grant, M.	:	*Oceanography: A. View of the Earth*, Prentice Hall, New Jersey, 1987.
5. Hess, Darrel & Tasa, Dennis	:	Mcknight's Physical Geography: A landscape Appreciation, Pearson Education 2013.

6. Monkhouse, F.J. : *The Principles of Physical Geography,* University of London Press, London, Latest Edition.
7. Patterson, S. : *Introduction to Meteorology*, McGraw Hill Book Co. London Latest Edition.
8. Singh, Savindra : *Physical Geography*, Gynodya Prakashan, Gorakhpur, 1994.
9. Singh, Savindra : *Oceanography*, PPB Publisher, 2017
10. Stinger, E.T. : *Foundations of' Climatology,* Surjeet Publications Delhi, 1982.
11. Trewartha, G. T & Horn. L.H.: *An Introduction to Climate,* McGraw Hill Book Co., New Delhi, 1980
12. King, C.A.M. : *Oceanography*, E. Arnold, London, Latest Edition.
13. Sharma,R.C. & M.Vatel : *Oceanography for Geographers,* Chetyna, Allahabad, 1970.
14. Shepar, F.P. : *Submarine Geology*, Harper & Sons, New York, 1948.
15. Singh, Malkit : *Essentials of Physical Geography,* Rasmeet Prakashan, Jalandhar, 2008.

Paper-IV:- Practical Geography: Cartography-II
Subject Code:- BA(GEO)-211(P)
Credit:- 01

Total Marks- 30 Min. Pass Percentage - 35%
Pass Marks - 11 Total Teaching Hours- 30
Time Allowed- 4 Hours

Session-I (Morning):- Theory Paper. Time:- 1½ Hours
Total Marks- 12
Four questions/exercises should be given, out of the two sections, and candidates are required to attempt any three. Each question/exercise will carry 04 marks.
The paper will be set by the examiner at the time of examination.

Session-II (Evening):- Practical Record & Viva Voce Time:- 2½ Hours
Total Marks: 18
Practical Record- 06 Marks
Viva- Voce- 06 Marks
Report on Local Weather- 06 Marks

Objectives: -

1. To introduce the concept of maps and relevance of maps in Geography.
2. To help the students to understand the directions and methods of finding North and their importance.
3. To introduce the weather symbolization on maps.

Pedagogy: -

- The use of topographical sheets of Survey of India.
- A well-equipped cartographic laboratory with necessary instruments to prepare exercise.

Note:-

Use of Stencils and calculator is allowed.

SECTION-A

1. Directions:- Plotting of course:- True north, Cardinal Points, Finding True North with the help of Pole Star, a Watch and a Rod.

2. Enlargement and Reduction of Maps:- Graphic methods:- Square and Triangle; Instrumental methods:- Pantographs, Xeroxing and Photographic.

3. GPS:- Introduction to the concept of GPS and Advantages of GPS.

SECTION-B

1. Weather Maps: - General introduction to the study of weather maps,

The scheme of weather symbols employed in Indian daily weather maps;

Study of Indian daily Weather Report (Summer season, Winter season).

2. Local Weather Report:- A brief weather report (upto 10 pages) of local area.

BOOKS RECOMMENDED

1. Mishra, R.P. and Ramesh, A. : *Fundamentals of Cartography*, Concept Publishing Co., New Delhi, 1989.
2. Monkhouse, F.J. and : *Maps and Diagrams*, Methuen and Co., Wilkinson, H.R. London Third Edition, 1976.
3. Robinson, A.H. and : *Elements of Cartography*, John Wi1eyRandall, D. Sale Sons, New York (Sixth Edition, 1995)
4. Raisz, E. : *Principles of Cartography*, McGraw Hill, New York, 1962
5. Singh, Gopal : *Map work and Practical Geography* Vikas Publishing House Pvt.Ltd., New Delhi, 2001.
6. Singh, L.R. and Singh Raghunandan : *Map work and Practical Geography*, Central Book Depot, Allahabad, 1993.
7. Khullar, D.R. : *Essentials of Practical Geography*, New Academic, Publishing Co., Jalandhar, Latest Edition.

Pedagogy of the Course Work:

1. Field visit to the Meteorological Department.

Geography Syllabus for B.A. Course
Part-II (Semester-III)
Credits:- 05 (04L + 01P)
Session:- 2020-21

Total Marks - 100.	**Minimum Pass Marks- 35**

Paper-V: Geography of India
Subject Code:- BA(GEO)-311
Credits:- 04

Total - 70 Marks	Pass Percentage- 35%
Theory – 56 Marks	Theory Pass Marks- 20
Internal Assessment -14 Marks.	Internal Assessment Pass Marks - 05
Time Allowed- 3 hours.	Total Teaching Hours- 60

OBJECTIVES: -

1. To foster an understanding of the physical and cultural landscape of India and its spatial diversity.
2. To prepare the students for competitive exams.

INSTRUCTIONS FOR THE PAPER SETTER: -

1. The question paper will consist of three sections: A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus and will carry 09 marks each (Total 36 Marks). The students are required to attempt any two questions from each section. Section C is compulsory and will consist of 10 short answer type questions covering the entire syllabus uniformly. The answer of each question should be in about 30-35 words. Each question will carry 2 marks (Total 20 marks).
2. The paper setter should mention that the use of outlined stencil maps of the world/continents/countries by the candidates is allowed.

INSTRUCTIONS FOR THE CANDIDATES: -

1. Candidates are required to attempt two questions each from the sections A and B and section C is compulsory.
2. Candidates are allowed to use outlined stencil maps of world/continents/countries. They are also allowed to use simple calculators.
3. Credit will be given for suitable maps and diagrams.

PEDAGOGY: -

- Teacher should use maps and other modern aids like PPTs, video shows, etc. Students should be encouraged to use atlas in classroom.

Section - A

1. Introduction : India in the context of South Asia, Asia and the World.
2. Physiography. : Relief, Drainage system, Climate, Natural Vegetation, Soils.
3. Agriculture. : Characteristics and problems of Indian agriculture.
4. Major crops. : Rice, Wheat, Sugarcane, Cotton, Jute and Tea.
5. Population. : Distribution & density, Growth, Literacy rate and Urbanization.

Section – B

6. Mineral Resources. : Iron ore, Mica, Copper ore and Gold.
7. Power Resources. : Conventional :Coal, Petroleum, Hydroelectricity; Non-Conventional: Solar and Wind.
8. Industries. : Distribution and localization factors of major industries (Iron and Steel, Cotton Textiles, Sugar, Fertilizers).
9. Trade : International Trade.
10. Map Filling Exercises : Map covering the entire syllabus.

Books Recommended:

1. Chopra S.N. *: India: An Area Study,* Vikas Publishing House, 1977.
2. Khullar, D.R. : *India: A comprehensive Geography*, Kalyani Publishers, New Delhi, 2013.
3. *Nag, P. Sengupta, S. : Geography of india, Concept Publishing Company 1992.*
4. *Singh, R.L (Ed.) : India: A Regional Goegraphy, National Geographical Society of India, Varanasi, 1971.*
5. *Singh, Jagdish : India: A Comprehensive Systematic Geography, GynodayaPrakashan, Gorkhpur, 1994.*
6. *Singh, Gopal : A Geography of India, Atma Ram and Sons, Delhi, 1995,*
7. *Shrama, T.C and Countinho,* O. *: Economic and Commercial Geography of India, Vikas, Delhi, 1991.*
8. *Spate, O.H.K. and Learmonth A.T.A* : India and Pakistan, land , People and Economy, *Meuthen London, latest Edition.*
9. *Tirtha, Ranjit and Gopal Krishan* : Emerging India, Conpub Ann Arbour, Publishers, Michigan, 1992.
10. Malkit Singh *: Geography of India, Rasmeet Publication, Jallandhar. 2013.*
11. Johnson, B.L.C. *: India: Resources and Development*, Arnold Heinemann, London, 1980.
12. Johnson, B.L.C. : *South Asia*, Heinemann, London, 1981.
13. Hussain, Majid *: Geography of India*, Tata McGraw-Hill, Delhi, 2013.
14. Tiwari, R.C. : *Geography of India*, Pravalika Publications, Allahabad, 2013.
15. Deshpande, C.D. : *India: A Regional Interpretation*, India Council of Social Science Research, New Delhi, 1992.

Paper-VI :- Practical Geography: Cartography- III
Subject Code:- BA(GEO)-311(P)
Credit:- 01

Total Marks- 30 — Min. Pass Percentage - 35%

Pass Marks - 11 — Total Teaching Hours- 30

Time Allowed- 4 Hours

Session-I (Morning):- Theory Paper. **Time:- 1½ Hours**

Total Marks- 15

Four questions/exercises should be given, out of the two sections, and candidates are required to attempt any three. Each question/exercise will carry 05 marks.

The paper will be set by the examiner at the time of examination.

Session-II (Evening):- Practical Record & Viva Voce **Time:- 2½ Hours**

Total Marks: 15

Practical Record- 05 Marks

Viva- Voce- 05 Marks

Local Traffic Flow Report - 05 Marks

Objectives: -

1. To enable the students to represent the Geographical data with the help of maps and diagrams.
2. To provide training in application of various graphical methods of depicting geographic data.

Pedagogy: -

- Students should be encouraged to use computers while preparing practical exercises.

Note:-

Use of Stencils and calculator is allowed.

SECTION -A

1. **Symbolization of geographical data: -**

A、Point symbols : Dot, Circle and Sphere.

B、Line symbols : Isarithmic (Isometric & isopleths) and flow lines.

C、Areas symbols : Simple choropleth.

SECTION -B

2. **Exercises on: -**

A、Population data. : Distribution, density, literacy and growth.

B、Agricultural data. : Land utilization and distribution of crops.
C、Industrial data. : Distribution, employment and production.
D、Transport data. : Traffic flow.

3. **Local Traffic Flow Report** : A Brief Report (upto 10 pages) on Local Traffic Flow Survey.

BOOKS RECOMMENDED

1. Birch, T.W. : *Maps: Topographical &Statistical;* Clarenden Press, Oxford, 1949.
2. Garnett, A. : *Geographical Interpretation of Topographical Maps,* George Harrap & Co., London, 1953.
3. Khullar, D.R : *Essentials of Practical Geography.*
4. Monkhouse. F.J. : *Maps and Diagrams*, Metheun & Co., London, 1994 reprint.
5. Robinson, A.H. et. al. : *Elements of Cartography,* John Wiley, New York, 1995.
6. Singh, Gopal : *Mapwork and Practical Geography,* Vikas Publishing House Pvt. Ltd., New Delhi, 2001.
7. Singh, R.L. and Raghunandan : *Map work and Practical Geography,* Central Book Depot, Allahabad, 1993.

Geography Syllabus for B.A. Course
Part-II (Semester-IV)
Credits:- 05 (04L + 01P)
Session:- 2020-21

Total Marks - 100. **Minimum Pass Marks- 35**

Paper-VII: Geography of Punjab
Subject Code:- BA(GEO)-411
Credit:- 04

Total - 70 Marks	Pass Percentage- 35%
Theory – 56 Marks	Theory Pass Marks- 20
Internal Assessment -14 Marks.	Internal Assessment Pass Marks - 05
Time Allowed- 3 hours.	Total Teaching Hours- 60

OBJECTIVES:-
1. To acquaint the students with the Geography of State of Punjab.
2. To examine the cultural patterns of the region.
3. To identify the current trends and problems faced by Punjab state.

INSTRUCTIONS FOR THE PAPER SETTER: -
1. The question paper will consist of three sections: A, B and C. Sections A and B will have four questions each from the respective sections of the syllabus and will carry 09 marks each (Total 36 Marks). The students are required to attempt any two questions from each section. Section C is compulsory and will consist of 10 short answer type questions covering the entire syllabus uniformly. The answer of each question should be in about 30-35 words. Each question will carry 2 marks (Total 20 marks).
2. The paper setter should mention that the use of outlined stencil maps of the world/continents/countries by the candidates is allowed.

INSTRUCTIONS FOR THE CANDIDATES:-
1. Candidates are required to attempt two questions each from the sections A and B and section C is compulsory.
2. Candidates are allowed to use outlined stencil maps of world/continents/countries. They are also allowed to use simple calculators.
3. Credit will be given for suitable maps and diagrams.

PEDAGOGY:-
- Teacher should use maps and other modern aids like PPTs, video shows, etc. Students should be encouraged to use atlas in classroom.

SECTION -A

1. Introduction : Location, Evolution of the state and Administrative divisions.
2. Physiography : Relief, Drainage, Climate, Soils and Natural Vegetation.
3. Regional Geography : Cultural Regions: Majha, Doaba, and Malwa; main characteristics of each region with special reference to water and soil resources.

SECTION -B

4. Population : Distribution, density, growth, literacy and urbanization.
5. Economy : Agriculture main characteristics of Punjab agriculture including green revolution, irrigation, main crops (wheat, rice and cotton) and their distribution and problems of agriculture.
6. Industry : Factors for localization of industry, distribution pattern and problems of major industries (Cotton Textile, Sugar, Hosiery, and Engineering).
7. Transport : Road and Rail.

BOOKS RECOMMENDED

1. Census of India (1996) : *Punjab Census Atlas,* Vol. XIII, No. IX.
2. Deshpande, C.D. (1992) : *India: A Regional Interpretation,* Northern Book Centre, New Delhi.
3. Gosal, G.S. and Krishan, Gopal (1984) : *Regional Disparties in Levelsof Socio-conomic Development in Punjab,* Vishal Publishers, Kurukshetra, 1984.
4. Mankoo, Darshan Singh (2002) : *Geography of Punjab,* Kalyani Publication, Ludhiana.
5. Mavi, H.S. & Tiwana, D.S. (1993) : *Geography of Punjab,* National Book Trust, Delhi
6. Singh, Pritam (1995) : *Punjab Economy: The Emerging Pattern,* Enkay Publishers, New Delhi.
7. Singh, R.L. Ed., (1990) : *India: A Regional Geography,* National Geographical Society of India, Reprint
8. Spate, O.H.K. and Learmonth, A.T.A : *India and Pakistan: AGeneral and Regional Geography,* Methuen, London, Latest edition.

Paper-VIII :- Practical Geography: Cartography- IV
Subject Code:- BA(GEO)-411(P)
Credit:- 01

Total Marks- 30	Min. Pass Percentage - 35%
Pass Marks - 11	Total Teaching Hours- 30
Time Allowed- 4 Hours	

Session-I (Morning):- Theory Paper.1½ Hours
Total Marks- 15

Four questions/exercises should be given, out of the two sections, and candidates are required to attempt any three. Each question/exercise will carry 05 marks.
The paper will be set by the examiner at the time of examination.

Session-II (Evening):- Practical Record & Viva Voce **Time:- 2½ Hours**
Total Marks: 15

Practical Record- 05 Marks
Viva- Voce- 05 Marks
Field Survey and Plotting- 05 Marks

Objectives: -

1. To enable the students to represent the Geographical data with the help of maps and diagrams.
2. To provide training in application of various graphical methods of depicting geographic data.

Pedagogy: -

- Students should be encouraged to use of computers while preparing practical exercises.

Note:-

Use of Stencils and calculator is allowed.

SECTION -A

1. Construction and significance of the following:
   (a) Columnar diagrams : Single, Multiple and Percentage.
   (b) Graphs. : Line graphs (simple and poly line graph), Climograph, Hythergraph.

SECTION -B

2. Geographical Maps. : Significance of Topographical maps in Geographical studies.
3. Study and interpretation of Topographical maps of India (two sheets: one representing a hilly/mountainous tract, and the other a plain tract).
4. Profiles. : Longitudinal and Transverse profiles of rivers.

5. Plane Table Survey (Simple exercises) : Radial, Intersections, Open method.

BOOKS RECOMMENDED

1. Birch, T.W. : *Maps: Topographical &Statistical;* Clarenden Press, Oxford, 1949.
2. Garnett, A. : *Geographical Interpretation of Topographical Maps*, George Harrap & Co., London, 1953.
3. Khullar, D.R : *Essentials of Practical Geography.*
4. Monkhouse. F.J. : *Maps and Diagrams,* Metheun & Co., London, 1994 reprint.
5. Robinson, A.H. : *Elements of Cartography,* John Wiley, New York, 1995.
6. Singh, Gopal : *Mapwork and Practical Geography,* Vikas Publishing House Pvt. Ltd., New Delhi, 2001.
7. Singh, R.L. and Raghunandan : *Map work and Practical Geography,* Central Book Depot, Allahabad, 1993.

ਬੀ.ਏ. ਦੇ ਕੋਰਸ ਲਈ ਧਰਮ ਅਧਿਐਨ ਦਾ ਸਿਲੇਬਸ

ਬੀ.ਏ.ਭਾਗ ਦੂਜਾ (ਸਮੈਸਟਰ ਤੀਜਾ)

ਪੇਪਰ ਕੋਡ : BA (REL) 315,ਕ੍ਰੈਡਿਟ-05 (04L+01T)

ਸੈਸ਼ਨ : 2021-22 , 2022-23,2023-24

ਪੇਪਰ ਦਾ ਨਾਂ : ਸਾਮੀ ਧਰਮ

ਕੁੱਲ ਅੰਕ:100	**ਵਿਸ਼ੇ ਵਿੱਚੋਂ ਪਾਸ ਹੋਣ ਲਈ ਅੰਕ :35**
ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ :25	**ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਵਿੱਚੋਂ ਪਾਸ ਹੋਣ ਲਈ ਅੰਕ : 09**
ਬਾਹਰੀ ਪ੍ਰੀਖਿਆ :75	**ਬਾਹਰੀ ਪ੍ਰੀਖਿਆ ਵਿੱਚੋਂ ਪਾਸ ਹੋਣ ਲਈ ਅੰਕ : 26**
ਸਮਾਂ : ਤਿੰਨ ਘੰਟੇ	**ਕੁੱਲ ਲੈਕਚਰ - 60**

ਪਾਠ ਕ੍ਰਮ ਦਾ ਉਦੇਸ਼

1. ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਧਰਮ ਦਾ ਅਧਿਐਨ ਕਰਨ ਅਤੇ ਸਾਹਿਤ ਪੜ੍ਹਨ ਲਈ ਪ੍ਰੇਰਿਤ ਕਰਨਾ।
2. ਮਨੁੱਖੀ ਜੀਵਨ ਵਿਚ ਧਾਰਮਿਕ ਮਹੱਤਤਾ ਬਾਰੇ ਮੁੱਢਲੀ ਜਾਣਕਾਰੀ ਪ੍ਰਦਾਨ ਕਰਨਾ।
3. ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਮਨੁੱਖੀ ਕਦਰਾਂ ਕੀਮਤਾਂ ਅਤੇ ਨੈਤਿਕਤਾ ਸਿਖਾਉਣਾ।
4. ਧਾਰਮਿਕ ਗ੍ਰੰਥਾਂ, ਸਾਸ਼ਤਰਾਂ ਅਤੇ ਫ਼ਲਸਫ਼ੇ ਰਾਹੀਂ ਮਹਾਨ ਧਾਰਮਿਕ ਸਿੱਖਿਆਵਾਂ ਦੀ ਜਾਣ-ਪਛਾਣ ਕਰਵਾਉਣਾ।
5. ਵਿਦਿਆਰਥੀਆਂ ਦੀ ਸ਼ਖ਼ਸੀਅਤ ਦਾ ਸਰਵਪੱਖੀ ਵਿਕਾਸ ਕਰਨਾ।

ਪੇਪਰ ਸੈਟਰ ਲਈ ਹਦਾਇਤਾਂ

ਪ੍ਰਸ਼ਨ - ਪੱਤਰ ਤਿੰਨ ਹਿੱਸਿਆਂ (ੳ ,ਅ ਅਤੇ ੲ) ਵਿੱਚ ਵੰਡਿਆ ਹੋਵੇਗਾ।

ਭਾਗ ੳ :

ਪੇਪਰ ਸੈਟਰ ਵੱਲੋਂ ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਦੇ ਭਾਗ **ੳ** ਵਿੱਚੋਂ ਚਾਰ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ, ਜੋ ਕਿ ਸਾਰੇ ਸਿਲੇਬਸ **(ਭਾਗ ੳ ,ਅ)** ਵਿੱਚੋਂ ਹੋਣਗੇ। ਇਨ੍ਹਾਂ ਚਾਰ ਪ੍ਰਸ਼ਨਾਂ ਵਿੱਚੋਂ ਕੋਈ ਦੋ ਪ੍ਰਸ਼ਨਾਂ ਦਾ ਹੱਲ ਕਰਨਾ ਹੋਵੇਗਾ । ਹਰ ਪ੍ਰਸ਼ਨ 10 ਅੰਕਾਂ ਦਾ ਹੋਵੇਗਾ ।
(2*10=20)

ਭਾਗ ਅ :

ਪ੍ਰਸ਼ਨ - ਪੱਤਰ ਦੇ ਭਾਗ **ਅ** ਵਿੱਚੋਂ 8 ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ ਜੋ ਕਿ ਸਾਰੇ ਸਿਲੇਬਸ **(ਭਾਗ ੳ , ਅ)** ਵਿੱਚੋਂ ਹੋਣਗੇ। ਇਨ੍ਹਾਂ 8 ਪ੍ਰਸ਼ਨਾਂ ਵਿੱਚੋਂ ਕੋਈ 5 ਪ੍ਰਸ਼ਨਾਂ ਦਾ ਹੱਲ ਕਰਨਾ ਹੋਵੇਗਾ। ਹਰ ਪ੍ਰਸ਼ਨ 5 ਅੰਕਾਂ ਦਾ ਹੋਵੇਗਾ।
(5*5=25)

ਭਾਗ ੲ :

ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਦੇ ਭਾਗ **ੲ** ਵਿੱਚ ਸਾਰੇ ਸਿਲੇਬਸ (**ਭਾਗ ੳ ,ਅ)** ਵਿੱਚੋਂ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ 15 ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ , ਜਿਨ੍ਹਾਂ ਵਿੱਚੋਂ ਵਿਦਿਆਰਥੀ ਨੇ ਕੋਈ 10 ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹਨ। ਹਰ ਪ੍ਰਸ਼ਨ 03 ਅੰਕਾਂ ਦਾ ਹੋਵੇਗਾ ।
(10*3=30)

ਪ੍ਰੀਖਿਆਰਥੀ ਲਈ ਹਦਾਇਤਾਂ

- ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਦੇ ਭਾਗ **ੳ** ਵਿੱਚ 4 ਪ੍ਰਸ਼ਨਾਂ ਵਿੱਚੋਂ ਕੋਈ 2 ਪ੍ਰਸ਼ਨਾਂ ਦਾ ਹੱਲ (1000 ਤੋਂ 1200 ਸ਼ਬਦਾਂ ਵਿੱਚ) ਕਰਨਾ ਹੋਵੇਗਾ। **(2*10=20)**
- ਭਾਗ ਅ ਵਿੱਚ 8 ਪ੍ਰਸ਼ਨਾਂ ਵਿੱਚੋਂ ਕੋਈ 5 ਪ੍ਰਸ਼ਨਾਂ (100ਤੋਂ 120 ਸ਼ਬਦਾਂ ਵਿੱਚ) ਦਾ ਹੱਲ ਕਰਨਾ ਹੋਵੇਗਾ। **(5*5=25)**
- ਭਾਗ ੲ ਵਿੱਚ ਸੰਖੇਪ ਉੱਤਰ ਵਾਲੇ 15 ਪ੍ਰਸ਼ਨਾਂ ਵਿੱਚੋਂ ਕੋਈ 10 ਪ੍ਰਸ਼ਨਾਂ (40ਤੋਂ60 ਸ਼ਬਦਾਂ) ਦਾ ਹੱਲ ਕਰਨਾ ਹੋਵੇਗਾ । **(10*3=30)**

ਬੀ.ਏ.ਭਾਗ ਦੂਜਾ (ਸਮੈਸਟਰ ਤੀਜਾ)

ਪੇਪਰ ਕੋਡ : BA (REL) 315,ਕ੍ਰੈਡਿਟ-05 (04L+01T)

ਸੈਸ਼ਨ : 2021-22 , 2022-23,2023-24

ਧਰਮ ਅਧਿਐਨ

ਪੇਪਰ ਦਾ ਨਾਂ : ਸਾਮੀ ਧਰਮ

ਭਾਗ ੳ

ਯਹੂਦੀ ਧਰਮ ਅਤੇ ਇਸਾਈ ਧਰਮ

1. ਯਹੂਦੀ ਧਰਮ :ਮੁੱਢਲੀ ਜਾਣਕਾਰੀ ।
2. ਪੈਗੰਬਰ ਮੂਸਾ ਦਾ ਜੀਵਨ ਅਤੇ ਸਿੱਖਿਆਵਾਂ ।
3. ਪੁਰਾਣਾ ਅਹਿਦਨਾਮਾ : ਵਿਸ਼ਾ- ਵਸਤੂ , ਸਰੂਪ ਅਤੇ ਬਣਤਰ ।
4. ਈਸਾਈ ਧਰਮ :ਮੁੱਢਲੀ ਜਾਣਕਾਰੀ ।
5. ਈਸਾ ਮਸੀਹ ਦੇ ਜੀਵਨ ਅਤੇ ਸਿੱਖਿਆਵਾਂ ।
6. ਨਵਾਂ ਨੇਮ : ਵਿਸ਼ਾ-ਵਸਤੂ, ਸਰੂਪ ਅਤੇ ਬਣਤਰ ।

ਭਾਗ ਅ

ਇਸਲਾਮ ਧਰਮ ਅਤੇ ਪਾਰਸੀ ਧਰਮ

1. ਇਸਲਾਮ ਧਰਮ : ਮੁੱਢਲੀ ਜਾਣਕਾਰੀ ।
2. ਪੈਗੰਬਰ ਹਜ਼ਰਤ ਮੁਹੰਮਦ ਦਾ ਜੀਵਨ ਅਤੇ ਸਿੱਖਿਆਵਾਂ ।
3. ਪਵਿੱਤਰ ਕੁਰਆਨ : ਵਿਸ਼ਾ- ਵਸਤੂ , ਸਰੂਪ ਅਤੇ ਬਣਤਰ।
4. ਪਾਰਸੀ ਧਰਮ : ਮੁੱਢਲੀ ਜਾਣਕਾਰੀ।

5. ਪੈਗ਼ੰਬਰ ਜ਼ਰਤੁਸ਼ਤ ਦਾ ਜੀਵਨ ਅਤੇ ਸਿੱਖਿਆਵਾਂ ।

6. ਜੇਂਦ ਅਵੇਸਤਾ: ਵਿਸ਼ਾ - ਵਸਤੂ ਸਰੂਪ ਅਤੇ ਬਣਤਰ ।

ਭਾਗ (ੲ)

ਸੰਖੇਪ ਉੱਤਰ ਵਾਲੇ ਪ੍ਰਸ਼ਨ

ਪੁਸਤਕ- ਸੂਚੀ

ਪੰਜਾਬੀ ਪੁਸਤਕਾਂ :

1. ਸਰਬਜਿੰਦਰ ਸਿੰਘ ,***ਧਰਮ,*** ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ ।
2. ਬਾਈਬਲ (ਪੰਜਾਬੀ ਅਨੁਵਾਦ) ***ਬਾਈਬਲ***, ਸੁਸਾਇਟੀ ਆਫ ਇੰਡੀਆ, ਪਟਿਆਲਾ ।
3. ਜੀ. ਆਰ . ਸਿੰਘ ਅਤੇ ਸੀ.ਡਬਲਿਉ. ਡੇਵਿਡ, ***ਯਹੂਦੀ ਧਰਮ***, ਲਖਨਊ ਪਬਲਿਸ਼ਿੰਗ ਹਾਊਸ,ਲਖਨਊ।
4. **ਉਹੀ** ,*ਵਿਸ਼ਵ ਦੇ ਪ੍ਰਮੁੱਖ ਧਰਮ।*
5. ਗੁਲਵੰਤ ਸਿੰਘ, ***ਇਸਲਾਮ ਤੇ ਸੂਫ਼ੀਵਾਦ*** , ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ’ ਪਟਿਆਲਾ।
6. ਡਾ.ਮੁਹੰਮਦ ਹਬੀਬ, ***ਇਸਲਾਮ*** , ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ।
7. ਗੁਰਬਚਨ ਸਿੰਘ ਤਾਲਿਬ (ਸੰਪਾ..) ***ਸੰਸਾਰ ਦੇ ਕੁਝ ਪ੍ਰਮੁੱਖ ਧਰਮ,*** ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ ।
8. ਤੇਜਿੰਦਰ ਕੌਰ ਧਾਲੀਵਾਲ, ***ਯਹੂਦੀ ਅਤੇ ਈਸਾਈ ਧਰਮ: ਇੱਕ ਸੰਖੇਪ ਜਾਣਕਾਰੀ***, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ ।
9. ਕਰਤਾਰ ਚੰਦ ਭੱਟੀ, ***ਇਸਾਈਅਤ:ਇੱਕ ਜਾਣ ਪਛਾਣ,*** ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ ।
10. ਹਜ਼ਰਤ ਮਿਰਜ਼ਾ ਗ਼ੁਲਾਮ ਅਹਿਮਦ, ***ਇਸਲਾਮੀ ਅਸੂਲਾਂ ਦੀ ਫ਼ਿਲਾਸਫ਼ੀ***, ਨਸ਼ਰ ਉਇ ਸ਼ਾਮਤ,ਕਾਦੀਆਂ ।

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2. Arthur Hertzberg, ***Judaism****: An Introduction to the beliefs and practices Jews,* The Free Press, New York.
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5. JohnForester,***The First Advance Church History,***
New Delhi.
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ਬੀ.ਏ. ਦੇ ਕੋਰਸ ਲਈ ਧਰਮ ਅਧਿਐਨ ਦਾ ਸਿਲੇਬਸ

ਬੀ.ਏ.ਭਾਗ ਦੂਜਾ (ਸਮੈਸਟਰ ਚੌਥਾ)

ਪੇਪਰ ਕੋਡ : BA (REL) 415,ਕ੍ਰੈਡਿਟ-05 (04L+01T)

ਸੈਸ਼ਨ : 2021-22 , 2022-23,2023-24

ਪੇਪਰ ਦਾ ਨਾਂ : ਮੱਧਕਾਲੀਨ ਅਤੇ ਆਧੁਨਿਕ ਧਾਰਮਿਕ ਲਹਿਰਾਂ

ਕੁੱਲ ਅੰਕ:100 **ਵਿਸ਼ੇ ਵਿੱਚੋਂ ਪਾਸ ਹੋਣ ਲਈ ਅੰਕ :35**

ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ :25 **ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਵਿੱਚੋਂ ਪਾਸ ਹੋਣ ਲਈ ਅੰਕ : 09**

ਬਾਹਰੀ ਪ੍ਰੀਖਿਆ :75 **ਬਾਹਰੀ ਪ੍ਰੀਖਿਆ ਵਿੱਚੋਂ ਪਾਸ ਹੋਣ ਲਈ ਅੰਕ : 26**

ਸਮਾਂ : ਤਿੰਨ ਘੰਟੇ **ਕੁੱਲ ਲੈਕਚਰ - 60**

ਪਾਠ ਕ੍ਰਮ ਦਾ ਉਦੇਸ਼

1 ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਧਰਮ ਦਾ ਅਧਿਐਨ ਕਰਨ ਅਤੇ ਸਾਹਿਤ ਪੜ੍ਹਨ ਲਈ ਪ੍ਰੇਰਿਤ ਕਰਨਾ।

2 ਮਨੁੱਖੀ ਜੀਵਨ ਵਿਚ ਧਾਰਮਿਕ ਮਹੱਤਤਾ ਬਾਰੇ ਮੁੱਢਲੀ ਜਾਣਕਾਰੀ ਪ੍ਰਦਾਨ ਕਰਨਾ।

3 ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਮਨੁੱਖੀ ਕਦਰਾਂ ਕੀਮਤਾਂ ਅਤੇ ਨੈਤਿਕਤਾ ਸਿਖਾਉਣਾ।

4 ਧਾਰਮਿਕ ਗ੍ਰੰਥਾਂ, ਸਾਸ਼ਤਰਾਂ ਅਤੇ ਫ਼ਲਸਫ਼ੇ ਰਾਹੀਂ ਮਹਾਨ ਧਾਰਮਿਕ ਸਿੱਖਿਆਵਾਂ ਦੀ ਜਾਣ-ਪਛਾਣ ਕਰਵਾਉਣਾ।

5 ਵਿਦਿਆਰਥੀਆਂ ਦੀ ਸ਼ਖ਼ਸੀਅਤ ਦਾ ਸਰਵਪੱਖੀ ਵਿਕਾਸ ਕਰਨਾ।

ਪੇਪਰ ਸੈਟਰ ਲਈ ਹਦਾਇਤਾਂ

ਪ੍ਰਸ਼ਨ - ਪੱਤਰ ਤਿੰਨ ਹਿੱਸਿਆਂ (ੳ ,ਅ ਅਤੇ ੲ) ਵਿੱਚ ਵੰਡਿਆ ਹੋਵੇਗਾ।

ਭਾਗ ੳ :

ਪੇਪਰ ਸੈਟਰ ਵੱਲੋਂ ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਦੇ ਭਾਗ **ੳ** ਵਿੱਚੋਂ ਚਾਰ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ, ਜੋ ਕਿ ਸਾਰੇ ਸਿਲੇਬਸ **(ਭਾਗ ੳ ,ਅ)** ਵਿੱਚੋਂ ਹੋਣਗੇ। ਇਨ੍ਹਾਂ ਚਾਰ ਪ੍ਰਸ਼ਨਾਂ ਵਿੱਚੋਂ ਕੋਈ ਦੋ ਪ੍ਰਸ਼ਨਾਂ ਦਾ ਹੱਲ ਕਰਨਾ ਹੋਵੇਗਾ । ਹਰ ਪ੍ਰਸ਼ਨ 10 ਅੰਕਾਂ ਦਾ ਹੋਵੇਗਾ ।

(2*10=20)

ਭਾਗ ਅ :

ਪ੍ਰਸ਼ਨ - ਪੱਤਰ ਦੇ ਭਾਗ **ਅ** ਵਿੱਚੋਂ 8 ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ ਜੋ ਕਿ ਸਾਰੇ ਸਿਲੇਬਸ **(ਭਾਗ ੳ , ਅ)** ਵਿੱਚੋਂ ਹੋਣਗੇ। ਇਨ੍ਹਾਂ 8 ਪ੍ਰਸ਼ਨਾਂ ਵਿੱਚੋਂ ਕੋਈ 5 ਪ੍ਰਸ਼ਨਾਂ ਦਾ ਹੱਲ ਕਰਨਾ ਹੋਵੇਗਾ। ਹਰ ਪ੍ਰਸ਼ਨ 5 ਅੰਕਾਂ ਦਾ ਹੋਵੇਗਾ।

(5*5=25)

ਭਾਗ ੲ :

ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਦੇ ਭਾਗ **ੲ** ਵਿੱਚ ਸਾਰੇ ਸਿਲੇਬਸ (**ਭਾਗ ੳ ,ਅ)** ਵਿੱਚੋਂ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ 15 ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ , ਜਿਨ੍ਹਾਂ ਵਿੱਚੋਂ ਵਿਦਿਆਰਥੀ ਨੇ ਕੋਈ 10 ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹਨ। ਹਰ ਪ੍ਰਸ਼ਨ 03 ਅੰਕਾਂ ਦਾ ਹੋਵੇਗਾ ।

(10*3=30)

ਪ੍ਰੀਖਿਆਰਥੀ ਲਈ ਹਦਾਇਤਾਂ

- ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਦੇ ਭਾਗ **ੳ** ਵਿੱਚ 4 ਪ੍ਰਸ਼ਨਾਂ ਵਿੱਚੋਂ ਕੋਈ 2 ਪ੍ਰਸ਼ਨਾਂ ਦਾ ਹੱਲ (1000-1200 ਸ਼ਬਦਾਂ ਵਿੱਚ) ਕਰਨਾ ਹੋਵੇਗਾ। **(2*10=20)**
- ਭਾਗ ਅ ਵਿੱਚ 8 ਪ੍ਰਸ਼ਨਾਂ ਵਿੱਚੋਂ ਕੋਈ 5 ਪ੍ਰਸ਼ਨਾਂ (100ਤੋਂ 120 ਸ਼ਬਦਾਂ ਵਿੱਚ) ਦਾ ਹੱਲ ਕਰਨਾ ਹੋਵੇਗਾ। **(5*5=25)**
- ਭਾਗ ੲ ਵਿੱਚ ਸੰਖੇਪ ਉੱਤਰ ਵਾਲੇ 15 ਪ੍ਰਸ਼ਨਾਂ ਵਿੱਚੋਂ ਕੋਈ 10 ਪ੍ਰਸ਼ਨਾਂ (40ਤੋਂ60 ਸ਼ਬਦਾਂ) ਦਾ ਹੱਲ ਕਰਨਾ ਹੋਵੇਗਾ । **(10*3=30)**

ਬੀ.ਏ. ਦੇ ਕੋਰਸ ਲਈ ਧਰਮ ਅਧਿਐਨ ਦਾ ਸਿਲੇਬਸ

ਬੀ.ਏ.ਭਾਗ ਦੂਜਾ (ਸਮੈਸਟਰ ਚੌਥਾ)

ਪੇਪਰ ਕੋਡ : BA (REL) 415,ਕ੍ਰੈਡਿਟ-05 (04L+01T)

ਸੈਸ਼ਨ : 2021-22 , 2022-23,2023-24

ਧਰਮ ਅਧਿਐਨ

ਪੇਪਰ ਦਾ ਨਾਂ : ਮੱਧਕਾਲੀਨ ਅਤੇ ਆਧੁਨਿਕ ਧਾਰਮਿਕ ਲਹਿਰਾਂ

ਭਾਗ (ੳ)

ਭਗਤੀ ਲਹਿਰ ਅਤੇ ਸੂਫ਼ੀਮਤ

1. ਭਗਤੀ ਲਹਿਰ ਉਤਪਤੀ ਅਤੇ ਵਿਕਾਸ
2. ਨਿਰਗੁਣ,ਸਰਗੁਣ ਭਗਤੀ ਅਤੇ ਭਗਤੀ ਲਹਿਰ ਦੇ ਪ੍ਰਭਾਵ
3. ਭਗਤੀ ਲਹਿਰ ਦੇ ਮੁੱਖ ਭਗਤ : ਭਗਤ ਨਾਮਦੇਵ , ਭਗਤ ਕਬੀਰ , ਭਗਤ ਰਵਿਦਾਸ
4. ਸੂਫ਼ੀ ਮੱਤ ਉਤਪਤੀ ਅਤੇ ਵਿਕਾਸ
5. ਸੂਫ਼ੀ ਮਤ ਵਿੱਚ ਅਧਿਆਤਮਕ ਵਿਕਾਸ ਦੇ ਪੜਾਅ
6. ਸ਼ੇਖ ਫਰੀਦ ਜੀ ਦਾ ਜੀਵਨ ਤੇ ਵਿਚਾਰਧਾਰਾ

ਭਾਗ (ਅ)

ਉਨੀਵੀਂ ਸਦੀ ਦੀਆਂ ਪ੍ਰਮੁੱਖ ਭਾਰਤੀ ਧਾਰਮਿਕ ਲਹਿਰਾਂ ਅਤੇ ਪੰਜਾਬ ਦੀਆਂ ਪ੍ਰਸਿੱਧ ਧਾਰਮਿਕ ਲਹਿਰਾਂ

1. ਰਾਮ ਕ੍ਰਿਸ਼ਨ ਮਿਸ਼ਨ ਆਰੰਭ ਵਿਕਾਸ ਅਤੇ ਵਿਚਾਰਧਾਰਾ
2. ਬ੍ਰਹਮੋ ਸਮਾਜ ਆਰੰਭ ਵਿਕਾਸ ਅਤੇ ਵਿਚਾਰਧਾਰਾ
3. ਆਰੀਆ ਸਮਾਜ ਆਰੰਭ ਵਿਕਾਸ ਅਤੇ ਵਿਚਾਰਧਾਰਾ
4. ਨਾਮਧਾਰੀ ਲਹਿਰ ਆਰੰਭ ਵਿਕਾਸ ਅਤੇ ਵਿਚਾਰਧਾਰਾ
5. ਸਿੰਘ ਸਭਾ ਲਹਿਰ ਅਤੇ ਗੁਰਦੁਆਰਾ ਸੁਧਾਰ ਲਹਿਰ ਆਰੰਭ ਵਿਕਾਸ ਤੇ ਵਿਚਾਰਧਾਰਾ
6. ਅਹਿਮਦੀਆ ਲਹਿਰ ਆਰੰਭ ਵਿਕਾਸ ਤੇ ਵਿਚਾਰਧਾਰਾ

ਭਾਗ (ੲ) ਸੰਖੇਪ ਉੱਤਰ ਵਾਲੇ ਪ੍ਰਸ਼ਨ

ਬੀ.ਏ.ਭਾਗ ਦੂਜਾ (ਸਮੈਸਟਰ ਚੌਥਾ)

ਪੇਪਰ ਕੋਡ : BA (REL) 415,ਕ੍ਰੈਡਿਟ-05 (04L+01T)

ਸੈਸ਼ਨ : 2021-22 , 2022-23,2023-24

ਧਰਮ ਅਧਿਐਨ

ਪੇਪਰ ਦਾ ਨਾਂ : ਮੱਧਕਾਲੀਨ ਅਤੇ ਆਧੁਨਿਕ ਧਾਰਮਿਕ ਲਹਿਰਾਂ

ਸੁਝਾਈਆਂ ਪੁਸਤਕਾਂ

ਪੰਜਾਬੀ ਪੁਸਤਕਾਂ :

1. ਸਰਬਜਿੰਦਰ ਸਿੰਘ ,***ਧਰਮ,*** ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ ।
2. ਡਾ. ਮਨਮੋਹਨ ਸਿੰਘ, ***ਗੁਰੂ ਨਾਨਕ ਅਤੇ ਭਗਤੀ ਅੰਦੋਲਨ,*** ਮਨਦੀਪ ਪ੍ਰਕਾਸ਼ਨ, ਨਵੀਂ ਦਿੱਲੀ।
3. ਪ੍ਰੋ. ਗੁਲਵੰਤ ਸਿੰਘ, ***ਗੁਲਵੰਤ ਸਿੰਘ ਰਚਨਾਵਲੀ,*** ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।
4. ਕਰਮ ਸਿੰਘ, ***ਮੱਧਕਾਲੀਨ ਪੰਜਾਬ ਦੀ ਧਰਮ ਚੇਤਨਾ***, ਭਾਸ਼ਾ ਵਿਭਾਗ, ਪੰਜਾਬ, ਪਟਿਆਲਾ।
5. ਦਲੀਪ ਸਿੰਘ ,ਦੀਪ, ***ਸਾਧਨਾ ਮੇਂ ਰਵਿਦਾਸ ਸੰਤ ਜੀਵਨ ਅਤੇ ਵਿਚਾਰ,*** ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ
6. ਮੇਵਾ ਸਿੰਘ ਸਿੱਧੂ, ਪੰਜਾਬ ਦੀਆਂ ਲੋਕ ਲਹਿਰਾਂ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ।
7. ਜਗਜੀਤ ਸਿੰਘ, **ਸਲੋਕ ਤਥਾ ਬਾਣੀ ਸ਼ੇਖ ਫ਼ਰੀਦ ਦਾ ਆਲੋਚਨਾਤਮਕ ਅਧਿਐਨ**, ਪੈਪਸੂ ਬੁੱਕ ਡਿਪੂ, ਪਟਿਆਲਾ;
8. ਹਰਮਿੰਦਰ ਸਿੰਘ ਬੇਦੀ , ਜਸਵਿੰਦਰ ਸਿੰਘ ,***ਨਾਮਧਾਰੀ ਲਹਿਰ*** ,ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਯੂਨੀਵਰਸਿਟੀ, ਅੰਮ੍ਰਿਤਸਰ
9. ਗੁਰਚਰਨ ਸਿੰਘ ,ਸਤਨਾਮ ਸਿੰਘ, ***ਭਾਰਤੀ ਸੁਤੰਤਰਤਾ ਸੰਗਰਾਮ ਦਾ ਇਤਿਹਾਸ***, ਰਾਜ ਪਬਲਿਸ਼ਰਜ਼ ,ਜਲੰਧਰ।

English books:

1. Rekha Pandey, ***Religious Movements in Medieval India***, Gyan publishing House, Delhi.
2. K.P.Singh, ***Arya Samaj Movement***, Tarun Parkashan,Gwalior.
3. Ramakrishna, ***Teachings of Ramakrishna***, Advaita Ashram ,Kolkata.
4. Hamid Hussain, ***Sufism and Bhakti Movement***, Manak Publications, Delhi.

SYLLABI

B.A. (HISTORY) PART-II
(SEMESTER III & IV)

FOR SESSION 2020-21, 2021-22, 2022-23

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Sri Guru Teg Bahadur Khalsa College, Anandpur Sahib

An Autonomous College

SYLLABI OF B.A (SUBJECT HISTORY)

(Under CBCS)

Paper Code	Class	Course Name (paper)	Credits	Max. Marks Pass Percentage 35%			Examination Time
				Ex.	In.	Total	
(HIS)-110:	Sem-I	HISTORY OF INDIA UPTO 1000 A.D	5	75	25	100	3 Hrs
(HIS)-210:	Sem-II	HISTORY OF INDIA 1000-1707 A.D.	5	75	25	100	3 Hrs
(HIS)-310	Sem-III	HISTORY OF INDIA 1707-1950 A.D	5	75	25	100	3 Hrs
(HIS)-410	Sem–IV	HISTORY OF PUNJAB 1469-1799 A.D	5	75	25	100	3 Hrs
(HIS)-510	Sem–V	HISTORY OF WORLD 1500-1950 A.D	5	75	25	100	3 Hrs
(HIS)-610	Sem-VI	HISTORY OF PUNJAB 1799-1966 A.D	5	75	25	100	3Hrs

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HISTORY

Session 2020-21, 2021-22, 2022-23

(B.A. PART-II) SEMESTER-III

HISTORY OF INDIA (1707-1950)

B.A(HIS)-310

Paper Credits= 05
TIME ALLOWED: 3 HOURS

MAX. MARKS: 75
PASS MARKS: 26
INTERNAL ASSESSMENT MARKS: 25

SEMESTER –III

INSTRUCTIONS FOR THE PAPER SETTER

NOTE: The paper setter should keep in view the topics specified in each paper and not the title of the paper. Candidates are required to attempt two questions each from the unit I & II and the entire section C.

1 The syllabus prescribed should be strictly adhered to.

2 The question paper will consist of three units: I, II & III. Unit I & II will have four questions from the respective units of the syllabus and will carry 12 marks each and the candidates will attempt two questions from each unit. In case, a question carries two parts, its marks would be divided as per instructions.

3 Unit III which is compulsory will consist of two parts: first part will consist 08 short answer type questions which will cover the entire syllabus and will carry 16 marks in all. The second part will contain a question on map, internal choice will be offered in map question. The maps are specified in the syllabus. The map question will carry 11 marks out of which 07 marks are for filling the map and 04 marks for explanatory notes. Thus the total marks for the compulsory unit III will be 27 marks out of which 16 marks for short answer type questions and 11 marks for the map question.

The Break-up of 25-marks for internal assessment (Theory Papers) is below:

1. **MST I and II: 15 Marks**
2. **Class Attendance: 05 Marks**
3. **Assignment/Seminar/Class Behaviour: 05 Marks**

   Total Marks: 25 Marks

Course Learning Outcomes: After the successful completion of this course, the student will be able to understand the history of Modern India.

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SECTION-A

1. Causes of the downfall of Mughal Empire.
2. Foundation and expansion of British Empire: Battles of Plassey and Buxar.
3. Administrative and Social Reforms of Lord Cornwallis and Lord William Bentinck.
4. The Revolt of 1857: Causes, nature and results.
5. Socio-Cultural Movements: Brahmo Samaj, Arya Samaj, Aligarh Movement, Singh Sabha Movement. Dr. Ambedkar's efforts for the uplift of the Scheduled Castes.

SECTION-B

6. British Agrarian Policy in India; Agriculture, Land revenue polices, rural indebtedness and decline of Indigenous industries in India.
7. Foundation of Indian National Congress; Moderates and Extremists.
8. Freedom Struggle (1919-1947): Jallianwala Bagh Massacre; Non-Cooperation Movement; Gurdwara Reform Movement; Naujawan Bharat Sabha; Simon Commission; Civil Disobedience Movement; Quit India Movement.
9. Causes of Partition of India; Integration of Princely States.
10. Salient Features of Indian Constitution.

MAPS:

(a) British Empire in India upto 1805 A.D.

(b) British Empire in India upto 1818 A.D.

(c) British Empire in India upto 1856 A.D.

(d) Important Centres of the Revolt of 1857.

Suggested Readings

- Alam Muzaffar, *The Crisis of Empire in Mughal North India*, OUP, Delhi, 1986.

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- Sarkar Jagdish Narayan, *A Study in Eighteenth Century India,* Saraswat Library, Calcutta, 1976.
- Mazumdar R.C., *The Maratha Supremacy*, Bharat Vidya Bhawan Mumbai, 2001.
- Nadkarni R.V., *Rise and fall of the Maratha Empire,* Delhi, 1966.
- Roberts P.E., *History of British India,* Oxford University Press, 1952.
- Hunter William Wilson, *A History of British India,* Hard Press Publishing, 2014.
- Prasad Bisheshwar, *Bondage and Freedom,* Rajesh Publication, 1977.
- Grover B.L. & S., *A New Look at Modern Indian History from 1707 to the Modern times,* S Chand Publishing, 2016.
- Marshall P.J., *The Eighteenth Century in Indian History,* Oxford University Press, 2005.
- Gordon Stewart, *The Marathas 1600-1818*, Cambridge University Press, 1999.
- Sinha H.N., *Rise of the Peshwas,* The Indian Press Ltd, 1931.
- Sardesai G.S., *Main Currents of Maratha History,* K. B. Dhawale, 1933.
- Jones K.W., *Socio-Religious Reform movements in British India,* Cambridge University Press, 2006.
- Chandra Bipin, *History of Modern India,* Orient Blackswan Private Limited, 2018.
- …………………, *India's struggle for Independence,* Penguin Global, 1989.

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- Davies C.C., *An Historical Atlas of the Indian Peninsula*, Oxford University Press, 1968.
- Banopadhyay Shekher, *From Plassy to Partition*, Orient Blackman, Delhi, 1999.

HISTORY
Session 2020-21, 2021-22, 2022-23
(B.A. PART-II) SEMESTER-IV
HISTORY OF PUNJAB (1469-1799)
B.A(HIS)-410

Paper Credits= 05
TIME ALLOWED: 3 HOURS

MAX. MARKS: 75
PASS MARKS: 26
INTERNAL ASSESSMENT MARKS: 25

SEMESTER –IV

INSTRUCTIONS FOR THE PAPER SETTER

NOTE: The paper setter should keep in view the topics specified in each paper and not the title of the paper. Candidates are required to attempt two questions each from the unit I & II and the entire section C.

1 The syllabus prescribed should be strictly adhered to.

2 The question paper will consist of three units: I, II & III. Unit I & II will have four questions from the respective units of the syllabus and will carry 12 marks each and the candidates will attempt two questions from each unit. In case, a question carries two parts, its marks would be divided as per instructions.

3 Unit III which is compulsory will consist of two parts: first part will consist 08 short answer type questions which will cover the entire syllabus and will carry 16 marks in all. The second part will contain a question on map, internal choice will be offered in map question. The maps are specified in the syllabus. The map question will carry 11 marks out of which 07 marks are for filling the map and 04 marks for explanatory notes. Thus the total marks for the compulsory unit III will be 27 marks out of which 16 marks for short answer type questions and 11 marks for the map question.

The Break-up of 25-marks for internal assessment (Theory Papers) is below:

1. **MST I and II: 15 Marks**
2. **Class Attendance: 05 Marks**

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3. Assignment/Seminar/Class Behaviour: 05 Marks
Total Marks: 25 Marks

Course Learning Outcomes: After the successful completion of this course, the student will be able to understand the history of medieval Punjab.

SECTION-A

1. Main Sources of Punjab History.
2. Age of Guru Nanak Dev: Political, Social and Religious condition of Punjab; Teachings of Guru Nanak.
3. Evolution of Sikhism from Guru Angad Dev to Guru Arjan Dev. (1539-1606)
4. Transformation of Sikhism: New Policy of Guru Hargobind; Main Features and impact.
5. Sri Guru Teg Bahadur; Causes of his Martyrdom and its Significance.

SECTION-B

6. Guru Gobind Singh: Creation of the Khalsa and its significance; His achievements and personality.
7. Banda Singh Bahadur and the establishment of independent rule of the Sikhs; causes of his failure.
8. Political struggle of the Sikhs against Zakariya Khan, Yahiya Khan and Mir Mannu.
9. Rise of the Sikh Misls; Nature and Administration.

MAPS:

(a) Battles of Guru Hargobind Ji.

(b) Battles of Guru Gobind Singh Ji.

(c) Military exploits of Banda Bahadur.

(d) Important places connected with the Sikh Gurus.

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Suggested Readings

- Chetan Singh, *Region and Empire: Punjab in the Seventeenth Century*, OUP, Delhi, 1991.
- Bal, S.S, *Life of Guru Nanak*, Panjab University, Chandigarh 1969.
- Grewal J.S., *From Guru Nanak to Maharaja Ranjit Singh*, G.N.D.University, Amritsar 1982.
- ., *Guru Nanak in History,* Punjab University, Chandigarh, 1969.
- Hans, Surjit, *A Reconstruction of Sikh History from Sikh Literature*, ABS Publications, Jalandhar 1988.
- Khushwant Singh, *A History of the Sikhs, Vol. I (1469-1839),* OUP, Delhi 1977.
- Macauliffe, M.A. *The Sikh Religion: Its Gurus Sacred Writings and Authors,* Low Price Publication, Delhi, 1909
- McLeod, W.H., *Guru Nanak and the Sikh Religion*, OUP, Delhi, 1968
- Sulakhan Singh, *Heterodoxy in the Sikh Tradition,* ABS Publications, Jalandhar 1999.
- Teja Singh and Ganda Singh, *A Short History of the Sikhs Vol. (1469-1765),* Patiala 1983.
- Singh Kirpal, Sikh History, Sources and Historigraphy, Punjabi University Patiala, 2015.

Reference Readings:

- Bal, S.S. *Guru Nanak in Eyes of Non-Sikhs,* India Publication Bureau, Panjab University, Chandigarh, 1984.
- Banerjee, A.C. *Guru Nanak and His Times,* Punjabi University, Patiala, 2000
- Banerjee, I.B. *Evolution of the Khalsa, 2 Vols.,* A. Mukherjee & Co., Calcutta 1979.
- Banga Indu (ed), *Five Punjabi Centuries: Polity, Economy, Society and Culture (C1500-1990),* Manohar, New Delhi, 1997:
- Cunningham, J.D. *History of the Sikhs*, Delhi 1969 (reprint)
- Dhillon G.S., *Researches in Sikh Religion and History,* Chandigarh, 1989.
- Fenech, Louis E., *Martyrdom in the Sikh Tradition*, OUP,Oxford, 2000.

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- Grewal, J.S., *Contesting Interpretations of the Sikh Traditions,* New Delhi, 1998.
- Harbans Singh (ed), *The Encyclopeadia of Sikhism, 4 Vols.,* Punjabi University, Patiala 1992.
- Maan, Jasbir Singh and Harbans Singh Sarao, *Advanced Studies in Sikhism,* Sikh Community of North America, Irvine 1989.
- Kohli, S.S. *Travels of Guru Nanak,* Panjab University, Chandigarh, 1969
- ., A Critical Study of Adi Granth, Punjabi Writers Cooperative, Delhi, 1961
- McLeod, W.H., *Evolution of the Sikh Community*, OUP, Delhi, 1970.
  …, *Historical Dictionary of Sikhism*, OUP, New Delhi, 2002.
- Narang, G.C., *Transformation of Sikhism,* New Book Society, 1968. (5th edition).
- Teja Singh, *Sikhism: Its Ideals and Institutions,* Bombay 1938.

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DEPARTMENT OF HISTORY

SYLLABI

FOR SESSION 2020-21, 2021-22, 2022-23

MA Part-II History (SEMESTER III & IV)

(Under CBCS)

Note:- Complete M.A (History) Course carries 80 credits and each paper carries 05 credits. (05 lectures + 01 Tutorial)

(Semester-III)

Paper Code	Course Type	Course Name	Credits	Max. Marks Pass Percentage 35%			Examination Time
				Ex.	In.	Total	
MA(HIS) 301(Paper:-I)	Core Course-I	History of Punjab (A.D.1799-1849)	5	70	30	100	3 Hrs
MA(HIS) 302(Paper:- II)	Core Course-II	History of India (A.D. 1707-1772)	5	70	30	100	3 Hrs
MA(HIS) 303 (Paper:- III)	Core Course-III	History of India (A.D.1818-1947)	5	70	30	100	3 Hrs
MA(HIS) 304 (Paper:-IV)	Core Course-IV	National Movement In India And Constitutional Development 1858-1930.	5	70	30	100	3 Hrs

Jaspal Kaur
15/7/2020

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(Semester IV)

Paper Code	Course Type	Course Name	Credits	Max. Marks Pass Percentage 35%			Examination Time
				Ex.	In.	Total	
MA(HIS)-401(Paper:-I)	Core Course-I	History of Punjab (A.D. 1849-1947)	5	70	30	100	3 Hrs
MA(HIS)- 402 (Paper:-II)	Core Course-II	History of India (A.D. 1772-1818)	5	70	30	100	3 Hrs
MA(HIS)- 403 (Paper:-III)	Core Course-III	Social And Economic History of Modern India (1818-1947)	5	70	30	100	3 Hrs
MA(HIS)- 404 (Paper:-IV)	Core Course-IV	National Movement In India And Constitutional Development 1930-1947.	5	70	30	100	3 Hrs

15/7/2020

Session 2020-21, 2021-22, 2022-23

M.A. Part-II (Semester-III)

Paper-I

INSTRUCTIONS FOR THE PAPER-SETTERS

1. The Syllabus prescribed 'should be "strictly adhered to.

The paper-setters should keep in view the topics specified in each paper and not the title of the paper.

2. The question paper will consist of three units: I, II & III. Units I & II will have four questions each from the respective units of the syllabus and will carry 10 marks each. Unit III will consist of 10 short-answer' type questions which will cover the entire syllabus and will carry 30 marks in all. There being no internal choice in this section, each short-answer type question will carry 3 marks. Candidates are required to attempt two questions each from the Unit I & II and the entire Unit III. The candidates are required to give answer of each short-type questions in 50 words i.e. in 7-10 lines.

3. If there is a question on notes, the choice offered in such question should at least be fifty percent.

4. The wording of the questions should be simple and easily understandable by an average student. There should be no vagueness.

5. The number of questions based upon quotations should not exceed two in a question paper.

6. The general standard of the questions should cater to the different intellectual levels - average, above average and below average.

7. Each paper is of 70 marks and three hours duration and 30 marks are of internal assessment.

15/7/2020

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NOTE: The paper setter should keep in view the topics specified in each paper and not the title of the paper. Candidates are required to attempt two questions each from the units I & II and the entire Unit III.

The Break-up of 30 marks for Internal Assessment (Theory Papers) is below

1. Mid Semester Test (MST): 15 Marks

2. Class Attendance: 4.5 Marks

3. Project Work/Assignment/Seminar: 10.5 Marks

Total Marks: 30 Marks

Objectives:-To Introduce the students to the History of Punjab

PAPER-I: Compulsory

HISTORY OF THE PUNJAB FROM A.D.1799-1849

M.A (HIS)- 301

Time Allowed: 3 hours Max. Marks: 70

Internal assessment: 30

Pass Marks: 35%

SECTION–A

1. Principal Sources for the study of Maharaja Ranjit Singh's reign.
2. Political condition of the Punjab in late 18th century; Maharaja Ranjit Singh's rise to power with special reference to his relations with Misals.
3. Sikh-Afghan relations; Conquest of Attock, Multan, Kashmir and Peshawar.
4. Maharaja Ranjit Singh's relations with the British special reference to Metcalf Mission, relations with Cis-Sutlej States and Treaty of Amritsar. (1800-1809)

Jaspal Kaur
15/7/2020

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5. Maharaja Ranjit Singh's relations with the British. (1809-1839)

SECTION–B

6. Nature of the State under Maharaja Ranjit Singh.
7. Maharaja Ranjit Singh's Administration; Central and Provincial Structure and Military Organisation, the Jagirdari System and Dharmarth Grants.
8. Causes of the First Anglo-Sikh War (1845-46) and post war settlements.
9. Causes of the Second Anglo-Sikh War (1848-49) and Annexation of the Punjab.

SECTION–C

Unit III will consist of 10 short-answer' type questions which will cover the entire syllabus and will carry 30 marks in all. There being no internal choice in this section, each short-answer type question will carry 3 marks. Candidates are required to attempt two questions each from the Unit I & II and the entire Unit III. The candidates are required to give answer of each short-type questions in 50 words i.e. in 7-10 lines.

ESSENTIAL BOOKS

1. Fauja Singh &A.C. Arora, *Maharaja Ranjit Singh*, Publication Bureau, Punjabi University Patiala, 1984.
2. J. D. Cunnigham, *A History of The Sikhs* Publication Pimlico, London, 1849.
3. B. J. Hasrat, *Anglo Sikh Relations*, Asia Publication House, Bombay, 1964.
4. Bhagat Singh, *Maharaja Ranjit Singh*, New Delhi, Sehgal Publisher Service, 1990.
5. Sita Ram Kohli, *Maharaja Ranjit Singh (Punjabi)*, Guru Nanak Dev University, 2002.

15/7/2020

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7. G. L. Chopra, *The Punjab as a Sovereign State*, Uttar Chand Kapur & Sons, Lahore, 1928.
8. J. S. Grewal, *Maharaja Ranjit Singh and His Times*, Department of History Guru Nanak Dev University, 1980.
9. N.K. Sinha, *Ranjit Singh*, A. Mukherjee & Co. Ltd, Calcutta-12, 1933.

REFERENCE BOOKS

1. Khushwant Singh, *Ranjit Singh-Maharaja of the Punjab, 1780-1839*, Penguin Random House India, 1962.
2. Fauja Singh, *Military System of the Sikhs*, Motilal Banarsi dass, 1964.
3. Ganda Singh (ed.), *Ranjit Singh-First Death Centenary Memorial Volume*, New Delhi: Nirmal Publishers, 1986.
4. Ganda Singh, *Private Correspondence relating to the Anglo Sikh Wars Sikh History Society,* 1955.
5. Bhagat Singh, *Sikh Polityin the Eighteenth and Nineteenth Centuries*, New Delhi Oriental Publisher & Distributors, 1978.
6. Sita Ram Kohli, *Sun set of the Sikh Empire*, Orient Black Swan, 2011.
7. S. M. Latif, *History of the Punjab*, Non Basic Stock Line, 1997.
8. Ikram Ali, *History of the Punjab (1799-1947)*, Stosius Inc/Advent Books Division, 1984.
9. Hari Ram Gupta, *History of Sikhs*, Munshiram Manoharlal Publishers, 1999.

M.A. Part-II Semester-III

Paper- II

INSTRUCTIONS FOR THE PAPER-SETTERS

1. The Syllabus prescribed 'should be "strictly adhered to.

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The paper-setters should keep in view the topics specified in each paper and not the title of the paper.

2. The question paper will consist of three units: I, II & III. Units I & II will have four questions each from the respective units of the syllabus and will carry 10 marks each. Unit III will consist of 10 short-answer' type questions which will cover the entire syllabus and will carry 30 marks in all. There being no internal choice in this section, each short-answer type question will carry 3 marks. Candidates are required to attempt two questions each from the Unit I & II and the entire Unit III. The candidates are required to give answer of each short-type questions in 50 words i.e. in 7-10 lines.

3. If there is a question on notes, the choice offered in such question should at least be fifty percent.

4. The wording of the questions should be simple and easily understandable by an average student. There should be no vagueness.

5. The number of questions based upon quotations should not exceed two in a question paper.

6. The general standard of the questions should cater to the different intellectual levels - average, above average and below average.

7. Each paper is of 70 marks and three hours duration and 30 marks are of internal assessment.

NOTE: The paper setter should keep in view the topics specified in each paper and not the title of the paper. Candidates are required to attempt two questions each from the units I & II and the entire Unit III.

The Break-up of 30 marks for Internal Assessment (Theory Papers) is below

1. Mid Semester Test (MST): 15 Marks

2. Class Attendance: 4.5 Marks

3. Project Work/Assignment/Seminar: 10.5 Marks

Total Marks: 30 Marks

Objectives:-To Introduce the students to the History of India.

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PAPER-II

HISTORY OF INDIA FROM A.D.1707-1772

MA(HIS)-302

Time Allowed: 3 hours Max. Marks: 70

Internal assessment: 30

Pass Marks: 35%

SECTION-A

1. Historiography on the decline of the Mughal Empire.
2. Parties and politics at the Mughal Court; Iranis, Turanis and Hindustanis.
3. Systemic Crisis and collapse: Collapse of Empire and Emergence of regional states of Awadh, Bengal and Hyderabad.
4. Rise and Expansion of Maratha Power in the eighteenth century.
5. Maratha-Afghan Confrontation and the Third Battle of Panipat; its importance in Indian History; Causes of Maratha defeat.

SECTION-B

6. Rise of Sikh Power: Sikh-Mughal Confrontation, Sikh-Afghan Confrontation, Causes of Sikh triumph.
7. Internal Struggle of European Trading Companies for Power and supremacy in India with special reference to Anglo-French wars in the Karnataka.

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8. Beginnings of British rule in Bengal Presidency: early difficulties and how they were overcome.
9. Administration and reforms of Robert Clive.

SECTION–C

Unit III will consist of 10 short-answer' type questions which will cover the entire syllabus and will carry 30 marks in all. There being no internal choice in this section, each short-answer type question will carry 3 marks. Candidates are required to attempt two questions each from the Unit I & II and the entire Unit III. The candidates are required to give answer of each short-type questions in 50 words i.e. in 7-10 lines.

BOOKS RECOMMENDED

1. Muzaffar Alam, *The Crisis of Empire in Mughal North India*, OUP, Delhi, 1986.
2. Jagdish Narayan Sarkar, *A Study in Eighteenth Century India,* Saraswat Library, Calcutta, 1976.
3. R. C. Mazumdar, *The Maratha Supremacy*, Bharat Vidya Bhawan Mumbai, 2001.
4. R. V. Nadkarni, *Rise and fall of the Maratha Empire,* Delhi, 1966.
5. P. E. Roberts, *History of British India,* Oxford University Press, 1952.
6. William Wilson Hunter, *A History of British India,* Hard Press Publishing, 2014.
7. Bisheshwar Prasad, *Bondage and Freedom,* Rajesh Publication, 1977.
8. B. L. Grover, *A New Look at Modern Indian History from 1707 to the Modern times,* S Chand Publishing, 2016.
9. P. J. Marshall, *The Eighteenth Century in Indian History,* Oxford University Press, 2005.

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10. Gordon Stewart, *The Marathas 1600-1818*, Cambridge University Press, 1999.

11. H. N. Sinha, *Rise of the Peshwas*, The Indian Press Ltd, 1931.

12. G. S. Sardesai, *Main Currents of Maratha History*, K. B. Dhawale, 1933.

13. Satish Chandra, *Medieval India: Society, the jagirdari crisis, and the Village*, Macmillan, 1982.

M.A. Part-II Semester-III

PAPER -III

INSTRUCTIONS FOR THE PAPER-SETTERS

1. The Syllabus prescribed 'should be "strictly adhered to.

The paper-setters should keep in view the topics specified in each paper and not the title of the paper.

2. The question paper will consist of three units: I, II & III. Units I & II will have four questions each from the respective units of the syllabus and will carry 10 marks each. Unit III will consist of 10 short-answer' type questions which will cover the entire syllabus and will carry 30 marks in all. There being no internal choice in this section, each short-answer type question will carry 3 marks. Candidates are required to attempt two questions each from the Unit I & II and the entire Unit III. The candidates are required to give answer of each short-type questions in 50 words i.e. in 7-10 lines.

3. If there is a question on notes, the choice offered in such question should at least be fifty percent.

4. The wording of the questions should be simple and easily understandable by an average student. There should be no vagueness.

5. The number of questions based upon quotations should not exceed two in a question paper.

6. The general standard of the questions should cater to the different intellectual levels - average, above average and below average.

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7. Each paper is of 70 marks and three hours duration and 30 marks are of internal assessment.

NOTE: The paper setter should keep in view the topics specified in each paper and not the title of the paper. Candidates are required to attempt two questions each from the units I & II and the entire Unit III.

The Break-up of 30 marks for Internal Assessment (Theory Papers) is below

1. Mid Semester Test (MST): 15 Marks

2. Class Attendance: 4.5 Marks

3. Project Work/Assignment/Seminar: 10.5 Marks

Total Marks: 30 Mark

Objectives:-To Introduce the students to the History of India.

PAPER-III

HISTORY OF INDIA FROM A.D.1818-1947

M.A(HIS)-303

Time Allowed: 3 hours   Max. Marks: 70

Internal assessment: 30

Pass Marks: 35%

SECTION–A

1. Significance of the year 1818; Evolution of British Paramountcy.
2. New Trends in Administration: Administrative & Social Reforms under Company's rule with special reference to Lord William Bentinck and Lord Dalhousie.
3. Charter Acts of 1833 and 1853.
4. Development of Local Self-government up to 1947, Growth of Press and Its impact on National Movement.

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SECTION–B

5. The Rising of 1857: causes, nature and effects.
6. British Policy towards Indian States, 1818-1947.
7. The Russian Danger and its impact on Indian Situation: First Afghan War; Annexation of Sind.
8. Foreign Policy of Government of India:
    (a)Policy towards Afghanistan,
    (b)Relations with Tibet and Iran.

SECTION–C

Unit III will consist of 10 short-answer' type questions which will cover the entire syllabus and will carry 30 marks in all. There being no internal choice in this section, each short-answer type question will carry 3 marks. Candidates are required to attempt two questions each from the Unit I & II and the entire Unit III. The candidates are required to give answer of each short-type questions in 50 words i.e. in 7-10 lines.

ESSENTIAL BOOKS

1. P. E. Roberts, *History of British India*, Oxford University Press, 1978.
2. B. B. Misra, *Administrative History of India (1834-1947),* Oxford University Press, 1972.
3. D. N. Panigrahi, *Economy Society and Politics in Modern India,* Vikas Publisher, 1985.
4. Bipan Chandra, *India's Struggle for Independence,* Penguin, Delhi, 1996.
5. Bisheshwar Prasad, *Bondage and Freedom: A History of Modern India, 1707-1947*, Vol. I. R Publication, 1977.
6. Tara Chand, *History of Freedom Movement (1971),* Publication Division, 2000.

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7. S. K. Bajaj and J. S. Rekhi, *Bharat da Itihas 1818-1919 (Punjabi)*, New Delhi, 1974.
8. Ram Lakhan Shukla, *Adhunik Bharat Kaltihas (Hindi),* Punjabi University Patiala, 2000.
9. B. L. Grover and S Grover, *A New Look At the Modern India*, Delhi, 1998.
10. A. C. Banerjee, *History from 1707 to the Modern times*, Cambridge Universty Press, 2014.
11. A. C. Banerjee, *A Comperhensive history of India,* Peoples Publishing House, Delhi, 1978.

Reference Books.

1. R. K. Mukherjee, *Rise and Fall of East India Company*, Popular, Bombay, 1973.
2. C. A. Bayly, *India society and the making of the British Empire*, New Cambridge university press, 1987.
3. P. N. Khera, *Annexation of Sindh*, Minerva Book Shop, 1941.
4. S. N. Sen, *Eighteen Fifty Seven*, Publication Division, 1957.

M.A. Part-II Semester-III

PAPER -IV

INSTRUCTIONS FOR THE PAPER-SETTERS

1. The Syllabus prescribed 'should be "strictly adhered to.

The paper-setters should keep in view the topics specified in each paper and not the title of the paper.

2. The question paper will consist of three units: I, II & III. Unit I & II will have four questions each from the respective units of the syllabus and will carry 10 marks each. Unit III will consist of 10 short-answer' type questions which will cover the entire syllabus and will carry 30 marks in all. There being no internal

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choice in this section, each short-answer type question will carry 3 marks. Candidates are required to attempt two questions each from the Unit I & II and the entire Unit III. The candidates are required to give answer of each short-type questions in 50 words i.e. in 7-10 lines.

3. If there is a question on notes, the choice offered in such question should at least be fifty percent.

4. The wording of the questions should be simple and easily understandable by an average student. There should be no vagueness.

5. The number of questions based upon quotations should not exceed two in a question paper.

6. The general standard of the questions should cater to the different intellectual levels - average, above average and below average.

7. Each paper is of 70 marks and three hours duration and 30 marks are of internal assessment.

NOTE: The paper setter should keep in view the topics specified in each paper and not the title of the paper. Candidates are required to attempt two questions each from the units I & II and the entire Unit III.

The Break-up of 30 marks for Internal Assessment (Theory Papers) is below

1. Mid Semester Test (MST): 15 Marks

2. Class Attendance: 4.5 Marks

3. Project Work/Assignment/Seminar: 10.5 Marks

Total Marks: 30 Marks

Objectives:-To Introduce the students to the History of India.

PAPER-IV

PAPER-IV: NATIONAL MOVEMENT ININDIAANDCONSTITUTIONAL DEVELOPMENT,1858-1930.

M.A(HIS)-304

15/7/2020

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Time Allowed: 3 hours Max. Marks: 70

Internal assessment: 30

Pass Marks: 35%

Section- A

1. Queen's Proclamation of 1858; Government of India Act-1858.
2. Emergence of Indian National Congress; Controversy between the genesis of the I.N.C, its aims, methods and demands upto 1905.
3. Moderates and Extremists in Indian Nationalism: Estimate of their work; Surat split.
4. Minto-Morley Reforms, 1909.

Section- B

5. Revolutionaries in India and Abroad; The Ghadar Movement; The Home Rule Movement.
6. Agitation against Rowlatt Bills; Jallianwala Bagh Massacre and its impact.
7. Government of India Act 1919; Khilafat and Non-Cooperation Movement.
8. Swarajist Politics, Simon Commission and reaction.

SECTION–C

Unit III will consist of 10 short-answer' type questions which will cover the entire syllabus and will carry 30 marks in all. There being no internal choice in this section, each short-answer type question will carry 3 marks. Candidates are required to attempt two questions each from the Unit I & II and the entire Unit

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III. The candidates are required to give answer of each short-type questions in 50 words i.e. in 7-10 lines.

ESSENTIAL BOOKS

1. Bipan Chandra, *India's struggle for independence,* Delhi Penguin, 1989.
2. Sumit Sarkar, *Modern India 1885-1947,* Basingstoke publications, 1989.
3. G. N. Singh, *Landmarks in Indian Constitutional and National Development*, Delhi Macmillian, 1985.
4. Anil Seal, *Emergence of Indian Nationalism,* Cambridge University Press, 1971.
5. Danial Argov, *Moderates and Extremists in the Indian National Congress*, Cambridge University Press, 1971.
6. R. C. Majumdar, *History of Freedom Movement in India,* Calcutta, 1962.
7. Tara Chand, *History of freedom Movement,* Publications Division, Delhi 1961.
8. B. L. Grover and S. Grover, *A New Look at Modern Indian History*, S. Chand Company Ltd., 2013.

REFERENCE BOOKS

1. Bisheshwar Prasad, *Bondage and Freedom,* Rajesh Publication, New Delhi, 1977.
2. S. R. Mehrotra, Emergence of the Indian National Congress, Rupa & Co., 2004.
3. S. R. Mehrotra, *Towards India's Freedom and Partition,* Vikas Publishing House, 1979.
4. B. R. Nanda, *Making of A Nation: India's Road to Independence,* Haper-Collins, New Delhi, 1998.

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5. A. R. Desai, *Social Background of Indian Nationalism*, Popular Prakashan, Bombay, 1986.
6. H. Kulke, *History of India*, Kruk Rothermund Helkms, 1986.
7. Judith Browne, *Modern India Rise of An Asian*, Oxford University Press 1984.
8. Sekhar Bandyopadhyay, *From Plassy to Partition: A History of Modern India*, Orient long man, New Delhi, 2004.
9. Ram Chandra Pradhan, *Raj to Swaraj*, Macmillian, Delhi, 2008.
10. Ishita Banerjee-Dube, A History of Modern India, Cambridge University Press, 2014.

M.A. Part-II Semester-IV

Paper- I

INSTRUCTIONS FOR THE PAPER-SETTERS

1. The Syllabus prescribed 'should be "strictly adhered to.

The paper-setters should keep in view the topics specified in each paper and not the title of the paper.

2. The question paper will consist of three units: I, II & III. Units I & II will have four questions each from the respective units of the syllabus and will carry 10 marks each. Unit III will consist of 10 short-answer' type questions which will cover the entire syllabus and will carry 30 marks in all. There being no internal choice in this section, each short-answer type question will carry 3 marks. Candidates are required to attempt two questions each from the Unit I &II and the entire Unit III. The candidates are required to give answer of each short-type questions in 50 words i.e. in 7-10 lines.

3. If there is a question on notes, the choice offered in such question should at least be fifty percent.

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4. The wording of the questions should be simple and easily understandable by an average student. There should be no vagueness.

5. The number of questions based upon quotations should not exceed two in a question paper.

6. The general standard of the questions should cater to the different intellectual levels - average, above average and below average.

7. Each paper is of 70 marks and three hours duration and 30 marks are of internal assessment.

NOTE: The paper setter should keep in view the topics specified in each paper and not the title of the paper. Candidates are required to attempt two questions each from the units I & II and the entire Unit III.

The Break-up of 30 marks for Internal Assessment (Theory Papers) is below

1. Mid Semester Test (MST): 15 Marks

2. Class Attendance: 4.5 Marks

3. Project Work/Assignment/Seminar: 10.5 Marks

Total Marks: 30 Marks

Objectives:-To Introduce the students to the History of Punjab

PAPER-I: Compulsory

HISTORY OF THE PUNJAB FROM A.D.1849-1947

M.A(HIS)-401

Time Allowed: 3 hours

Max. Marks: 70

Internal assessment: 30

Pass Marks: 35%

Section- A

1. Social and economic condition of the Punjab in the first half of the 19th

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century.

2. a) Board of Administration, its formation and working.
   b) Sir John Lawrence as Chief Commissioner of Punjab.
3. Punjab and Revolt of 1857.
4. Socio-religious reform movements:
   a) TheNamdhariMovement
   b) The Singh SabhaMovement
   c) TheAhmadiyaMovement

SECTION–B

5. Agrarian Policy of the British government: Canalization and Colonisation; Rural indebtedness.
6. Growth of national consciousness and freedom movement:
   a) Agrarian Unrest, 1907.
   b) Ghadar Movement.
   c) Kirti-Kisan Movement
   d) Naujawan Bharat Sabha.
7. Growth of National consciousness and freedom Movement:
   a) Jallianwala Bagh Massacre
   b) Gurdwara Reform Movement
   c) Babbar Akali Movement
8. Causes of the Partition of Punjab 1947, Rehabilitation and Resettlement after Partition.

SECTION–C

Unit III will consist of 10 short-answer' type questions which will cover the entire syllabus and will carry 30 marks in all. There being no internal choice in this section, each short-answer type question will carry 3 marks. Candidates are required to attempt two questions each from the Unit I & II and the entire Unit

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III. The candidates are required to give answer of each short-type questions in 50 words i.e. in 7-10 lines.

ESSENTIAL BOOKS

1. Khushwant Singh, *History of the Sikhs Vol II*, Oxford HED, 2005.
2. S. S. Bal, *BRITISH Policy Towards Punjab*, Calcutta: New Age, 1971.
3. Fauja Singh, *The Kuka Movement*, Motilal Banarsidas, 1965.
4. V. N. Datta, *Jallianwala Bagh*, Kurukshetra University Books, 1926.
5. Mohinder Singh, TheAkali Movement, National Book Trust, 2008.
6. N.M khilnani, *The Punjab under the Lawrence,* Punjab Government Record Office, 1951.
7. Kirpal Singh, *Partition of Punjab*, National Bookshop, 1996.
8. Teja Singh, *The Guruduwara Reforms Movement and the sikh Awakening*, Andesite Press, 1922.
9. J. S. Grewal, *History of The Sikhs*, Tulika Books, 2011.
10. Goginder Singh, *The Namdhari Movement,* National Book Trust, 2010.

References Books

1. S. S. Bal, *A Brief History Of Modern Punjab*, Lyall Book Depot, 1974.
2. G. S. Deol, *Ghadar Movement,* Sterling Publisher, Jullundur, 1969.
3. Ikram Ali, *History of the Punjab 1799-1947*, Stosius Inc/Advent Books Division, 1984.
4. Baldev Nayyar, *Minority Politics in Punjab*, Princeton University Press 1966.
5. Raja Ram, *JallianwalaBagh Massacre,* Punjab University, 1978.
6. S. L. Malhotra, *Gandhi Punjabi and the Partition,* Punjab University, 1983.

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M.A. Part-II Semester-IV

Paper- II

INSTRUCTIONS FOR THE PAPER-SETTERS

1. The Syllabus prescribed 'should be "strictly adhered to.

The paper-setters should keep in view the topics specified in each paper and not the title of the paper.

2. The question paper will consist of three units: I, II & III. Units I & II will have four questions each from the respective units of the syllabus and will carry 10 marks each. Unit III will consist of 10 short-answer' type questions which will cover the entire syllabus and will carry 30 marks in all. There being no internal choice in this section, each short-answer type question will carry 3 marks. Candidates are required to attempt two questions each from the Unit I & II and the entire Unit III. The candidates are required to give answer of each short-type questions in 50 words i.e. in 7-10 lines.

3. If there is a question on notes, the choice offered in such question should at least be fifty percent.

4. The wording of the questions should be simple and easily understandable by an average student. There should be no vagueness.

5. The number of questions based upon quotations should not exceed two in a question paper.

6. The general standard of the questions should cater to the different intellectual levels - average, above average and below average.

7. Each paper is of 70 marks and three hours duration and 30 marks are of internal assessment.

NOTE: The paper setter should keep in view the topics specified in each paper and not the title of the paper. Candidates are required to attempt two questions each from the units I & II and the entire Unit III.

The Break-up of 30 marks for Internal Assessment (Theory Papers) is below

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1. Mid Semester Test (MST): 15 Marks

2. Class Attendance: 4.5 Marks

3. Project Work/Assignment/Seminar: 10.5 Marks

Total Marks: 30 Marks

Objectives:-To Introduce the students to the History of India.

PAPER-II

HISTORY OF INDIA FROM A.D.1772-1818

MA(HIS)-402

Time Allowed: 3 hours Max. Marks: 70

Internal assessment: 30

Pass Marks: 35%

SECTION-A

1. Warren Hastings: Critical examination of his policy and work.
2. Rise and fall of Mysore: Hyder Ali and Tipu Sultan.
3. British Administration during the period of Cornwallis, Wellesley and Lord Hastings in respect of Judiciary and Public Service.
4. British land revenue policy: Permanent Settlement, Ryotwari System, and Mahalwari System.

SECTION–B

5. Parliamentary Legislations: The Regulating Act 1773; Pitts India Act 1784.
6. Charter Act 1793; Charter Act 1813 and the growth of opposition to Company's monopoly of eastern trade.
7. Re-emergence and Fall of Marathas, 1772-1818.
8. Evolution of British Policy towards Indian States with special reference to Cornwallis, Wellesley and Lord Hastings.

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SECTION–C

Unit III will consist of 10 short-answer' type questions which will cover the entire syllabus and will carry 30 marks in all. There being no internal choice in this section, each short-answer type question will carry 3 marks. Candidates are required to attempt two questions each from the Unit I & II and the entire Unit III. The candidates are required to give answer of each short-type questions in 50 words i.e. in 7-10 lines.

BOOK RECOMMENDED

1. S. L. Sikri, *Constitutional History of India,* S. Nagin, 1963.
2. R. C. Aggarwal, *Constitutional Development and National Movement of India,* S chand Publications, 2012.
3. P. E. Roberts, *History of British India,* Oxford University Press, 1952.
4. Ishwari Prasad, *A History of Modern India,* Surjeet Publication, 2018.
5. Percival Spear, *A History of India from sixteenth century to the twentieth century,* Penguin India, 2000.
6. V. A. Smith, *The Oxford History of India,* Oxford University Press, 1981.
7. Bisheshwar Prasad, *Bondage and Freedom,* Rajesh Publication, 1977.
8. R. C. Mazumdar, *British Paramountcy and Indian Renaissance,* Bharatiya Vidya Bhavan, 1963.
9. R. C. Mazumdar, *Struggle for Freedom,* Bharatiya Vidya Bhavan, 2003.
10. R. C. Mazumdar, *An Advanced History of India,* St. Martin's Press, 1960.
11. Thompson and Garret, *Rise and Fulfilment of British Rule in India,* Ams Pr.Inc, 1934.
12. S. K. Gupta, *The Scheduled Castes in Modern Indian Politics: Their Emergence as a Political Power,* Munshiram Manoharlal Publishers, 1985.
13. C. C. Davies, *An Historical Atlas of the Indian Peninsula*, Oxford University Press, 1968.

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14. Bipin Chandra, *History of Modern India,* Orient Black swan Private Limited, 2018.

15. Bipin Chandra, *India's struggle for Independence,* Penguin Global, 1989.

16. K. W. Jones, *Socio-Religious Reform movements in British India,* Cambridge University Press, 2006.

M.A. Part-II Semester-IV

Paper- III

INSTRUCTIONS FOR THE PAPER-SETTERS

1. The Syllabus prescribed 'should be "strictly adhered to.

The paper-setters should keep in view the topics specified in each paper and not the title of the paper.

2. The question paper will consist of three units: I, II & III. Units I & II will have four questions each from the respective units of the syllabus and will carry 10 marks each. Unit III will consist of 10 short-answer' type questions which will cover the entire syllabus and will carry 30 marks in all. There being no internal choice in this section, each short-answer type question will carry 3 marks. Candidates are required to attempt two questions each from the Unit I & II and the entire Unit III. The candidates are required to give answer of each short-type questions in 50 words i.e. in 7-10 lines.

3. If there is a question on notes, the choice offered in such question should at least be fifty percent.

4. The wording of the questions should be simple and easily understandable by an average student. There should be no vagueness.

5. The number of questions based upon quotations should not exceed two in a question paper.

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6. The general standard of the questions should cater to the different intellectual levels - average, above average and below average.

7. Each paper is of 70 marks and three hours duration and 30 marks are of internal assessment.

NOTE: The paper setter should keep in view the topics specified in each paper and not the title of the paper. Candidates are required to attempt two questions each from the units I & II and the entire Unit III.

The Break-up of 30 marks for Internal Assessment (Theory Papers) is below

1. Mid Semester Test (MST): 15 Marks

2. Class Attendance: 4.5 Marks

3. Project Work/Assignment/Seminar: 10.5 Marks

Total Marks: 30 Marks

Objectives:-To Introduce the students to the History of India.

PAPER-III

SOCIAL AND ECONOMIC HISTORY OF MODERN INDIA (1818-1947)

M.A(HIS)-403

Time Allowed: 3 hours

Max. Marks: 70

Internal assessment: 30

Pass Marks: 35%

Section -A

1. Impact of Western Ideas on Society and Religion: Brahmo Samaj, Arya Samaj, Aligarh Movement.
2. Growth and Development of New Education: Controversy between Orientalists and Anglicist Schools, Wood's Despatch, Hunter Commission (1882), Raleigh Commission and Universities Act1904.

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Growth and Development of Education 1919-1947. Vardha scheme of Education.

3. Emergence of New Middle Class: Professional, Commercial and Industrial Middle Classes.
4. The Depressed Classes: Concern of social Reform with special Reference to Jyotiba Phule, B. R. Ambedkar and Mahatma Gandhi.

Section -B

5. Commercialization of Agriculture: Jagirdari System, Rural Indebtedness, British Policy towards Indebtedness.
6. Rise and Growth of Modern Industry and Trade; British Policy towards foreign trade.
7. Tribal and peasant uprisings.
8. Drain Theory: Social and Economic effects in India, Rise and growth of Economic Nationalism.

Section -C

Unit III will consist of 10 short-answer' type questions which will cover the entire syllabus and will carry 30 marks in all. There being no internal choice in this section, each short-answer type question will carry 3 marks. Candidates are required to attempt two questions each from the Unit I & II and the entire Unit III. The candidates are required to give answer of each short-type questions in 50 words i.e. in 7-10 lines.

ESSENTIAL BOOKS

1. P. E. Roberts, *History of British India*, Oxford University Press, 1978.
2. B. B. Misra, *Administrative History of India (1834-1947)*, Oxford University Press, 1972.
3. D. N. Panigrahi, *Economy Society and Politics in Modern India*, Vikas

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Publisher, 1985.

4. Bipan Chandra, *India's Struggle for Independence,* Penguin, Delhi, 1996.
5. Bisheshwar Prasad, *Bondage and Freedom: A History of Modern India, 1707-1947*, Vol. I. R Publication, 1977.
6. Tara Chand, *History of Freedom Movement (1971),* Publication Division, 2000.
7. S. K. Bajaj and J. S. Rekhi, *Bharat da Itihas 1818-1919 (Punjabi)*, New Delhi, 1974.
8. Ram Lakhan Shukla, *Adhunik Bharat KaItihas (Hindi),* Punjabi University Patiala, 2000.
9. B. L. Grover and S Grover, *A New Look At the Modern India*, Delhi, 1998.
10. A. C. Banerjee, *History from 1707 to the Modern times*, Cambridge Universty Press, 2014.
11. A. C. Banerjee, *A Comperhensive history of India,* Peoples Publishing House, Delhi, 1978.

Reference Books.

1. R. K. Mukherjee, *Rise and Fall of East India Company*, Popular, Bombay, 1973.
2. C. A. Bayly, *India society and the making of the British Empire*, New Cambridge university press, 1987.
3. P. N. Khera, *Annexation of Sindh*, Minerva Book Shop, 1941.
4. S. N. Sen, *Eighteen Fifty Seven*, Publication Division, 1957.

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SYLLABI AND COURSES OF READING

FOR

B.A Part II

(Semester III & IV)

(Journalism & Mass Communication)

2020-21, 2021-22 & 2022-23 Sessions

Sri Guru Teg Bahadur Khalsa College
Sri Anandpur Sahib

An Autonomous College

NAAC Accredited 'A'Grade

College with Potential for Excellence Status by UGC

E-mail: sgtb321@gmail.com

Website:www.sgtbcollege.org.in

DEPARTMENT OF JOURNALISM AND MASS COMMUNICATION

BA PART-II

SEMESTER III & IV

2020-2021,2021-2022 &2022-2023 SESSIONS

Maximum Marks	**100**
Theory	**60**
***Internal Assessment**	**20**
Practical/Viva	**20**
Minimum Marks	**35%**
Time	**3 Hours**

***The breakup of 20 marks for internal assessment is as below:**

1. **MST**	**10 Marks**
2. Class Attendance	**05 Marks**
3. Assignments	**05 Marks**
Total Marks	**20 Marks**

S.No.	**Semester**	**Paper Title**	**Credit**			**Marks**			
			L	**T**	**P**	**Theory**	**Internal**	**Practical**	**Total**
1	IIIrd	**REPORTING AND FEATURE WRITING**	4	0	1	60	20	20	100
2	IVth	**EDITING AND EDITORIAL WRITING**	4	0	1	60	20	20	100

Journalism &Mass Communication for B.A course

Part-II(Semester-III)

Session:-2020-20201,2021-2022 &2022-2023

Subject Code: B.A(JMC)-318

PAPER I : REPORTING AND FEATURE WRITING

Max. Marks : 100	**Theory : 60 Marks**
Pass Marks 35%	**Viva: 20Marks**
Time Allowed : 3 hrs.	**Internal Assessment:20Marks**

MAIN OBJECTIVE

To prepare the students for Report Writing & Feature Writing.

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Sections A and B will have four questions from the respective sections of the syllabus and student will have to answer any two questions from each section. Each question will carry 10 marks each. Section C will consist of 10 short-answer type questions which will cover the entire syllabus uniformly and will carry 20 marks in all. Each question carries 2 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from the sections A and B of the question paper and entire section C.

SECTION-A

- News : Definitions, Elements & Structure
- Sources of news
- Types of News
- News gathering techniques; Different kinds of reporting/beats (politics, accidents, crime, sports, education, health & environment, civic amenities)
- News writing styles
- Qualities of a Reporter
- Responsibilities of a reporter
- Press Release & Press Conferences and Video Conferences

SECTION-B

- Importance of Feature writing in journalism
- Feature : Types of feature & writing style
- Difference between News story and news feature
- Difference between News, Feature, Editorial, Article & Advertisement
- Digital Technology in Writing & Reporting
- Mobile Journalism
- Interview: Definition and Types
- Embedded Journalism & Planted News

- Ethical issues and concerns in journalism

Note:Viva will be taken by the External Experts.

Practical Exercises: Newspaper Reading exercise, News Analysis & Current Affairs

SUGGESTED READINGS

1. D.S. Mehta, Mass Communication & Journalism in India, Allied Publishers (1979).
2. Dalbir Singh, Pattarkari : HunnarTe Kala (Punjabi) . .
3. Asha Sharma, SamacharParnaliTeSampadana (Punjabi).
4. V.S Gupta, Handbook of Reporting and Communication Skills, Concept Publishing Company (2003).
5. ParthasarthyRangaSwamy, Basic Journalism, Macmillan India (2016).
6. Norm Goldstein, The Associated Press Style Book (2005).

SEMESTER-IV

Subject Code: B.A(JMC)-418

Session:- 2020-20201,2021-2022 &2022-2023

PAPER-II : EDITING AND EDITORIAL WRITING

Max. Marks : 100 **Theory : 60 Marks**
Pass Marks 35% **Viva: 20 Marks**
Time Allowed : 3 hrs. **Internal Assessment:20 Marks**

MAIN OBJECTIVE

To prepare the students for News Editing & Editorial Writing.

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Sections A and B will have four questions from the respective sections of the syllabus and student will have to answer any two questions from each section. Each question will carry 10 marks each. Section C will consist of 10 short-answer type questions which will cover the entire syllabus uniformly and will carry 20 marks in all. Each question carries 2 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from the sections A and B of the question paper and entire section C.

SECTION-A

- Editing; Need & Importance
- General Principles of editing
- Structure & Functioning of News Room in a Newspaper
- Role & Responsibilities of News editor, Chief sub-editor and Sub-editors
- Headlines: Functions & Types
- Importance of Translation

SECTION-B

- Editorial: Definition & Structure
- Significance of an editorial and Editorial page
- Role of Editor-in-chief, Editor, Deputy Editor & Assistant editor
- Contents of an Editorial & op-ed Page
- Columns and columnists.
- Page layout and make-up on computers.

Note:Viva will be taken by the External Experts.

Practical Exercises: Newspaper Reading exercise, News Analysis & Current Affairs

SUGGESTED READINGS

1. D.S. Mehta, Mass Communication & Journalism in India, Allied Publishers (1979).
2. Dalbir Singh, Pattarkari : HunnarTe Kala (Punjabi) . .
3. Asha Sharma, SamacharParnaliTeSampadana (Punjabi).
4. R. Thomas Berner, Fundamental of Journalism: Reporting Writing & Editing.
5. Cecelia Friend, Contemporary Editing, McGraw Hill, New York (2005).
6. VirBalaAggarwal,B.S Gupta, Handbook of Journalism.
7. Dhillon, Reena, Pattarkarita, Media avmJansanchar.

SRI GURU TEG BAHADUR KHALSA COLLEGE, SRI ANANDPUR SAHIB

(An Autonomous College)
NAAC Accredited
'A'Grade
College with Potential for Excellence Status by UGC

SYLLABUS FOR BA (Physical Education) Part I (Semester I & II) Part II (Semester III& IV)

Sessions: 2019-20,2020-21 and 2021-22

Sri Guru Teg Bahadur Khalsa College, Sri Anandpur Sahib College with Potential for Excellence Status by UGC
E-mail: sgtb321@gmail.comWebsite:www.sgtbcollege.org.in

Department of Physical Education
SGTB Khalsa College SriAnandpur Sahib, Ropar (Punjab)

Department of Physical Education
SGTB Khalsa College SriAnandpur Sahib, Ropar (Punjab)

Eligibility	**:**	10+2 examination in any faculty but with at least 45% marks in the aggregate from any Board or any other examination recognized equivalent there to in any stream.
Duration	**:**	Six Semesters (Three Years)
Affiliating Body	**:**	Punjabi University Patiala

B.A. (Physical Education): Credit Scheme Session 2020-21, 2021-22 and 2022-23

SR. NO.	**Sem.**	**Paper Title**	**Hours**			**Theory Marks**		**Practical Marks**	**Total**
			Lectures	Practical	Total Credit	Ext. Marks	Int. Marks	Viva (skill Test)	Marks
CORE PAPERS									
I	**PHE:112**	**Physical Education**	3	2	5	60	20	20	100
II	**PHE:212**	**Physical Education**	3	2	5	60	20	20	100
III	**PHE:312**	**Physical Education**	3	2	5	60	20	20	100
IV	**PHE 412**	**Physical Education**	3	2	5	60	20	20	100
PROPOSED COURSES									
V	**PHE:512**	**Physical Education**	3	2	5	60	20	20	100
VI	**PHE:612**	**Physical Education**	3	2	5	60	20	20	100

Note:

***** Under Choice Based Credit System

* Complete BA (**Physical Education**) as an elective Course carries 30 credits and each semester carries 5 Credits (3 Lectures + 2 Practical), (3*15=45 lectures + 2*15= 30 Practical)

* The Break-up of 25 Marks for Internal Assessment (Theory papers), is as below:

1.	Two Mid-Semester Tests	12 Marks
2.	Class Attendance	06 Marks
3.	Project Work/Assignment Seminar/Field Work etc.	07 Marks

DEPARTMENT OF PHYSICAL EDUCATION

B.A PART I (SEMESTER-I)

PHYSICAL EDUCATION

Code: BA(PHE)-112

Total Marks :100

L	T	P
3	0	2

External Marks (T) : 60
External Marks (P) : 20
Internal Marks : 20
External Pass Marks(T): 21
External Pass Marks(P): 07
Internal Pass Marks: 07

Time Allowed: 3 hours
(Credit Hours – 45 L+30 P)

INSTRUCTIONS FOR PAPER-SETTER

The question paper will consist of three sections A, B & C. Sections A & B will have four questions from the respective sections of the syllabus and will carry 10 marks each. Section C carries 10 short answer type questions which will cover the entire syllabus uniformly and will carry 20 marks in all.

INSTRUCTIONS FOR CANDIDATES

Candidates are required to attempt two questions each from sections A & B. Section C is compulsory.

UNIT- I

Physical Education: Meaning, Objectives, Scope, Importance of Physical Education in the modern society.

Olympic Games: Organization, administration and ceremonies of ancient and modern Olympic games.

Description of the following:

- N.S.N.I.S (Netaji Subhash National Institute of sports)
- S.A.I (Sports Authority of India)
- I.O.C. (International Olympic Committee)

Heredity and Environment: Meaning and effect of heredity and environment on growth and development.

Growth and Development: Meaning, Difference, Principles, stages and factors affecting growth and development.

Athletics: Classification of Events, types of start and finish, general rules of track events.

UNIT- II

Human Anatomy& Physiology: Meaning, Definition of human Anatomy and Physiology Importance of human Anatomy and Physiology in Physical Education.

Cell: Definition of Cell, Structure & function of different parts of cell.

Individual Differences: Meaning causes and types of differences.

Personal hygiene: Meaning and importance of rest, relaxation, sleep and factor influencing personal hygiene.

Volleyball: History: layout, General Rules and regulation, officials, major tournaments and Arjuna Awardees.

Football: History: layout, general, rules and regulation, officials, Major tournaments and Arjuna awardees.

References:

1. Kang, G.S., DEOL N.S., An introduction to Health and Physical 21th century Patiala 2008.
2. Revenes, R.S., Foundation of physical Education, Bostan:-Houghton Niftlin co,1978 latest edition.
3. Bucher, C., A Foundation of Physical Education, 5th edition 1968 Lius C.V. Bosby co.
4. Khan, E.A., History of physical Education Patna: Scientific Book co., latest edition 1964.
5. Kamlesh and Sangral, Principles and History of Physical Education, "Parkash Brothers".
6. Singh, A., Brar, R.S., and Gill, J., Essential of Physical Education and Olympic Movement Kalyani Publishers Ludhiana 2004.
7. Pearce, A.C., Anatomy and Physiology for Nurses Oxford University Press, New Delhi, (2003)

PRACTICAL

PHYSICAL EDUCATION

PRACTICALS

PHYSICAL EDUCATION

Code: BA(PHE)-112

Total Marks :100

L	**T**	**P**
3	**0**	**2**

External Marks (T) : 60
External Marks (P) : 20
Internal Marks : 20
External Pass Marks(T): 21
External Pass Marks(P): 07
Internal Pass Marks: 07

Time Allowed: 3 hours
(Credit Hours – 45 L+30 P)

NOTE : Teaching hrs : 4 Period per week (2 period X 2 Days) of one unit (one unit contains 30-40 students)

*Evaluation will be based on skill test, performance and Viva-voce.

VOLLEYBALL, FOOTBALL and SPRINTS (Athletics)

Content to be covered during practical sessions:

I. Measurement of the field and preparation of the field.
II. Equipment and Materials of the game /event.
III. Fundamental skill and lead up games.
IV. Techniques.
V. Rules and regulation of the game/event
VI. Officiating:
  - Duties of officials.
  - Knowledge of score sheet.
  - Signals of officiating
  - Technical equipment for officiating

B.A PART I (SEMESTER-II)

PHYSICAL EDUCATION

Code: BA(PHE)-212 **Total Marks :100**

L T P
3 0 2

External Marks (T) : 60
External Marks (P) : 20
Internal Marks : 20

Time Allowed: 3 hours
(Credit Hours – 45 L+30 P)

External Pass Marks(T): 21
External Pass Marks(P): 07
Internal Pass Marks: 07

INSTRUCTIONS FOR PAPER-SETTER

The question paper will consist of three sections A, B & C. Sections A & B will have four questions from the respective sections of the syllabus and will carry 10 marks each. Section C carries 10 short answer type questions which will cover the entire syllabus uniformly and will carry 20 marks in all.

INSTRUCTIONS FOR CANDIDATES

Candidates are required to attempt two questions each from sections A & B. Section C is compulsory.

UNIT- I

Children and Sports: Introduction, stages of Motor Development in Children, Benefits of Exercises for children, Weight Training and their Advantages or Disadvantages for Children.

Skeleton System: Introduction, Types, Functions and Various Bones of Body.
Joints: Introduction, Classification of various Joints of Human body and Kinds of joints Movements.

Digestive System: Introduction, Structure, Organs and Functions of Digestive system
Body Types: Introduction and Sheldon's classification.
Long Jump & Triple Jump: Introduction, Rules, Layout, Techniques and Arjun Awardees.

UNIT- II

Asian and Commonwealth games: Introduction, Venues and Development of Games.

Sports Awards:

a) Maharaja Ranjit Singh Award
b) Arjun Award
c) Dronacharya Award
d) MAKA Trophy
e) Rajiv Gandhi Khel Ratan Award

Drugs: Introduction, Causes, Symptoms, Harmful Effects and its Prevention.

Doping: Introduction, Types, Prohibited Substances & Methods and its Effects.

Warming up and Cooling Down: Introduction, Methods & Types of Warm Up, Significance and Guidelines

Hockey: History: layout, General Rules and regulation, officials, major tournaments and Arjuna Awardees.

Basketball: History, layout, general, rules and regulation, officials, Major tournaments and Arjuna awardees.

References:

1. Kang G.S. DEOL N.S.: An introduction to Health and Physical 21th century Patiala 2008.
2. Revenes, R.S.: Foundation of physical Education, Bostan:-Houghton Niftlin co, 1978 latest edition.
3. Bucher Charles: A Foundation of Physical Education, 5th edition 1968 Lius C.V. Bosby co.
4. Khan Eraz Ahmed: History of Physical Education Patna: Scientific Book co., latest edition 1964.
5. Ajmer Singh, R.S.Brar and Jagtar GilL: Essential of Physical Education and Olympic movement Kalyani Publishers Ludhina 2004.
6. Avelin C. Pearce, ' Anatomy and Physiology for Nurses Oxford University Press, New Delhi, (2003)
7. V.K, ' Yog Shiksha' Saraswati House Pvt. Ltd. Daryaganj, New Delhi, 2022

PRACTICALS

PHYSICAL EDUCATION

Code: BA(PHE)-212

L	T	P
3	0	2

Time Allowed: 3 hours
(Credit Hours – 45 L+30 P)

Total Marks :100
External Marks (T) : 60
External Marks (P) : 20
Internal Marks : 20
External Pass Marks(T): 21
External Pass Marks(P): 07
Internal Pass Marks: 07

NOTE : Teaching hrs : 4 Period per week (2 period X 2 Days) of one unit (one unit contains 30-40 students)

*****Evaluation will be based on skill test, performance and Viva-voce.

HOCKEY, BASKETBALL, LONG JUMP and TRIPLE JUMP (Athletics)

Evaluation will be based on skill test, performance and Viva-voce. Content to be covered during practical sessions:

I. Measurement of the field and preparation of the field.
II. Equipment and Materials of the game /event.
III. Fundamental skill and lead up games.
IV. Techniques.
V. Rules and regulation of the game/event
VI. Officiating:
  - Duties of officials.
  - Knowledge of score sheet.
  - Signals of officiating

Technical equipment for officiatin

B.A PART II (SEMESTER-III)

PHYSICAL EDUCATION

Code: BA(PHE)-312

Total Marks :100
External Marks (T) : 60
External Marks (P) : 20
Internal Marks : 20
External Pass Marks(T): 21
External Pass Marks(P): 07
Internal Pass Marks: 07

L	T	P
3	0	2

Time Allowed: 3 hours
(Credit Hours – 45 L+30 P)

INSTRUCTIONS FOR PAPER-SETTER

The question paper will consist of three sections A, B & C. Sections A & B will have four questions from the respective sections of the syllabus and will carry 10 marks each. Section C carries 10 short answer type questions which will cover the entire syllabus uniformly and will carry 20 marks in all.

INSTRUCTIONS FOR CANDIDATES

Candidates are required to attempt two questions each from sections A & B. Section C is compulsory.

UNIT I

Yoga : Meaning , Aims, Importance and Types of Yoga. The practice Asana and their Importance.**Meditative Pose**:- Padma Asana, Vazra Asana, Sukh Asana. **Cultural Poses:-** Halasan Asana ,Sarvang Asana, Bhujanga Asana, Salbha Asana, Dhanur Asana ,Chakara Asana. Effect of yogic physical exercises on various systems of the body.

Paranayam : Its types, Objective, Physiological Value.

Sudhi kirya: Its Types Objective, Physiological Value.

Respiratory System : Meaning, Organ of Respiratory ,Mechanism of Respiration.

UNIT II

Excretory system: Structure and function of skin.

Endocrine System: Meaning of Endocrine gland, Function and location Pituitary, Thyroid and Adrenal glands.

Nervous System: Meaning, its Organs or parts and Function.

Circulatory System: Heart and its Structure, Mechanism of circulation of blood, various types of blood vessel.

Kabaddi (National style): History, Layout, General Rules, and Regulation, Officials, Major Tournaments and Arjuna Awardees.

Shot Put: Rules, Layout and Techniques.

References:

1. Kang, G.S. and DEOL, N.S :- An introduction to Health and Physical 21th Century, Patiala,2008.
2. Singh, Kanwaljeet and Singh, Inderjeet: Sports Sociology, Friend Publication New Delhi,2000.
3. Tandan, D.K et.al, : Scientific basis of physical education and sports Friends Publication New Delhi.
4. Singh Ajmer, Bains Jagdish , Gill Singh Jagtar and Brar Singh Rachhpal : Essentials of Physical Education and Olympics Movement, Kalyani Publisher, Ludhiana ,2004.
5. Kang,G.S. : Anatomy, Physiology and Health Education Publication Bureau, Punjabi University, Patiala,2000.

PRACTICAL

B.A PART II (SEMESTER-III) PHYSICAL EDUCATION

Code: BA(PHE)-312

Total Marks :100

L	T	P
3	0	2

External Marks (T) : 60
External Marks (P) : 20
Internal Marks : 20
External Pass Marks(T): 21
External Pass Marks(P): 07
Internal Pass Marks: 07

Time Allowed: 3 hours
(Credit Hours – 45 L+30 P)

NOTE : Teaching hrs : 4 Period per week (2 period X 2 Days) of one unit
(one unit contains 30- 40 students)

SHOT PUT, KABADDI AND YOGA

Evaluation will be based on skill test, performance & viva- voce. Content to be covered during the Practical Session :

1. Measurement of the field and preparation of the field.
2. Equipment and Materials of the game / Event.
3. Fundamental skills and lead up games.
4. Techniques.
5. Rules and regulations of the game/event.
6. Officiating:

(I) Duties of officials.
(II) Knowledge of score sheet
(III) Signals of officiating.
(IV) Technical equipment for officiating.

B.A PART II (SEMESTER-IV)

PHYSICAL EDUCATION

Code: BA(PHE)-412

L	T	P
3	0	2

Total Marks :100
External Marks (T) : 60
External Marks (P) : 20
Internal Marks : 20
External Pass Marks(T): 21
External Pass Marks(P): 07
Internal Pass Marks: 07

Time Allowed: 3 hours
(Credit Hours – 45 L+30 P)

INSTRUCTIONS FOR PAPER-SETTER

The question paper will consist of three sections A, B & C. Sections A & B will have four questions from the respective sections of the syllabus and will carry 10 marks each. Section C carries 10 short answer type questions which will cover the entire syllabus uniformly and will carry 20 marks in all.

INSTRUCTIONS FOR CANDIDATES

Candidates are required to attempt two questions each from sections A & B. Section C is compulsory.

UNIT I

Sports psychology : Introduction ,importance.

Learning : Meaning ,laws of learning and their implication in sports.

Transfer of Training : Types and its application in sports**.**

Motivation : Introduction, Types, Methods of Motivation and its Importance in Physical Education and Sports.

Personality : Introduction, Types and Characteristics of Personality.

Play : Meaning and Theories of play.

UNIT II

Muscles : Structural and Function Classification of Muscles. **Sports Injuries** : Introduction, Causes, Symptoms, Treatment and Prevention of (Sprain, Strain, Contusion, Dislocation and Fracture).

First Aid : Introduction, Principles, Qualities of First Aider, Process of Providing First Aid during different calamities (Burns, Electric Shock, Heat

High jump : Rules and Regulation, Layout and Techniques**.**

Discus Throw : Rules and Regulation, Layout andTechniques.

Kho-Kho : History, Layout,General Rules and Regulation, Officiating, Major Tournaments.

References:

1. Kang, G.S. and DEOL, N.S :- An introduction to Health and Physical 21th Century, Patiala,2008.
2. Singh, Kanwaljeet and Singh, Inderjeet: Sports Sociology, Friend Publication New Delhi,2000.
3. Tandan, D.K et.al, : Scientific basis of physical education and sports Friends Publication New Delhi.
4. Singh Ajmer, Bains Jagdish , Gill Singh Jagtar and Brar Singh Rachhpal : Essentials of Physical Education and Olympics Movement, Kalyani Publisher, Ludhiana ,2004.
5. Kang,G.S. : Anatomy, Physiology and Health Education Publication Bureau, Punjabi University, Patiala,2000.

PRACTICAL

B.A PART II (SEMESTER-IV)

PHYSICAL EDUCATION

Code: BA(PHE)-412

Total Marks :100

L	T	P
3	0	2

External Marks (T) : 60
External Marks (P) : 20
Internal Marks : 20
External Pass Marks(T): 21
External Pass Marks(P): 07
Internal Pass Marks: 07

Time Allowed: 3 hours
(Credit Hours – 45 L+30 P)

NOTE : Teaching hrs : 4 Period per week (2 period X 2 Days) of one unit (one unit contains 30- 40 students)

KHO-KHO ,HIGH JUMP AND DISCUS THROW

Evaluation will be based on skill test, performance and Viva – Voce. Content to be covered during the Practical Sessions :

1. Measurement of the field and preparation of the field.
2. Equipment and Materials of the game / Event.
3. Fundamental skill and lead up games.
4. Techniques.
5. Rules and regulations of the game/event.
6. Officiating:
   I. Duties of officials.
   II. Knowledge of score sheet
   III. Signals of officiating.
   IV. Technical equipment for officiating.

ਸ੍ਰੀ ਗੁਰੂ ਤੇਗ ਬਹਾਦਰ ਖ਼ਾਲਸਾ ਕਾਲਜ, ਸ੍ਰੀ ਅਨੰਦਪੁਰ ਸਾਹਿਬ
ਆਟੋਨੌਮਸ ਕਾਲਜ

ਪੋਸਟ ਗ੍ਰੈਜੂਏਟ ਪੰਜਾਬੀ ਵਿਭਾਗ

ਸਿਲੇਬਸ

ਅੰਡਰ ਗ੍ਰੈਜੂਏਟ ਕਲਾਸਾਂ ਲਈ
ਸਮੈਸਟਰ–ਤੀਜਾ

ਸਮੈਸਟਰ-ਤੀਜਾ						
ਕਲਾਸ	ਵਿਸ਼ਾ	ਪੇਪਰ ਕੋਡ	ਕ੍ਰੈਡਿਟ	ਕੁੱਲ ਅੰਕ	ਲਿਖਤੀ / ਪ੍ਰੈਕਟੀਕਲ	ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ
ਬੀ.ਏ.	ਪੰਜਾਬੀ ਲਾਜ਼ਮੀ	**BA(PBI) 301-A**	05(04L+01P)	100	55/20	25
ਬੀ.ਏ.	ਪੰਜਾਬੀ ਮੁੱਢਲਾ ਗਿਆਨ	**BA(PBI) 301-B**	05(04L+01P)	100	55/20	25
ਬੀ.ਏ.	ਪੰਜਾਬੀ ਸਾਹਿਤ	**BA(PBL) 303**	05(04L+01T)	100	75	25
ਬੀ.ਏ.ਆਨਰਜ਼ ਅੰਗਰੇਜ਼ੀ	ਪੰਜਾਬੀ ਲਾਜ਼ਮੀ	**BHE(PBI) 306A**	05(04L+01T)	100	70	30
ਬੀ.ਏ.ਆਨਰਜ਼ ਅੰਗਰੇਜ਼ੀ	ਪੰਜਾਬੀ ਮੁੱਢਲਾ ਗਿਆਨ	**BHE(PBI) 306B**	05(04L+01T)	100	70	30
ਬੀ.ਕਾਮ	ਪੰਜਾਬੀ ਲਾਜ਼ਮੀ	**BC-3.3A**	06(04L+02P)	100	55/15	30
ਬੀ.ਕਾਮ	ਪੰਜਾਬੀ ਮੁੱਢਲਾ ਗਿਆਨ	**BC-3.3B**	06(04L+02P)	100	55/15	30
ਬੀ.ਬੀ.ਏ.	ਪੰਜਾਬੀ ਲਾਜ਼ਮੀ	**BBA-301A**	04	100	60	40
ਬੀ.ਬੀ.ਏ.	ਪੰਜਾਬੀ ਮੁੱਢਲਾ ਗਿਆਨ	**BBA-301B**	04	100	60	40
ਬੀ.ਐਸ.ਈ.ਆਨਰਜ਼ **(AI&DS)(**ਅਤੇ ਬੀ.ਐਸ.ਈ.**(M/NM)**	ਪੰਜਾਬੀ ਲਾਜ਼ਮੀ	**BSP-301A**	04	100	70	30
ਬੀ.ਐਸ.ਈ.ਆਨਰਜ਼ **(AI&DS)(**ਅਤੇ ਬੀ.ਐਸ.ਈ.**(M/NM)**	ਪੰਜਾਬੀ ਮੁੱਢਲਾ ਗਿਆਨ	**BSP-301B**	04	100	70	30
ਬੀ.ਸੀ.ਏ.	ਪੰਜਾਬੀ ਲਾਜ਼ਮੀ	**BCA-301A**	02	50	35	15
ਬੀ.ਸੀ.ਏ.	ਪੰਜਾਬੀ ਮੁੱਢਲਾ ਗਿਆਨ	**BCA-301B**	02	50	35	15
ਬੀ.ਵਾਕ ਫਾਰਮਾਸਿਊਟੀਕਲ ਕਮਿਸਟਰੀ	ਪੰਜਾਬੀ ਲਾਜ਼ਮੀ	**PBVOC-301A**	04	70	30	30
ਬੀ.ਵਾਕ ਫਾਰਮਾਸਿਊਟੀਕਲ ਕਮਿਸਟਰੀ	ਪੰਜਾਬੀ ਮੁੱਢਲਾ ਗਿਆਨ	**PBVOC-301B**	04	70	30	30

ਅੰਡਰ ਗ੍ਰੈਜੂਏਟ ਕੋਰਸਾਂ ਦੇ ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਦੀ ਵੰਡ ਦਾ ਵੇਰਵਾ ਹੇਠ ਲਿਖੇ ਅਨੁਸਾਰ ਹੋਵੇਗਾ:

1.ਐਮ.ਐਸ.ਟੀ. **(I&II)** –	30%+30%=60%
2.ਅਸਾਈਨਮੈਂਟ / ਕਲਾਸ ਟੈਸਟ –	20%
3.ਕਲਾਸ ਵਿੱਚ ਹਾਜ਼ਰੀ –	20%

ਬੀ.ਕਾਮ ਭਾਗ ਦੂਜਾ ,ਸਮੈਸਟਰ ਤੀਜਾ
ਪੇਪਰ- ਪੰਜਾਬੀ ਮੁੱਢਲਾ ਗਿਆਨ
ਪੇਪਰ ਕੋਡ:BC-3.3 B, ਕ੍ਰੈਡਿਟ-06(04L+02P)
2020-21,2021-22,2022-23 ਸੈਸ਼ਨ ਲਈ

ਕੁੱਲ ਅੰਕ :100 ਵਿਸ਼ੇ ਵਿਚੋਂ ਪਾਸ ਅੰਕ : 35
ਬਾਹਰੀ ਪਰੀਖਿਆ:55 ਅੰਕ ਬਾਹਰੀ ਪਰੀਖਿਆ ਵਿਚੋਂ ਪਾਸ ਅੰਕ: 20
ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ :30 ਅੰਕ ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਵਿਚੋਂ ਪਾਸ ਅੰਕ:10
ਸਮਾਂ:3 ਘੰਟੇ ਕੁੱਲ ਲੈਕਚਰ:60
ਨੋਟ:ਕੁੱਲ 100 ਅੰਕਾਂ ਵਿਚ ਪ੍ਰੈਕਟੀਕਲ ਦੇ 15 ਨੰਬਰ ਵੀ ਸ਼ਾਮਿਲ ਹਨ।

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼:

1.ਵਿਦਿਆਰਥੀਆਂ ਵਿਚ ਸਾਹਿਤ ਪੜ੍ਹਨ ਦੀ ਰੁਚੀ ਪੈਦਾ ਕਰਨਾ।
2.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੀ ਜਾਣਕਾਰੀ ਦੇਣਾ।
3.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਸਹਿਤ ਸਿਰਜਣ ਲਈ ਪ੍ਰੇਰਿਤ ਕਰਨਾ।
4.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਸਭਿਆਚਾਰ,ਲੋਕਧਾਰਾ ਅਤੇ ਨੈਤਿਕ ਕਦਰਾਂ -ਕੀਮਤਾਂ ਤੋਂ ਜਾਣੂ ਕਰਵਾਉਣਾ।

ਪੇਪਰ ਸੈੱਟਰ ਅਤੇ ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਹਦਾਇਤਾਂ:

1.ਸਾਰਾ ਪੇਪਰ 'ਅੱਖਰ ਗਿਆਨ (ਭਾਗ-ਦੂਜਾ)'ਪਾਠ-ਪੁਸਤਕ ਵਿਚੋਂ ਹੀ ਸੈਟ ਕੀਤਾ ਜਾਵੇ।
2.ਭਾਗ-ੳ: ਵਿਚ ਨਿਬੰਧ ਦਾ ਵਿਸ਼ਾ-ਵਸਤੂ /ਸਾਰ (ਤਿੰਨ ਵਿਚੋਂ ਇੱਕ)10 ਅੰਕ
3.ਭਾਗ-ਅ:1 ਵਿਚ ਅੰਗਰੇਜ਼ੀ ਸ਼ਬਦਾਂ ਤੋਂ ਪੰਜਾਬੀ ਸ਼ਬਦਾਂ ਵਿਚ ਅਨੁਵਾਦ (ਸੱਤ ਵਿਚੋਂ ਪੰਜ) 05 ਅੰਕ
4.ਭਾਗ-ਅ:2 ਵਿਚ ਸ਼ਬਦਾਂ -ਜੋੜਾਂ ਦੀ ਸੁਧਾਈ (ਪੰਦਰਾਂ ਵਿਚੋਂ ਦਸ) 10ਅੰਕ
5.ਭਾਗ-ਅ:3 ਵਿਚ ਵਿਆਕਰਨ ਨਾਲ ਸੰਬੰਧਿਤ ਵਰਣਾਤਮਕ ਪ੍ਰਸ਼ਨ (ਦੋ ਵਿਚੋਂ ਇੱਕ) 10 ਅੰਕ
6.ਭਾਗ-ੲ ਵਿਚ ਭਾਗ-ੳ ਅਤੇ ਅ ਦੇ ਸਾਰੇ ਸਿਲੇਬਸ ਵਿਚੋਂ ਕੁੱਲ 10 ਅਬਜੈਕਟਿਵ ਪ੍ਰਸ਼ਨ ।ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਲਾਜ਼ਮੀ ਹਨ । ਹਰੇਕ ਪ੍ਰਸ਼ਨ 2 ਅੰਕਾਂ ਦਾ ਹੋਵੇਗਾ ।
(10X2=20 ਅੰਕ)

ਪਾਠਕ੍ਰਮ ਅਤੇ ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਦੀ ਰੂਪ-ਰੇਖਾ

ਭਾਗ-ੳ

ੳ – ਅੱਖਰ ਗਿਆਨ(ਭਾਗ-ਦੂਜਾ), ਮੁੱਖ ਸੰਪਾ. ਡਾ.ਜਸਵੀਰ ਸਿੰਘ,ਸੰਪਾ.ਡਾ.ਅਵਤਾਰ ਸਿੰਘ,ਡਾ.ਗੁਰਪ੍ਰੀਤ ਕੌਰ, ਪ੍ਰੋ.ਸੁਖਵਿੰਦਰ ਸਿੰਘ,ਸ੍ਰੀ ਗੁਰੂ ਤੇਗ ਬਹਾਦਰ ਖ਼ਾਲਸਾ ਕਾਲਜ,ਸ੍ਰੀ ਅਨੰਦਪੁਰ ਸਾਹਿਬ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ,ਪੁਸਤਕ ਵਿੱਚੋਂ ਨਿਬੰਧ ਵਾਲਾ ਭਾਗ

ਭਾਗ-ਅ

ਅ-1. ਅਨੁਵਾਦ(ਅੰਗਰੇਜ਼ੀ ਸ਼ਬਦਾਂ ਤੋਂ ਪੰਜਾਬੀ ਸ਼ਬਦਾਂ ਵਿਚ)

ਅ-2 .ਸ਼ਬਦ ਜੋੜਾਂ ਦੀ ਸੁਧਾਈ।

ਅ-3 . ਵਿਸ਼ੇਸ਼ਣ ਅਤੇ ਕਿਰਿਆ ਵਿਸ਼ੇਸ਼ਣ :ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਕਿਸਮਾਂ

ਭਾਗ-ੲ

ਭਾਗ-ੳ ਅਤੇ ਅ ਦੇ ਸਾਰੇ ਸਿਲੇਬਸ ਵਿਚੋਂ ਅਬਜੈਕਟਿਵ ਪ੍ਰਸ਼ਨ

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1. ਬਲਦੇਵ ਸਿੰਘ ਚੀਮਾ, ਪੰਜਾਬੀ ਵਿਆਕਰਨ ਤੇ ਭਾਸ਼ਾ ਵਿਗਿਆਨ,ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ ਦਾ ਵਿਸ਼ਾ ਕੋਸ਼, ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ,2009
2. ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨ ਭਾਗ I,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991
3. ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨ ਭਾਗ II,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991
4. ਬਲਵੀਰ ਸਿੰਘ ਦਿਲ, ਪੰਜਾਬੀ ਨਿਬੰਧ :ਸਰੂਪ, ਸਿਧਾਂਤ ਅਤੇ ਵਿਕਾਸ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ, ਪੰਜਾਬੀ,ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।
5. ਖੋਜ ਪੱਤ੍ਰਿਕਾ, ਨਿਬੰਧ ਅੰਕ-29,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ, ਪੰਜਾਬੀ,ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।

ਬੀ.ਕਾਮ. ਭਾਗ ਦੂਜਾ , ਸਮੈਸਟਰ ਤੀਜਾ

ਪ੍ਰੈਕਟੀਕਲ ਪੰਜਾਬੀ ਭਾਸ਼ਾ(ਪੰਜਾਬੀ ਲਾਜ਼ਮੀ ਅਤੇ ਮੁੱਢਲਾ ਗਿਆਨ ਦੇ ਵਿਦਿਆਰਥੀਆਂ ਲਈ)

ਪੇਪਰ ਕੋਡ:**BC-3.3**,ਕ੍ਰੈਡਿਟ–02

2020-21,2021-22,2022-23 ਸੈਸ਼ਨ ਲਈ

ਪ੍ਰਯੋਗੀ ਪਰੀਖਿਆ:15 ਅੰਕ ਪਾਸ ਅੰਕ : 05

ਨੋਟ:ਅੰਦਰੂਨੀ ਵਿਸ਼ੇਸ਼ਗ ਦੁਆਰਾ ਮੁਲਾਂਕਣ ਕੀਤਾ ਜਾਵੇਗਾ।

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼:

1.ਵਿਦਿਆਰਥੀਆਂ ਦੀ ਸਾਹਿਤ ਵਿਚ ਰੁਚੀ ਪੈਦਾ ਕਰਨਾ।
2.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੀ ਜਾਣਕਾਰੀ ਦੇਣਾ।
3.ਵਿਦਿਆਰਥੀਆਂ ਵਿਚ ਅਨੁਵਾਦ ਦੀ ਰੁਚੀ ਪੈਦਾ ਕਰਨਾ।

ਪਾਠਕ੍ਰਮ:

1. ਸ਼ਬਦਾਂ ਦਾ ਹਿੰਦੀ ਭਾਸ਼ਾ ਤੋਂ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਵਿੱਚ ਅਨੁਵਾਦ
2. ਵਾਕਾਂ ਦਾ ਹਿੰਦੀ ਭਾਸ਼ਾ ਤੋਂ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਵਿੱਚ ਅਨੁਵਾਦ
3. ਪੈਰ੍ਹਿਆਂ ਦਾ ਹਿੰਦੀ ਭਾਸ਼ਾ ਤੋਂ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਵਿੱਚ ਅਨੁਵਾਦ
4. ਹਿੰਦੀ ਪੁਸਤਕਾਂ ਦਾ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਵਿਚ ਅਨੁਵਾਦ

ਬੀ.ਬੀ.ਏ. ਭਾਗ ਦੂਜਾ ,ਸਮੈਸਟਰ ਤੀਜਾ
ਪੇਪਰ– ਪੰਜਾਬੀ ਲਾਜ਼ਮੀ
ਪੇਪਰ ਕੋਡ:BBA-301A, ਕ੍ਰੈਡਿਟ–04
2020-21,2021-22,2022-23 ਸੈਸ਼ਨ ਲਈ

ਕੁੱਲ ਅੰਕ :100 ਵਿਸ਼ੇ ਵਿਚੋਂ ਪਾਸ ਅੰਕ : 35
ਬਾਹਰੀ ਪਰੀਖਿਆ:60 ਅੰਕ ਬਾਹਰੀ ਪਰੀਖਿਆ ਵਿਚੋਂ ਪਾਸ ਅੰਕ: 21
ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ :40 ਅੰਕ ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਵਿਚੋਂ ਪਾਸ
ਅੰਕ:14
ਸਮਾਂ:3 ਘੰਟੇ ਕੁੱਲ
ਲੈਕਚਰ:60

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼:

1.ਵਿਦਿਆਰਥੀਆਂ ਵਿਚ ਸਾਹਿਤ ਪੜ੍ਹਨ ਦੀ ਰੁਚੀ ਪੈਦਾ ਕਰਨਾ।
2.ਮਾਤ ਭਾਸ਼ਾ ਵਿੱਚ ਉਚੇਰੀ ਸਿੱਖਿਆ ਗ੍ਰਹਿਣ ਕਰਨ ਦੀ ਜਾਗ ਲਾਉਣਾ।
3.ਵਿਆਕਰਨਕ ਪੱਖਾਂ ਨਾਲ ਰਾਬਤਾ ਕਾਇਮ ਕਰਵਾਉਣਾ।
4.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਨੈਤਿਕ ਕਦਰਾਂ–ਕੀਮਤਾਂ ਬਾਰੇ ਜਾਣਕਾਰੀ ਦੇਣਾ।

ਪੇਪਰ ਸੈੱਟਰ ਅਤੇ ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਹਦਾਇਤਾਂ

1.ਭਾਗ–ੳ ਵਿਚੋਂ ਕਹਾਣੀ ਦਾ ਵਿਸ਼ਾ–ਵਸਤੂ/ ਸਾਰ (ਤਿੰਨ ਵਿਚੋਂ ਇੱਕ)10 ਅੰਕ
2.ਭਾਗ ੳ ਵਿਚੋਂ ਪਾਤਰ–ਚਿਤਰਨ (ਤਿੰਨ ਵਿਚੋਂ ਇੱਕ)10 ਅੰਕ
3.ਭਾਗ ਅ ਵਿਚ ਦਿੱਤੇ ਪੈਰ੍ਹੇ ਦਾ ਸਿਰਲੇਖ ਲਿਖ ਕੇ ਸੰਖੇਪ ਰਚਨਾ (ਦੋ ਵਿਚੋਂ ਇੱਕ) 2+8=10ਅੰਕ
4.ਭਾਗ ਅ–2 ਵਿਚੋਂ ਵਿਆਕਰਨ ਨਾਲ ਸੰਬੰਧਿਤ ਵਰਣਾਤਮਕ ਪ੍ਰਸ਼ਨ (ਦੋ ਵਿਚੋਂ ਇੱਕ) 10 ਅੰਕ
5.ਭਾਗ–ੲ ਵਿਚ ਕਹਾਣੀਆਂ ਅਤੇ ਵਿਆਕਰਨ ਵਿੱਚੋਂ ਕੁੱਲ 10(6+4) ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਲਾਜ਼ਮੀ ਪ੍ਰਸ਼ਨ।ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਜ਼ਰੂਰੀ ਹਨ । ਹਰੇਕ ਪ੍ਰਸ਼ਨ02 ਅੰਕਾਂ ਦਾ ਹੋਵੇਗਾ। 10X2=20 ਅੰਕ

ਪਾਠਕ੍ਰਮ ਅਤੇ ਪ੍ਰਸ਼ਨ–ਪੱਤਰ ਦੀ ਰੂਪ–ਰੇਖਾ
ਭਾਗ–ੳ

ੳ - ਕਥਾ ਰੰਗ(ਕਹਾਣੀ-ਸੰਗ੍ਰਹਿ) ਸੰਪਾ.ਵਰਿਆਮ ਸਿੰਘ ਸੰਧੂ ਅਤੇ ਡਾ.ਬਲਦੇਵ ਸਿੰਘ ਚੀਮਾ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ।

ਭਾਗ-ਅ

ਅ-1.ਸੰਖੇਪ ਰਚਨਾ

ਅ-2. ਵਿਆਕਰਨ

(i) ਵਾਕ:ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਵਰਗੀਕਰਨ

(ii) ਉਪਵਾਕ:ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਵਰਗੀਕਰਨ

ਭਾਗ-ੲ

ਕਹਾਣੀਆਂ ਅਤੇ ਵਿਆਕਰਨ ਵਾਲੇ ਭਾਗ ਵਿਚੋਂ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਪ੍ਰਸ਼ਨ

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1. ਜੋਗਿੰਦਰ ਸਿੰਘ ਰਾਹੀ,ਮਸਲੇ ਗਲਪ ਦੇ,ਨਾਨਕ ਸਿੰਘ ਪੁਸਤਕਮਾਲਾ,ਅੰਮ੍ਰਿਤਸਰ,1992
2. ਬਲਦੇਵ ਸਿੰਘ ਧਾਲੀਵਾਲ,ਪੰਜਾਬੀ ਕਹਾਣੀ ਦਾ ਇਤਿਹਾਸ,ਪੰਜਾਬੀ ਅਕਾਦਮੀ,ਦਿੱਲੀ
3. ਬੂਟਾ ਸਿੰਘ ਬਰਾੜ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਸ੍ਰੋਤ ਤੇ ਸਰੂਪ,ਵਾਰਿਸ ਸ਼ਾਹ ਫਾਂਊਡੇਸ਼ਨ ਅੰਮ੍ਰਿਤਸਰ,2012
4.ਬੂਟਾ ਸਿੰਘ ਬਰਾੜ, ਪੰਜਾਬੀ ਵਿਆਕਰਨ ਸਿਧਾਂਤ ਅਤੇ ਵਿਹਾਰ,ਚੇਤਨਾ ਪ੍ਰਕਾਸ਼ਨ ,ਲੁਧਿਆਣਾ,2008
5.ਬਲਦੇਵ ਸਿੰਘ ਚੀਮਾ, ਪੰਜਾਬੀ ਵਿਆਕਰਨ ਤੇ ਭਾਸ਼ਾ ਵਿਗਿਆਨ,ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ ਦਾ ਵਿਸ਼ਾ ਕੋਸ਼, ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ,2009
6.ਡਾ. ਜਗਜੀਤ ਸਿੰਘ,ਪੰਜਾਬੀ ਵਿਆਕਰਨ:ਸ਼੍ਰੇਣੀਆ ਅਤੇ ਇਕਾਈਆ,ਨਿਊ ਬੁੱਕ ਕੰਪਨੀ,ਚੰਡੀਗੜ੍ਹ।
7.ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨ ਭਾਗ II,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991
8.ਗਿਆਨੀ ਲਾਲ ਸਿੰਘ ਤੇ ਹਰਕੀਰਤ ਸਿੰਘ ,ਕਾਲਜ ਪੰਜਾਬੀ ਵਿਆਕਰਣ ,ਪੰਜਾਬ ਸਟੇਟ ਯੂਨੀ.ਟੈਕਸਟ ਬੁੱਕ ਬੋਰਡ,ਚੰਡੀਗੜ੍ਹ
9. ਸੰਤ ਸਿੰਘ ਸੇਖੋਂ,ਸਾਹਿਤਆਰਥ,ਲਾਹੌਰ ਬੁੱਕ ਸ਼ਾਪ,ਲੁਧਿਆਣਾ

ਬੀ.ਬੀ.ਏ. ਭਾਗ ਦੂਜਾ, ਸਮੈਸਟਰ ਤੀਜਾ
ਪੇਪਰ– ਪੰਜਾਬੀ ਮੁੱਢਲਾ ਗਿਆਨ
ਪੇਪਰ ਕੋਡ:BBA-301B, ਕ੍ਰੈਡਿਟ–04
2020-21,2021-22,2022-23ਸੈਸ਼ਨ ਲਈ

ਕੁੱਲ ਅੰਕ :100 ਵਿਸ਼ੇ ਵਿਚੋਂ ਪਾਸ ਅੰਕ : 35
ਬਾਹਰੀ ਪਰੀਖਿਆ:60 ਅੰਕ ਬਾਹਰੀ ਪਰੀਖਿਆ ਵਿਚੋਂ ਪਾਸ ਅੰਕ: 21
ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ :40 ਅੰਕ ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਵਿਚੋਂ ਪਾਸ ਅੰਕ:14
ਸਮਾਂ:3 ਘੰਟੇ ਕੁੱਲ ਲੈਕਚਰ:60

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼:

1.ਵਿਦਿਆਰਥੀਆਂ ਵਿਚ ਸਾਹਿਤ ਪੜ੍ਹਨ ਦੀ ਰੁਚੀ ਪੈਦਾ ਕਰਨਾ।
2.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੀ ਜਾਣਕਾਰੀ ਦੇਣਾ।
3.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਸਹਿਤ ਸਿਰਜਣ ਲਈ ਪ੍ਰੇਰਿਤ ਕਰਨਾ।
4.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਸਭਿਆਚਾਰ,ਲੋਕਧਾਰਾ ਅਤੇ ਨੈਤਿਕ ਕਦਰਾਂ –ਕੀਮਤਾਂ ਤੋਂ ਜਾਣੂ ਕਰਵਾਉਣਾ।

ਪੇਪਰ ਸੈੱਟਰ ਅਤੇ ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਹਦਾਇਤਾਂ:

1.ਸਾਰਾ ਪੇਪਰ ‘ਅੱਖਰ ਗਿਆਨ (ਭਾਗ–ਦੂਜਾ)’ਪਾਠ–ਪੁਸਤਕ ਵਿਚੋਂ ਹੀ ਸੈਟ ਕੀਤਾ ਜਾਵੇ।
2.ਭਾਗ–ੳ: ਵਿਚ ਨਿਬੰਧ ਦਾ ਵਿਸ਼ਾ–ਵਸਤੂ /ਸਾਰ (ਤਿੰਨ ਵਿਚੋਂ ਇੱਕ)12 ਅੰਕ
3.ਭਾਗ–ਅ:1 ਵਿਚ ਅੰਗਰੇਜ਼ੀ ਸ਼ਬਦਾਂ ਤੋਂ ਪੰਜਾਬੀ ਸ਼ਬਦਾਂ ਵਿਚ ਅਨੁਵਾਦ (ਸੋਲਾ ਵਿਚੋਂ ਗਿਆਰਾਂ) 11 ਅੰਕ
4.ਭਾਗ–ਅ:2 ਵਿਚ ਸ਼ਬਦਾਂ –ਜੋੜਾਂ ਦੀ ਸੁਧਾਈ (ਸੋਲਾ ਵਿਚੋਂ ਗਿਆਰਾਂ) 11 ਅੰਕ

5.ਭਾਗ-ਅ:3 ਵਿਚ ਵਿਆਕਰਨ ਨਾਲ ਸੰਬੰਧਿਤ ਵਰਣਾਤਮਕ ਪ੍ਰਸ਼ਨ (ਦੋ ਵਿਚੋਂ ਇੱਕ) 11 ਅੰਕ

6.ਭਾਗ-ਏ ਵਿਚ ਭਾਗ-ੳ ਅਤੇ ਅ ਦੇ ਸਾਰੇ ਸਿਲੇਬਸ ਵਿਚੋਂ ਕੁੱਲ 15 ਅਬਜੈਕਟਿਵ ਪ੍ਰਸ਼ਨ।ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਲਾਜ਼ਮੀ ਹਨ । ਹਰੇਕ ਪ੍ਰਸ਼ਨ 01 ਅੰਕ ਦਾ ਹੋਵੇਗਾ ।

(15X1=15 ਅੰਕ)

ਪਾਠਕ੍ਰਮ ਅਤੇ ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਦੀ ਰੂਪ-ਰੇਖਾ

ਭਾਗ-ੳ

ੳ - ਅੱਖਰ ਗਿਆਨ(ਭਾਗ-ਦੂਜਾ), ਮੁੱਖ ਸੰਪਾ. ਡਾ.ਜਸਵੀਰ ਸਿੰਘ,ਸੰਪਾ.ਡਾ.ਅਵਤਾਰ ਸਿੰਘ,ਡਾ.ਗੁਰਪ੍ਰੀਤ ਕੌਰ, ਪ੍ਰੋ.ਸੁਖਵਿੰਦਰ ਸਿੰਘ,ਸ੍ਰੀ ਗੁਰੂ ਤੇਗ਼ ਬਹਾਦਰ ਖ਼ਾਲਸਾ ਕਾਲਜ,ਸ੍ਰੀ ਅਨੰਦਪੁਰ ਸਾਹਿਬ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ,ਪੁਸਤਕ ਵਿੱਚੋਂ ਨਿਬੰਧ ਵਾਲਾ ਭਾਗ

ਭਾਗ-ਅ

ਅ-1. ਅਨੁਵਾਦ(ਅੰਗਰੇਜ਼ੀ ਸ਼ਬਦਾਂ ਤੋਂ ਪੰਜਾਬੀ ਸ਼ਬਦਾਂ ਵਿਚ)

ਅ-2 .ਸ਼ਬਦ ਜੋੜਾਂ ਦੀ ਸੁਧਾਈ।

ਅ-3 . ਵਿਸ਼ੇਸ਼ਣ ਅਤੇ ਕਿਰਿਆ ਵਿਸ਼ੇਸ਼ਣ :ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਕਿਸਮਾਂ

ਭਾਗ-ੲ

ਭਾਗ-ੳ ਅਤੇ ਅ ਦੇ ਸਾਰੇ ਸਿਲੇਬਸ ਵਿਚੋਂ ਅਬਜੈਕਟਿਵ ਪ੍ਰਸ਼ਨ

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1. ਬਲਦੇਵ ਸਿੰਘ ਚੀਮਾ, ਪੰਜਾਬੀ ਵਿਆਕਰਨ ਤੇ ਭਾਸ਼ਾ ਵਿਗਿਆਨ,ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ ਦਾ ਵਿਸ਼ਾ ਕੋਸ਼, ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ,2009
2. ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨ ਭਾਗ I,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991
3. ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨ ਭਾਗ II,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991

4.ਬਲਵੀਰ ਸਿੰਘ ਦਿਲ, ਪੰਜਾਬੀ ਨਿਬੰਧ :ਸਰੂਪ, ਸਿਧਾਂਤ ਅਤੇ ਵਿਕਾਸ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ, ਪੰਜਾਬੀ,ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।

5.ਖੋਜ ਪੱਤ੍ਰਿਕਾ, ਨਿਬੰਧ ਅੰਕ-29,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ, ਪੰਜਾਬੀ,ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।

ਬੀ.ਐਸ.ਸੀ ਆਨਰਜ਼ ਆਰਟੀਫਿਸ਼ਲ ਇੰਟੈਲੀਜੈਂਸ ਐਂਡ ਡਾਟਾ ਸਾਇੰਸ ਅਤੇ ਬੀ.ਐਸ.ਸੀ.(ਮੈਡੀਕਲ/ਨਾਨ ਮੈਡੀਕਲ)

ਭਾਗ ਦੂਜਾ ,ਸਮੈਸਟਰ ਤੀਜਾ

ਪੇਪਰ– ਪੰਜਾਬੀ ਲਾਜ਼ਮੀ

ਪੇਪਰ ਕੋਡ:BSP-301A, ਕ੍ਰੈਡਿਟ–04

2020-21,2021-22,2022-23 ਸੈਸ਼ਨ ਲਈ

ਕੁੱਲ ਅੰਕ :100
ਵਿਸ਼ੇ ਵਿਚੋਂ ਪਾਸ ਅੰਕ : 35
ਬਾਹਰੀ ਪਰੀਖਿਆ:70 ਅੰਕ
ਬਾਹਰੀ ਪਰੀਖਿਆ ਵਿਚੋਂ ਪਾਸ ਅੰਕ: 25
ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ :30 ਅੰਕ
ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਵਿਚੋਂ ਪਾਸ ਅੰਕ:10
ਸਮਾਂ:3 ਘੰਟੇ
ਕੁੱਲ ਲੈਕਚਰ:60

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼:

1.ਵਿਦਿਆਰਥੀਆਂ ਵਿਚ ਸਾਹਿਤ ਪੜ੍ਹਨ ਦੀ ਰੁਚੀ ਪੈਦਾ ਕਰਨਾ।
2.ਮਾਤ ਭਾਸ਼ਾ ਵਿੱਚ ਉਚੇਰੀ ਸਿੱਖਿਆ ਗ੍ਰਹਿਣ ਕਰਨ ਦੀ ਜਾਗ ਲਾਉਣਾ।
3.ਵਿਆਕਰਨਕ ਪੱਖਾਂ ਨਾਲ ਰਾਬਤਾ ਕਾਇਮ ਕਰਵਾਉਣਾ।
4.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਨੈਤਿਕ ਕਦਰਾਂ–ਕੀਮਤਾਂ ਬਾਰੇ ਜਾਣਕਾਰੀ ਦੇਣਾ।

ਪੇਪਰ ਸੈੱਟਰ ਅਤੇ ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਹਦਾਇਤਾਂ:

1.ਭਾਗ-ੳ ਵਿਚੋਂ ਨਾਟਕ ਦਾ ਵਿਸ਼ਾ-ਵਸਤੂ /ਸਾਰ/ ਲੇਖਕ ਦਾ ਯੋਗਦਾਨ (ਦੋ ਵਿਚੋਂ ਇੱਕ) 10 ਅੰਕ

2.ਭਾਗ-ੳ ਵਿਚ ਨਾਟਕ ਦੀ ਪਾਠ-ਪੁਸਤਕ ਵਿਚੋਂ ਪਾਤਰਾਂ ਦਾ ਚਰਿੱਤਰ-ਚਿਤਰਣ (ਪੰਜ ਵਿਚੋਂ ਦੋ) 5+5=10 ਅੰਕ

3. ਭਾਗ ਅ-1 ਵਿਚ ਨੈਤਿਕ ਕਦਰਾਂ-ਕੀਮਤਾਂ ਨਾਲ ਸੰਬੰਧਿਤ ਪੈਰ੍ਹੇ ਦਾ ਸਿਰਲੇਖ ਦੱਸ ਕੇ ਸੰਖੇਪ ਰਚਨਾ (ਦੋ ਵਿਚੋਂ ਇੱਕ)2+8=10 ਅੰਕ

4.ਭਾਗ-ਅ:2 ਵਿਚੋਂ ਵਿਆਕਰਨ ਨਾਲ ਸੰਬੰਧਿਤ ਵਰਣਾਤਮਕ ਪ੍ਰਸ਼ਨ (ਦੋ ਵਿਚੋਂ ਇੱਕ) 10 ਅੰਕ

5.ਭਾਗ-ੲ ਵਿਚ ਨਾਟਕ ਦੀ ਪਾਠ-ਪੁਸਤਕ ਅਤੇ ਵਿਆਕਰਨ ਵਿੱਚੋਂ ਕੁੱਲ 15(8+7) ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਲਾਜ਼ਮੀ ਪ੍ਰਸ਼ਨ।ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਜ਼ਰੂਰੀ ਹਨ । ਹਰੇਕ ਪ੍ਰਸ਼ਨ 2 ਅੰਕਾਂ ਦਾ ਹੋਵੇਗਾ ।(15X2=30 ਅੰਕ)

ਪਾਠਕ੍ਰਮ ਅਤੇ ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਦੀ ਰੂਪ-ਰੇਖਾ

ਭਾਗ-ੳ

ੳ - ਹਿੰਦ ਦੀ ਚਾਦਰ (ਨਾਟਕ):ਹਰਚਰਨ ਸਿੰਘ,ਲਾਹੌਰ ਬੁੱਕ ਸ਼ਾਪ,ਲੁਧਿਆਣਾ

ਭਾਗ-ਅ

ਅ-1:ਨੈਤਿਕ ਕਦਰਾਂ-ਕੀਮਤਾਂ ਨਾਲ ਸੰਬੰਧਿਤ ਸੰਖੇਪ ਰਚਨਾ

ਅ-2: ਵਿਆਕਰਨ

(i) ਵਿਆਕਰਨਕ ਇਕਾਈਆਂ
(ii) ਵਾਕ:ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਵਰਗੀਕਰਨ
(iii) ਉਪਵਾਕ:ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਵਰਗੀਕਰਨ

ਭਾਗ-ੲ

ਨਾਟਕ ਦੀ ਪਾਠ-ਪੁਸਤਕ ਅਤੇ ਵਿਆਕਰਨ ਵਾਲੇ ਭਾਗ ਵਿਚੋਂ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਪ੍ਰਸ਼ਨ

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1. ਹਰਚਰਨ ਸਿੰਘ, ਨਾਟਕ ਕਲਾ ਤੇ ਹੋਰ ਲੇਖ,ਪੈਪਸੂ ਬੁੱਕ ਡਿਪੂ ,ਪਟਿਆਲਾ,1972
2. ਹਰਚਰਨ ਸਿੰਘ,ਪੰਜਾਬ ਦੀ ਨਾਟ ਪਰੰਪਰਾ,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ ,ਪਟਿਆਲਾ,
3. ਬਲਵੰਤ ਗਾਰਗੀ,ਰੰਗਮੰਚ,ਨਵਯੁਗ ਪਬਲਿਸ਼ਰਜ਼,ਦਿੱਲੀ,1964
4. ਹਰਸਰਨ ਸਿੰਘ,ਥੀਏਟਰ,ਲੋਕਗੀਤ ਪ੍ਰਕਾਸ਼ਨ,ਚੰਡੀਗੜ੍ਹ,1988
5.ਬੂਟਾ ਸਿੰਘ ਬਰਾੜ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਸ੍ਰੋਤ ਤੇ ਸਰੂਪ,ਵਾਰਿਸ ਸ਼ਾਹ ਫਾਂਉਡੇਸ਼ਨ ਅੰਮ੍ਰਿਤਸਰ,2012
6.ਬੂਟਾ ਸਿੰਘ ਬਰਾੜ, ਪੰਜਾਬੀ ਵਿਆਕਰਨ ਸਿਧਾਂਤ ਅਤੇ ਵਿਹਾਰ,ਚੇਤਨਾ ਪ੍ਰਕਾਸ਼ਨ ,ਲੁਧਿਆਣਾ,2008
7.ਬਲਦੇਵ ਸਿੰਘ ਚੀਮਾ, ਪੰਜਾਬੀ ਵਿਆਕਰਨ ਤੇ ਭਾਸ਼ਾ ਵਿਗਿਆਨ,ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ ਦਾ ਵਿਸ਼ਾ ਕੋਸ਼,

ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ,2009
8.ਡਾ. ਜਗਜੀਤ ਸਿੰਘ,ਪੰਜਾਬੀ ਵਿਆਕਰਨ:ਸ਼੍ਰੇਣੀਆ ਅਤੇ ਇਕਾਈਆ,ਨਿਊ ਬੁੱਕ ਕੰਪਨੀ,ਚੰਡੀਗੜ੍ਹ।
9.ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨ ਭਾਗ II,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991
10.ਗਿਆਨੀ ਲਾਲ ਸਿੰਘ ਤੇ ਹਰਕੀਰਤ ਸਿੰਘ ,ਕਾਲਜ ਪੰਜਾਬੀ ਵਿਆਕਰਣ ,ਪੰਜਾਬ ਸਟੇਟ ਯੂਨੀ.ਟੈਕਸਟ ਬੁੱਕ ਬੋਰਡ,ਚੰਡੀਗੜ੍ਹ
11. ਸੰਤ ਸਿੰਘ ਸੇਖੋਂ,ਸਾਹਿਤਆਰਥ,ਲਾਹੌਰ ਬੁੱਕ ਸ਼ਾਪ,ਲੁਧਿਆਣਾ

ਬੀ.ਐਸ.ਸੀ ਆਨਰਜ਼ ਆਰਟੀਫਿਸ਼ਲ ਇੰਟੈਲੀਜੈਂਸ ਐਂਡ ਡਾਟਾ ਸਾਇੰਸ ਅਤੇ ਬੀ.ਐਸ.ਸੀ.(ਮੈਡੀਕਲ/ਨਾਨ ਮੈਡੀਕਲ)

ਭਾਗ ਦੂਜਾ ,ਸਮੈਸਟਰ ਤੀਜਾ

ਪੇਪਰ– ਪੰਜਾਬੀ ਮੁੱਢਲਾ ਗਿਆਨ

ਪੇਪਰ ਕੋਡ:BSP-301B, ਕ੍ਰੈਡਿਟ–04

2020-21,2021-22,2022-23ਸੈਸ਼ਨ ਲਈ

ਕੁੱਲ ਅੰਕ :100 ਵਿਸ਼ੇ ਵਿਚੋਂ ਪਾਸ ਅੰਕ : 35
ਬਾਹਰੀ ਪਰੀਖਿਆ:70 ਅੰਕ ਬਾਹਰੀ ਪਰੀਖਿਆ ਵਿਚੋਂ ਪਾਸ ਅੰਕ: 25

ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ :30 ਅੰਕ ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਵਿਚੋਂ ਪਾਸ
ਅੰਕ:10
ਸਮਾਂ:3 ਘੰਟੇ ਕੁੱਲ
ਲੈਕਚਰ:60

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼:

1.ਵਿਦਿਆਰਥੀਆਂ ਵਿਚ ਸਾਹਿਤ ਪੜ੍ਹਨ ਦੀ ਰੁਚੀ ਪੈਦਾ ਕਰਨਾ।
2.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੀ ਜਾਣਕਾਰੀ ਦੇਣਾ।
3.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਸਹਿਤ ਸਿਰਜਣ ਲਈ ਪ੍ਰੇਰਿਤ ਕਰਨਾ।
4.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਸਭਿਆਚਾਰ,ਲੋਕਧਾਰਾ ਅਤੇ ਨੈਤਿਕ ਕਦਰਾਂ -ਕੀਮਤਾਂ ਤੋਂ ਜਾਣੂ ਕਰਵਾਉਣਾ।

ਪੇਪਰ ਸੈੱਟਰ ਅਤੇ ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਹਦਾਇਤਾਂ:

1.ਸਾਰਾ ਪੇਪਰ ‘ਅੱਖਰ ਗਿਆਨ (ਭਾਗ-ਦੂਜਾ)’ਪਾਠ-ਪੁਸਤਕ ਵਿਚੋਂ ਹੀ ਸੈਟ ਕੀਤਾ ਜਾਵੇ।
2.ਭਾਗ-ੳ: ਵਿਚ ਨਿਬੰਧ ਦਾ ਵਿਸ਼ਾ-ਵਸਤੂ /ਸਾਰ (ਤਿੰਨ ਵਿਚੋਂ ਇੱਕ)10 ਅੰਕ
3.ਭਾਗ-ਅ:1 ਵਿਚ ਅੰਗਰੇਜ਼ੀ ਸ਼ਬਦਾਂ ਤੋਂ ਪੰਜਾਬੀ ਸ਼ਬਦਾਂ ਵਿਚ ਅਨੁਵਾਦ (ਪੰਦਰਾਂ ਵਿਚੋਂ ਦਸ) 10 ਅੰਕ
4.ਭਾਗ-ਅ:2 ਵਿਚ ਸ਼ਬਦਾਂ -ਜੋੜਾਂ ਦੀ ਸੁਧਾਈ (ਪੰਦਰਾਂ ਵਿਚੋਂ ਦਸ) 10ਅੰਕ
5.ਭਾਗ-ਅ:3 ਵਿਚ ਵਿਆਕਰਨ ਨਾਲ ਸੰਬੰਧਿਤ ਵਰਣਾਤਮਕ ਪ੍ਰਸ਼ਨ (ਦੋ ਵਿਚੋਂ ਇੱਕ) 10 ਅੰਕ
6.ਭਾਗ-ੲ ਵਿਚ ਭਾਗ-ੳ ਅਤੇ ਅ ਦੇ ਸਾਰੇ ਸਿਲੇਬਸ ਵਿਚੋਂ ਕੁੱਲ 15 ਅਬਜੈਕਟਿਵ ਪ੍ਰਸ਼ਨ ।ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਲਾਜ਼ਮੀ ਹਨ । ਹਰੇਕ ਪ੍ਰਸ਼ਨ 2 ਅੰਕਾਂ ਦਾ ਹੋਵੇਗਾ ।
(15X2=30 ਅੰਕ)

ਪਾਠਕ੍ਰਮ ਅਤੇ ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਦੀ ਰੂਪ-ਰੇਖਾ

ਭਾਗ-ੳ

ੳ - ਅੱਖਰ ਗਿਆਨ(ਭਾਗ-ਦੂਜਾ), ਮੁੱਖ ਸੰਪਾ. ਡਾ.ਜਸਵੀਰ ਸਿੰਘ,ਸੰਪਾ.ਡਾ.ਅਵਤਾਰ ਸਿੰਘ,ਡਾ.ਗੁਰਪ੍ਰੀਤ ਕੌਰ, ਪ੍ਰੋ.ਸੁਖਵਿੰਦਰ ਸਿੰਘ,ਸ੍ਰੀ ਗੁਰੂ ਤੇਗ ਬਹਾਦਰ ਖ਼ਾਲਸਾ ਕਾਲਜ,ਸ੍ਰੀ ਅਨੰਦਪੁਰ ਸਾਹਿਬ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ,ਪੁਸਤਕ ਵਿੱਚੋਂ ਨਿਬੰਧ ਵਾਲਾ ਭਾਗ

ਭਾਗ-ਅ

ਅ-1. ਅਨੁਵਾਦ(ਅੰਗਰੇਜ਼ੀ ਸ਼ਬਦਾਂ ਤੋਂ ਪੰਜਾਬੀ ਸ਼ਬਦਾਂ ਵਿਚ)
ਅ-2 .ਸ਼ਬਦ ਜੋੜਾਂ ਦੀ ਸੁਧਾਈ।
ਅ-3 . ਵਿਸ਼ੇਸ਼ਣ ਅਤੇ ਕਿਰਿਆ ਵਿਸ਼ੇਸ਼ਣ :ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਕਿਸਮਾਂ

ਭਾਗ-ੲ

ਭਾਗ-ੳ ਅਤੇ ਅ ਦੇ ਸਾਰੇ ਸਿਲੇਬਸ ਵਿਚੋਂ ਅਬਜੈਕਟਿਵ ਪ੍ਰਸ਼ਨ

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1. ਬਲਦੇਵ ਸਿੰਘ ਚੀਮਾ, ਪੰਜਾਬੀ ਵਿਆਕਰਨ ਤੇ ਭਾਸ਼ਾ ਵਿਗਿਆਨ,ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ ਦਾ ਵਿਸ਼ਾ ਕੋਸ਼, ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ,2009
2. ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨ ਭਾਗ I,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991
3. ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨ ਭਾਗ II,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991

4.ਬਲਵੀਰ ਸਿੰਘ ਦਿਲ, ਪੰਜਾਬੀ ਨਿਬੰਧ :ਸਰੂਪ, ਸਿਧਾਂਤ ਅਤੇ ਵਿਕਾਸ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ, ਪੰਜਾਬੀ,ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।

5.ਖੋਜ ਪੱਤ੍ਰਿਕਾ, ਨਿਬੰਧ ਅੰਕ-29,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ, ਪੰਜਾਬੀ,ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।

ਬੀ.ਸੀ.ਏ. ਭਾਗ ਦੂਜਾ ,ਸਮੈਸਟਰ ਤੀਜਾ

ਪੇਪਰ- ਪੰਜਾਬੀ ਲਾਜ਼ਮੀ

ਪੇਪਰ ਕੋਡ:BCA-301A,ਕ੍ਰੈਡਿਟ-02

2020-21,2021-22,2022-23 ਸੈਸ਼ਨ ਲਈ

ਕੁੱਲ ਅੰਕ :50 ਵਿਸ਼ੇ ਵਿਚੋਂ ਪਾਸ ਅੰਕ :17

ਬਾਹਰੀ ਪਰੀਖਿਆ:35 ਅੰਕ ਬਾਹਰੀ ਪਰੀਖਿਆ ਵਿਚੋਂ ਪਾਸ ਅੰਕ:12

ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ :15 ਅੰਕ ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਵਿਚੋਂ ਪਾਸ ਅੰਕ:05
ਸਮਾਂ:3 ਘੰਟੇ ਕੁੱਲ ਲੈਕਚਰ:30

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼:

1.ਵਿਦਿਆਰਥੀਆਂ ਵਿਚ ਸਾਹਿਤ ਪੜ੍ਹਨ ਦੀ ਰੁਚੀ ਪੈਦਾ ਕਰਨਾ।
2.ਮਾਤ ਭਾਸ਼ਾ ਵਿੱਚ ਉਚੇਰੀ ਸਿੱਖਿਆ ਗ੍ਰਹਿਣ ਕਰਨ ਦੀ ਜਾਗ ਲਾਉਣਾ।
3.ਵਿਆਕਰਨਕ ਪੱਖਾਂ ਨਾਲ ਰਾਬਤਾ ਕਾਇਮ ਕਰਵਾਉਣਾ।
4.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਨੈਤਿਕ ਕਦਰਾਂ-ਕੀਮਤਾਂ ਬਾਰੇ ਜਾਣਕਾਰੀ ਦੇਣਾ।

ਪੇਪਰ ਸੈੱਟਰ ਅਤੇ ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਹਦਾਇਤਾਂ

1.ਭਾਗ-ੳ ਵਿਚੋਂ ਕਹਾਣੀ ਦਾ ਵਿਸ਼ਾ-ਵਸਤੂ/ ਸਾਰ (ਤਿੰਨ ਵਿਚੋਂ ਇੱਕ)08 ਅੰਕ
2.ਭਾਗ ੳ ਵਿਚੋਂ ਪਾਤਰ-ਚਿਤਰਨ (ਤਿੰਨ ਵਿਚੋਂ ਇੱਕ)04 ਅੰਕ
3.ਭਾਗ ਅ-1 ਵਿੱਚ ਦਿੱਤੇ ਪੈਰ੍ਹੇ ਦਾ ਸਿਰਲੇਖ ਦੱਸ ਕੇ ਸੰਖੇਪ ਰਚਨਾ (ਦੋ ਵਿਚੋਂ ਇੱਕ) 2+3 ਅੰਕ
4.ਭਾਗ-ਅ ਵਿਚੋਂ ਵਿਆਕਰਨ ਨਾਲ ਸੰਬੰਧਿਤ ਵਰਣਾਤਮਕ ਪ੍ਰਸ਼ਨ (ਦੋ ਵਿਚੋਂ ਇੱਕ) 08 ਅੰਕ
5.ਭਾਗ-ੲ ਵਿਚ ਕਹਾਣੀਆਂ ਅਤੇ ਵਿਆਕਰਨ ਵਿੱਚੋਂ ਕੁੱਲ 10(6+4) ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਲਾਜ਼ਮੀ ਪ੍ਰਸ਼ਨ।ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਜ਼ਰੂਰੀ ਹਨ । ਹਰੇਕ ਪ੍ਰਸ਼ਨ01 ਅੰਕ ਦਾ ਹੋਵੇਗਾ। **10X1=10** ਅੰਕ

ਪਾਠਕ੍ਰਮ ਅਤੇ ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਦੀ ਰੂਪ-ਰੇਖਾ

ਭਾਗ-ੳ

ੳ - ਕਥਾ ਰੰਗ(ਕਹਾਣੀ-ਸੰਗ੍ਰਹਿ) ਸੰਪਾ.ਵਰਿਆਮ ਸਿੰਘ ਸੰਧੂ ਅਤੇ ਡਾ.ਬਲਦੇਵ ਸਿੰਘ ਚੀਮਾ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ।

ਭਾਗ-ਅ

ਅ -1.ਸੰਖੇਪ ਰਚਨਾ
ਅ-2. ਵਿਆਕਰਨ

(i) ਵਾਕ:ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਵਰਗੀਕਰਨ
(ii) ਉਪਵਾਕ:ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਵਰਗੀਕਰਨ

ਭਾਗ-ੲ

ਕਹਾਣੀਆਂ ਅਤੇ ਵਿਆਕਰਨ ਵਾਲੇ ਭਾਗ ਵਿਚੋਂ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਪ੍ਰਸ਼ਨ

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1. ਜੋਗਿੰਦਰ ਸਿੰਘ ਰਾਹੀ,ਮਸਲੇ ਗਲਪ ਦੇ,ਨਾਨਕ ਸਿੰਘ ਪੁਸਤਕਮਾਲਾ,ਅੰਮ੍ਰਿਤਸਰ,1992

2. ਬਲਦੇਵ ਸਿੰਘ ਧਾਲੀਵਾਲ,ਪੰਜਾਬੀ ਕਹਾਣੀ ਦਾ ਇਤਿਹਾਸ,ਪੰਜਾਬੀ ਅਕਾਦਮੀ,ਦਿੱਲੀ
3. ਬੂਟਾ ਸਿੰਘ ਬਰਾੜ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਸ੍ਰੋਤ ਤੇ ਸਰੂਪ,ਵਾਰਿਸ ਸ਼ਾਹ ਫਾਂਊਡੇਸ਼ਨ ਅੰਮ੍ਰਿਤਸਰ,2012
4.ਬੂਟਾ ਸਿੰਘ ਬਰਾੜ, ਪੰਜਾਬੀ ਵਿਆਕਰਨ ਸਿਧਾਂਤ ਅਤੇ ਵਿਹਾਰ,ਚੇਤਨਾ ਪ੍ਰਕਾਸ਼ਨ ,ਲੁਧਿਆਣਾ,2008
5.ਬਲਦੇਵ ਸਿੰਘ ਚੀਮਾ, ਪੰਜਾਬੀ ਵਿਆਕਰਨ ਤੇ ਭਾਸ਼ਾ ਵਿਗਿਆਨ,ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ ਦਾ ਵਿਸ਼ਾ ਕੋਸ਼, ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ,2009
6.ਡਾ. ਜਗਜੀਤ ਸਿੰਘ,ਪੰਜਾਬੀ ਵਿਆਕਰਨ:ਸ਼੍ਰੇਣੀਆ ਅਤੇ ਇਕਾਈਆ,ਨਿਊ ਬੁੱਕ ਕੰਪਨੀ,ਚੰਡੀਗੜ੍ਹ।
7.ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨ ਭਾਗ II,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991
8.ਗਿਆਨੀ ਲਾਲ ਸਿੰਘ ਤੇ ਹਰਕੀਰਤ ਸਿੰਘ ,ਕਾਲਜ ਪੰਜਾਬੀ ਵਿਆਕਰਣ ,ਪੰਜਾਬ ਸਟੇਟ ਯੂਨੀ.ਟੈਕਸਟ ਬੁੱਕ ਬੋਰਡ,ਚੰਡੀਗੜ੍ਹ
9. ਸੰਤ ਸਿੰਘ ਸੇਖੋਂ,ਸਾਹਿਤਆਰਥ,ਲਾਹੌਰ ਬੁੱਕ ਸ਼ਾਪ,ਲੁਧਿਆਣਾ

ਬੀ.ਸੀ.ਏ. ਭਾਗ ਦੂਜਾ ,ਸਮੈਸਟਰ ਤੀਜਾ

ਪੇਪਰ- ਪੰਜਾਬੀ ਮੁੱਢਲਾ ਗਿਆਨ

ਪੇਪਰ ਕੋਡ:BCA-301B,ਕ੍ਰੈਡਿਟ-02

2020-21,2021-22,2022-23ਸੈਸ਼ਨ ਲਈ

ਕੁੱਲ ਅੰਕ :50 **ਵਿਸ਼ੇ ਵਿਚੋਂ ਪਾਸ ਅੰਕ : 17**

ਬਾਹਰੀ ਪਰੀਖਿਆ:35 ਅੰਕ ਬਾਹਰੀ ਪਰੀਖਿਆ ਵਿਚੋਂ ਪਾਸ ਅੰਕ:
12
ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ :15 ਅੰਕ ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਵਿਚੋਂ ਪਾਸ
ਅੰਕ:05
ਸਮਾਂ:3 ਘੰਟੇ ਕੁੱਲ
ਲੈਕਚਰ:30

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼:

1.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਸਾਹਿਤ ਪੜ੍ਹਨ ਲਈ ਪ੍ਰੇਰਿਤ ਕਰਨਾ।
2.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੀ ਜਾਣਕਾਰੀ ਦੇਣਾ।
3.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਸਹਿਤ ਸਿਰਜਣ ਲਈ ਪ੍ਰੇਰਿਤ ਕਰਨਾ।
4.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਸਭਿਆਚਾਰ,ਲੋਕਧਾਰਾ ਅਤੇ ਨੈਤਿਕ ਕਦਰਾਂ -ਕੀਮਤਾਂ ਤੋਂ ਜਾਣੂ ਕਰਵਾਉਣਾ।

ਪੇਪਰ ਸੈੱਟਰ ਅਤੇ ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਹਦਾਇਤਾਂ:

1.ਸਾਰਾ ਸਿਲੇਬਸ 'ਅੱਖਰ ਗਿਆਨ (ਭਾਗ-ਦੂਜਾ)'ਵਿਚੋਂ ਹੀ ਪਾਇਆ ਜਾਵੇ।
2.ਭਾਗ-ੳ: ਵਿਚ ਨਿਬੰਧ ਦਾ ਵਿਸ਼ਾ-ਵਸਤੂ /ਸਾਰ (ਤਿੰਨ ਵਿਚੋਂ ਇੱਕ)07 ਅੰਕ
3.ਭਾਗ-ਅ:1 ਵਿਚ ਅਨੁਵਾਦ ਅੰਗਰੇਜ਼ੀ ਸ਼ਬਦਾਂ ਤੋਂ ਪੰਜਾਬੀ ਸ਼ਬਦਾਂ ਵਿਚ (ਸੋਲਾਂ ਵਿਚੋਂ ਅੱਠ) 04 ਅੰਕ
4.ਭਾਗ-ਅ:2 ਵਿਚ ਸ਼ਬਦ ਜੋੜਾਂ ਦੀ ਸੁਧਾਈ (ਸੋਲਾਂ ਵਿਚੋਂ ਅੱਠ) 04 ਅੰਕ
5.ਭਾਗ-ਅ:3 ਵਿਚ ਵਿਆਕਰਨ ਨਾਲ ਸੰਬੰਧਿਤ ਪ੍ਰਸ਼ਨ (ਦੋ ਵਿਚੋਂ ਇੱਕ) 05 ਅੰਕ
6.ਭਾਗ-ੲ ਵਿਚ ਨਿਬੰਧਾਂ,ਅਨੁਵਾਦ ਅਤੇ ਸ਼ਬਦਾਂ ਦੀ ਸੁਧਾਈ ਵਿਚੋਂ ਕੁੱਲ 15 ਅਬਜੈਕਟਿਵ ਪ੍ਰਸ਼ਨ ।ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਲਾਜ਼ਮੀ ਹਨ । ਹਰੇਕ ਪ੍ਰਸ਼ਨ 01 ਅੰਕ ਦਾ ਹੋਵੇਗਾ । **(15X1=15 ਅੰਕ)**

ਪਾਠਕ੍ਰਮ ਅਤੇ ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਦੀ ਰੂਪ-ਰੇਖਾ

ਭਾਗ-ੳ

ੳ -ਅੱਖਰ ਗਿਆਨ(ਭਾਗ-ਦੂਜਾ),ਮੁੱਖ ਸੰਪਾ. ਡਾ.ਜਸਵੀਰ ਸਿੰਘ,ਸੰਪਾ.ਡਾ.ਅਵਤਾਰ ਸਿੰਘ,ਡਾ.ਗੁਰਪ੍ਰੀਤ ਕੌਰ, ਪ੍ਰੋ.ਸੁਖਵਿੰਦਰ ਸਿੰਘ,ਸ੍ਰੀ ਗੁਰੂ ਤੇਗ ਬਹਾਦਰ ਖ਼ਾਲਸਾ ਕਾਲਜ,ਸ੍ਰੀ ਅਨੰਦਪੁਰ ਸਾਹਿਬ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ,ਪੁਸਤਕ ਵਿੱਚੋਂ ਨਿਬੰਧ ਵਾਲਾ ਭਾਗ

ਭਾਗ-ਅ

ਅ-1.ਅਨੁਵਾਦ(ਅੰਗਰੇਜ਼ੀ ਸ਼ਬਦਾਂ ਤੋਂ ਪੰਜਾਬੀ ਸ਼ਬਦਾਂ ਵਿਚ)
ਅ-2 .ਸ਼ਬਦ ਜੋੜਾਂ ਦੀ ਸੁਧਾਈ।
ਅ-3 .ਵਿਸ਼ੇਸ਼ਣ ਅਤੇ ਕਿਰਿਆ ਵਿਸ਼ੇਸ਼ਣ :ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਕਿਸਮਾਂ

ਭਾਗ-ੲ

ਨਿਬੰਧਾਂ,ਅਨੁਵਾਦ ਅਤੇ ਸ਼ਬਦਾਂ ਦੀ ਸੁਧਾਈ ਵਿਚੋਂ ਸਿਲੇਬਸ ਵਿਚੋਂ ਅਬਜੈਕਟਿਵ ਪ੍ਰਸ਼ਨ

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1. ਬਲਦੇਵ ਸਿੰਘ ਚੀਮਾ, ਪੰਜਾਬੀ ਵਿਆਕਰਨ ਤੇ ਭਾਸ਼ਾ ਵਿਗਿਆਨ,ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ ਦਾ ਵਿਸ਼ਾ ਕੋਸ਼, ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ,2009
2. ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨ ਭਾਗ I,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991
3. ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨ ਭਾਗ II,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991

4.ਬਲਵੀਰ ਸਿੰਘ ਦਿਲ, ਪੰਜਾਬੀ ਨਿਬੰਧ :ਸਰੂਪ, ਸਿਧਾਂਤ ਅਤੇ ਵਿਕਾਸ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ, ਪੰਜਾਬੀ,ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।

5.ਖੋਜ ਪੱਤ੍ਰਿਕਾ, ਨਿਬੰਧ ਅੰਕ-29,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ, ਪੰਜਾਬੀ,ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।

ਵਿਸ਼ਾ: ਪੰਜਾਬੀ ਲਾਜ਼ਮੀ

ਕੁੱਲ ਅੰਕ :100 **ਸਮਾਂ:3 ਘੰਟੇ**
ਬਾਹਰੀ ਪਰੀਖਿਆ:70 ਅੰਕ **ਪਾਸ ਅੰਕ: 35%**
ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ :30 ਅੰਕ **ਕੁੱਲ ਲੈਕਚਰ:60**
ਕ੍ਰੈਡਿਟ-04

ਪਾਠਕ੍ਰਮ ਅਤੇ ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਦੀ ਰੂਪ-ਰੇਖਾ

ਭਾਗ-ੳ

ੳ - ਹਿੰਦ ਦੀ ਚਾਦਰ (ਨਾਟਕ):ਹਰਚਰਨ ਸਿੰਘ,ਲਾਹੌਰ ਬੁੱਕ ਸ਼ਾਪ,ਲੁਧਿਆਣਾ

ਭਾਗ-ਅ

ਅ-1:ਨੈਤਿਕ ਕਦਰਾਂ-ਕੀਮਤਾਂ ਨਾਲ ਸੰਬੰਧਿਤ ਸੰਖੇਪ ਰਚਨਾ

ਅ-2: ਵਿਆਕਰਨ

(f) ਵਿਆਕਰਨਕ ਇਕਾਈਆਂ
(ii) ਵਾਕ:ਪਰਿਭਾਸ਼ਾ,ਬਣਤਰ ਅਤੇ ਕਾਰਜ
(iii) ਉਪਵਾਕ:ਪਰਿਭਾਸ਼ਾ,ਬਣਤਰ ਅਤੇ ਕਾਰਜ

ਭਾਗ-ੲ

ਨਾਟਕ ਦੀ ਪਾਠ-ਪੁਸਤਕ ਅਤੇ ਵਿਆਕਰਨ ਵਾਲੇ ਭਾਗ ਵਿਚੋਂ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਪ੍ਰਸ਼ਨ

ਪੇਪਰ ਸੈਟਰ ਅਤੇ ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਹਦਾਇਤਾਂ:

1.ਭਾਗ-ੳ ਵਿਚੋਂ ਨਾਟਕ ਦਾ ਵਿਸ਼ਾ-ਵਸਤੂ /ਸਾਰ/ ਲੇਖਕ ਦਾ ਯੋਗਦਾਨ (ਦੋ ਵਿਚੋਂ ਇੱਕ) 10 ਅੰਕ

2.ਭਾਗ-ੳ ਵਿਚ ਨਾਟਕ ਦੀ ਪਾਠ-ਪੁਸਤਕ ਵਿਚੋਂ ਪਾਤਰਾਂ ਦਾ ਚਰਿੱਤਰ-ਚਿਤਰਣ (ਪੰਜ ਵਿਚੋਂ ਦੋ) 5+5=10 ਅੰਕ

3.ਭਾਗ ਅ-1 ਵਿਚ ਨੈਤਿਕ ਕਦਰਾਂ-ਕੀਮਤਾਂ ਨਾਲ ਸੰਬੰਧਿਤ ਪੈਰ੍ਹੇ ਦਾ ਸਿਰਲੇਖ ਦੱਸ ਕੇ ਸੰਖੇਪ-ਰਚਨਾ (ਦੋ ਵਿਚੋਂ ਇੱਕ)2+8=10 ਅੰਕ

4.ਭਾਗ-ਅ:2 ਵਿਚੋਂ ਵਿਆਕਰਨ ਨਾਲ ਸੰਬੰਧਿਤ ਵਰਣਾਤਮਕ ਪ੍ਰਸ਼ਨ (ਦੋ ਵਿਚੋਂ ਇੱਕ) 10 ਅੰਕ

5.ਭਾਗ-ੲ ਵਿਚ ਨਾਟਕ ਦੀ ਪਾਠ-ਪੁਸਤਕ ਅਤੇ ਵਿਆਕਰਨ ਵਿੱਚੋਂ ਕੁੱਲ 15(8+7) ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਲਾਜ਼ਮੀ ਪ੍ਰਸ਼ਨ।ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਜ਼ਰੂਰੀ ਹਨ । ਹਰੇਕ ਪ੍ਰਸ਼ਨ 2 ਅੰਕਾਂ ਦਾ ਹੋਵੇਗਾ ।
(15X2=30 ਅੰਕ)

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼:

1.ਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ ਸਾਹਿਤ ਪੜ੍ਹਨ ਦੀ ਰੁਚੀ ਪੈਦਾ ਕਰਨਾ।
2.ਮਾਤ ਭਾਸ਼ਾ ਵਿੱਚ ਉਚੇਰੀ ਸਿੱਖਿਆ ਗ੍ਰਹਿਣ ਕਰਨ ਦੀ ਜਾਗ ਲਾਉਣਾ।
3.ਵਿਆਕਰਨਕ ਪੱਖਾਂ ਨਾਲ ਰਾਬਤਾ ਕਾਇਮ ਕਰਵਾਉਣਾ।
4.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਨੈਤਿਕ ਕਦਰਾਂ-ਕੀਮਤਾਂ ਬਾਰੇ ਜਾਣਕਾਰੀ ਦੇਣਾ।

ਪਾਠਕ੍ਰਮ ਨਤੀਜੇ:

1. ਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ ਨਾਟਕ ਨਾਲ ਸੰਬੰਧਿਤ ਪਰਤਾਂ ਨੂੰ ਉਜਾਗਰ ਕਰਨ ਦਾ ਹੁਨਰ ਪੈਦਾ ਹੋਵੇਗਾ।
2. ਵਿਦਿਆਰਥੀ ਵਿਆਕਰਨਕ ਨੇਮ-ਵਿਧਾਨ ਤੋਂ ਜਾਣੂ ਹੋਣਗੇ।

ਸਹਾਇਕ ਪੁਸਤਕਾਂ:

1. ਹਰਚਰਨ ਸਿੰਘ, ਨਾਟਕ ਕਲਾ ਤੇ ਹੋਰ ਲੇਖ,ਪੈਪਸੂ ਬੁੱਕ ਡਿਪੂ ,ਪਟਿਆਲਾ,1972
2. ਹਰਚਰਨ ਸਿੰਘ,ਪੰਜਾਬ ਦੀ ਨਾਟ ਪਰੰਪਰਾ,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ ,ਪਟਿਆਲਾ,
3. ਬਲਵੰਤ ਗਾਰਗੀ,ਰੰਗਮੰਚ,ਨਵਯੁਗ ਪਬਲਿਸ਼ਰਜ਼,ਦਿੱਲੀ,1964
4. ਹਰਸਰਨ ਸਿੰਘ,ਥੀਏਟਰ,ਲੋਕਗੀਤ ਪ੍ਰਕਾਸ਼ਨ,ਚੰਡੀਗੜ੍ਹ,1988
5. ਬੂਟਾ ਸਿੰਘ ਬਰਾੜ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਸ੍ਰੋਤ ਤੇ ਸਰੂਪ,ਵਾਰਿਸ ਸ਼ਾਹ ਫਾਂਊਡੇਸ਼ਨ ਅੰਮ੍ਰਿਤਸਰ,2012
6. ਬੂਟਾ ਸਿੰਘ ਬਰਾੜ, ਪੰਜਾਬੀ ਵਿਆਕਰਨ ਸਿਧਾਂਤ ਅਤੇ ਵਿਹਾਰ,ਚੇਤਨਾ ਪ੍ਰਕਾਸ਼ਨ ,ਲੁਧਿਆਣਾ,2008
7. ਬਲਦੇਵ ਸਿੰਘ ਚੀਮਾ, ਪੰਜਾਬੀ ਵਿਆਕਰਨ ਤੇ ਭਾਸ਼ਾ ਵਿਗਿਆਨ,ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ ਦਾ ਵਿਸ਼ਾ ਕੋਸ਼,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ,2009
8. ਡਾ.ਜਗਜੀਤਸਿੰਘ,ਪੰਜਾਬੀ ਵਿਆਕਰਨ:ਸ਼੍ਰੇਣੀਆ ਅਤੇ ਇਕਾਈਆ,ਨਿਊ ਬੁੱਕ ਕੰਪਨੀ,ਚੰਡੀਗੜ੍ਹ।
9. ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨ ਭਾਗ II,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991
10. ਗਿਆਨੀ ਲਾਲ ਸਿੰਘ ਤੇ ਹਰਕੀਰਤ ਸਿੰਘ ,ਕਾਲਜ ਪੰਜਾਬੀ ਵਿਆਕਰਣ ,ਪੰਜਾਬ ਸਟੇਟ ਯੂਨੀ.ਟੈਕਸਟ ਬੁੱਕ ਬੋਰਡ,ਚੰਡੀਗੜ੍ਹ
11. ਸੰਤ ਸਿੰਘ ਸੇਖੋਂ,ਸਾਹਿਤਆਰਥ,ਲਾਹੌਰ ਬੁੱਕ ਸ਼ਾਪ,ਲੁਧਿਆਣਾ

ਬੀ.ਵਾਕ. ਫਾਰਮਾਸਿਊਟੀਕਲ ਕਮਿਸਟਰੀ ਭਾਗ ਦੂਜਾ ,ਸਮੈਸਟਰ ਤੀਜਾ
ਸੈਸ਼ਨ:2021–22 ,ਪੇਪਰ ਕੋਡ:PBVOC-301B
ਵਿਸ਼ਾ: ਪੰਜਾਬੀ ਮੁੱਢਲਾ ਗਿਆਨ

ਕੁੱਲ ਅੰਕ :100	**ਸਮਾਂ:3 ਘੰਟੇ**
ਬਾਹਰੀ ਪਰੀਖਿਆ:70 ਅੰਕ	**ਪਾਸ ਅੰਕ: 35%**
ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ :30 ਅੰਕ	**ਕੁੱਲ ਲੈਕਚਰ:60**
ਕ੍ਰੈਡਿਟ–04	

ਪਾਠਕ੍ਰਮ ਅਤੇ ਪ੍ਰਸ਼ਨ–ਪੱਤਰ ਦੀ ਰੂਪ–ਰੇਖਾ

ਭਾਗ–ੳ

ੳ – ਅੱਖਰ ਗਿਆਨ(ਭਾਗ–ਦੂਜਾ), ਮੁੱਖ ਸੰਪਾ. ਡਾ.ਜਸਵੀਰ ਸਿੰਘ,ਸੰਪਾ.ਡਾ.ਅਵਤਾਰ ਸਿੰਘ,ਡਾ.ਗੁਰਪ੍ਰੀਤ ਕੌਰ, ਪ੍ਰੋ.ਸੁਖਵਿੰਦਰ ਸਿੰਘ,ਸ੍ਰੀ ਗੁਰੂ ਤੇਗ਼ ਬਹਾਦਰ ਖ਼ਾਲਸਾ ਕਾਲਜ,ਸ੍ਰੀ ਅਨੰਦਪੁਰ ਸਾਹਿਬ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ,ਪੁਸਤਕ ਵਿੱਚੋਂ ਨਿਬੰਧ ਵਾਲਾ ਭਾਗ

ਭਾਗ–ਅ

ਅ–1.ਅਨੁਵਾਦ(ਅੰਗਰੇਜ਼ੀ ਸ਼ਬਦਾਂ ਤੋਂ ਪੰਜਾਬੀ ਸ਼ਬਦਾਂ ਵਿਚ)

ਅ–2 .ਸ਼ਬਦ ਜੋੜਾਂ ਦੀ ਸੁਧਾਈ।

ਅ–3 .ਵਿਸ਼ੇਸ਼ਣ ਅਤੇ ਕਿਰਿਆ ਵਿਸ਼ੇਸ਼ਣ :ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਕਿਸਮਾਂ

ਭਾਗ–ੲ

ਭਾਗ–ੳ ਅਤੇ ਅ ਦੇ ਸਾਰੇ ਸਿਲੇਬਸ ਵਿਚੋਂ ਅਬਜੈਕਟਿਵ ਪ੍ਰਸ਼ਨ

ਪੇਪਰ ਸੈਟਰ ਅਤੇ ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਹਦਾਇਤਾਂ:

1.ਸਾਰਾ ਪੇਪਰ ‘ਅੱਖਰ ਗਿਆਨ (ਭਾਗ–ਦੂਜਾ)’ਪਾਠ–ਪੁਸਤਕ ਵਿਚੋਂ ਹੀ ਸੈਟ ਕੀਤਾ ਜਾਵੇ।

2.ਭਾਗ–ੳ: ਵਿਚ ਨਿਬੰਧ ਦਾ ਵਿਸ਼ਾ–ਵਸਤੂ /ਸਾਰ (ਤਿੰਨ ਵਿਚੋਂ ਇੱਕ)10 ਅੰਕ

3.ਭਾਗ–ਅ:1 ਵਿਚ ਅੰਗਰੇਜ਼ੀ ਸ਼ਬਦਾਂ ਤੋਂ ਪੰਜਾਬੀ ਸ਼ਬਦਾਂ ਵਿਚ ਅਨੁਵਾਦ (ਪੰਦਰਾਂ ਵਿਚੋਂ ਦਸ) 10X1=10 ਅੰਕ

4.ਭਾਗ–ਅ:2 ਵਿਚ ਸ਼ਬਦਾਂ –ਜੋੜਾਂ ਦੀ ਸੁਧਾਈ (ਪੰਦਰਾਂ ਵਿਚੋਂ ਦਸ) 10X1=10 ਅੰਕ

5.ਭਾਗ–ਅ:3 ਵਿਚ ਵਿਆਕਰਨ ਨਾਲ ਸੰਬੰਧਿਤ ਵਰਣਾਤਮਕ ਪ੍ਰਸ਼ਨ (ਦੋ ਵਿਚੋਂ ਇੱਕ) 10 ਅੰਕ

6.ਭਾਗ–ੲ ਵਿਚ ਭਾਗ–ੳ ਅਤੇ ਅ ਦੇ ਸਾਰੇ ਸਿਲੇਬਸ ਵਿਚੋਂ ਕੁੱਲ 15 ਆਬਜੈਕਟਿਵ ਪ੍ਰਸ਼ਨ ।ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਲਾਜ਼ਮੀ ਹਨ । ਹਰੇਕ ਪ੍ਰਸ਼ਨ 2 ਅੰਕਾਂ ਦਾ ਹੋਵੇਗਾ । (15X2=30 ਅੰਕ)

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼:

1.ਵਿਦਿਆਰਥੀਆਂ ਵਿਚ ਪੰਜਾਬੀ ਸਾਹਿਤ ਪੜ੍ਹਨ ਦੀ ਰੁਚੀ ਪੈਦਾ ਕਰਨਾ।

2.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਪੰਜਾਬੀ ਵਿਆਕਰਨ ਬਾਰੇ ਗਿਆਨ ਦੇਣਾ।

ਪਾਠਕ੍ਰਮ ਨਤੀਜੇ:

1. ਵਿਦਿਆਰਥੀ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਸ਼ੁੱਧ ਸੰਚਾਰ ਕਰਨ ਦੇ ਯੋਗ ਹੋਣਗੇ।

2.ਵਿਦਿਆਰਥੀ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੇ ਵਿਆਕਰਨਕ ਨੇਮਾਂ ਤੋਂ ਜਾਣੂ ਹੋਣਗੇ।

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1. ਬਲਦੇਵ ਸਿੰਘ ਚੀਮਾ, ਪੰਜਾਬੀ ਵਿਆਕਰਨ ਤੇ ਭਾਸ਼ਾ ਵਿਗਿਆਨ,ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ ਦਾ ਵਿਸ਼ਾ ਕੋਸ਼, ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ,2009
2. ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨ ਭਾਗ I,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991

3. ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨ ਭਾਗ II,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991
4. ਬਲਵੀਰ ਸਿੰਘ ਦਿਲ, ਪੰਜਾਬੀ ਨਿਬੰਧ :ਸਰੂਪ, ਸਿਧਾਂਤ ਅਤੇ ਵਿਕਾਸ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ, ਪੰਜਾਬੀ,ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।
5. ਖੋਜ ਪੱਤ੍ਰਿਕਾ, ਨਿਬੰਧ ਅੰਕ-29,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ, ਪੰਜਾਬੀ,ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।

ਸ੍ਰੀ ਗੁਰੂ ਤੇਗ਼ ਬਹਾਦਰ ਖ਼ਾਲਸਾ ਕਾਲਜ, ਸ੍ਰੀ ਅਨੰਦਪੁਰ ਸਾਹਿਬ
ਆਟੋਨੌਮਸ ਕਾਲਜ

ਪੋਸਟ ਗ੍ਰੈਜੂਏਟ ਪੰਜਾਬੀ ਵਿਭਾਗ

ਸਿਲੇਬਸ

ਅੰਡਰ ਗ੍ਰੈਜੂਏਟ ਕਲਾਸਾਂ ਲਈ
ਸਮੈਸਟਰ–ਚੌਥਾ

ਸਿਲੇਬਸ
ਅੰਡਰ ਗ੍ਰੈਜੂਏਟ ਕਲਾਸਾਂ ਲਈ

ਸਮੈਸਟਰ–ਚੌਥਾ						
ਕਲਾਸ	ਵਿਸ਼ਾ	ਪੇਪਰ ਕੋਡ	ਕ੍ਰੈਡਿਟ	ਕੁੱਲ ਅੰਕ	ਲਿਖਤੀ/ਪ੍ਰੈਕਟੀਕਲ	ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ
ਬੀ.ਏ.	ਪੰਜਾਬੀ ਲਾਜ਼ਮੀ	**BA(PBI) 401-A**	05(04L+01P)	100	55/20	25
ਬੀ.ਏ.	ਪੰਜਾਬੀ ਮੁੱਢਲਾ ਗਿਆਨ	**BA(PBI) 401-B**	05(04L+01P)	100	55/20	25
ਬੀ.ਏ.	ਪੰਜਾਬੀ ਸਾਹਿਤ	**BA(PBL) 403**	05(04L+01T)	100	75	25
ਬੀ.ਕਾਮ	ਪੰਜਾਬੀ ਲਾਜ਼ਮੀ	**BC-4.3A**	06(04L+02P)	100	55/15	30
ਬੀ.ਕਾਮ	ਪੰਜਾਬੀ ਮੁੱਢਲਾ ਗਿਆਨ	**BC-4.3B**	06(04L+02P)	100	55/15	30
ਬੀ.ਬੀ.ਏ.	ਪੰਜਾਬੀ ਲਾਜ਼ਮੀ	**BBA-401A**	04	100	60	40
ਬੀ.ਬੀ.ਏ.	ਪੰਜਾਬੀ ਮੁੱਢਲਾ ਗਿਆਨ	**BBA-401B**	04	100	60	40
ਬੀ.ਐਸ.ਈ. (M/NM) /	ਪੰਜਾਬੀ ਲਾਜ਼ਮੀ	**BSP-401A**	04	100	70	30
ਬੀ.ਐਸ.ਈ. (M/NM) /	ਪੰਜਾਬੀ ਮੁੱਢਲਾ ਗਿਆਨ	**BSP-401B**	04	100	70	30
ਬੀ.ਸੀ.ਏ	ਪੰਜਾਬੀ ਲਾਜ਼ਮੀ	**BCA-401A**	02	50	35	15
ਬੀ.ਸੀ.ਏ	ਪੰਜਾਬੀ ਮੁੱਢਲਾ ਗਿਆਨ	**BCA-401B**	02	50	35	15

ਅੰਡਰ ਗ੍ਰੈਜੂਏਟ ਕੋਰਸਾਂ ਦੇ ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਦੀ ਵੰਡ ਦਾ ਵੇਰਵਾ ਹੇਠ ਲਿਖੇ ਅਨੁਸਾਰ ਹੋਵੇਗਾ:

1.ਐਮ.ਐਸ.ਟੀ. (I&II) – 30%+30%

2.ਅਸਾਈਨਮੈਂਟ / ਕਲਾਸ ਟੈਸਟ – 20%
3.ਕਲਾਸ ਵਿੱਚ ਹਾਜ਼ਰੀ – 20%

ਨੋਟ: ਵਿਦੇਸ਼ੀ ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਪੰਜਾਬੀ ਵਿਸ਼ੇ ਦਾ ਸਿਲੇਬਸ ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ ਵਾਲਾ ਹੀ ਹੋਵੇਗਾ।

ਬੀ.ਏ. ਭਾਗ ਦੂਜਾ , ਸਮੈਸਟਰ ਚੌਥਾ

ਪੇਪਰ– ਪੰਜਾਬੀ ਲਾਜ਼ਮੀ

ਪੇਪਰ ਕੋਡ:BA(PBI)-401A, ਕ੍ਰੈਡਿਟ–05(04L+01P)

2020-21,2021-22,2022-23 ਸੈਸ਼ਨ ਲਈ

ਕੁੱਲ ਅੰਕ :100 ਵਿਸ਼ੇ ਵਿਚੋਂ ਪਾਸ ਅੰਕ
: 35
ਬਾਹਰੀ ਪਰੀਖਿਆ:55 ਅੰਕ ਬਾਹਰੀ ਪਰੀਖਿਆ ਵਿਚੋਂ ਪਾਸ
ਅੰਕ: 20
ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ :25 ਅੰਕ ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਵਿਚੋਂ ਪਾਸ ਹੋਣ
ਅੰਕ:09
ਸਮਾਂ:3 ਘੰਟੇ ਕੁੱਲ
ਲੈਕਚਰ:60

ਨੋਟ:ਕੁੱਲ 100 ਅੰਕਾਂ ਵਿਚ ਪ੍ਰੈਕਟੀਕਲ ਦੇ 20 ਨੰਬਰ ਵੀ ਸ਼ਾਮਿਲ ਹਨ।

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼:

1.ਵਿਦਿਆਰਥੀਆਂ ਵਿਚ ਸਾਹਿਤ ਪੜ੍ਹਨ ਦੀ ਰੁਚੀ ਪੈਦਾ ਕਰਨਾ।
2.ਮਾਤ ਭਾਸ਼ਾ ਵਿੱਚ ਉਚੇਰੀ ਸਿੱਖਿਆ ਗ੍ਰਹਿਣ ਕਰਨ ਦੀ ਜਾਗ ਲਾਉਣਾ।
3.ਵਿਆਕਰਨਕ ਪੱਖਾਂ ਨਾਲ ਰਾਬਤਾ ਕਾਇਮ ਕਰਵਾਉਣਾ।
4.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਨੈਤਿਕ ਕਦਰਾਂ–ਕੀਮਤਾਂ ਬਾਰੇ ਜਾਣਕਾਰੀ ਦੇਣਾ।

ਪੇਪਰ ਸੈੱਟਰ ਅਤੇ ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਹਦਾਇਤਾਂ

1.ਭਾਗ–ੳ: ਵਿਚੋਂ ਕਹਾਣੀ ਦਾ ਵਿਸ਼ਾ–ਵਸਤੂ / ਸਾਰ (ਤਿੰਨ ਵਿਚੋਂ ਇੱਕ)09 ਅੰਕ
2.ਭਾਗ–ੳ: ਵਿਚੋਂ ਪਾਤਰਾਂ ਦਾ ਚਰਿੱਤਰ–ਚਿਤਰਣ (ਪੰਜ ਵਿਚੋਂ ਦੋ) 4+4=08 ਅੰਕ
3.ਭਾਗ–ਅ:1 ਵਿਚੋਂ ਅਖ਼ਬਾਰੀ ਰਿਪੋਰਟ (ਤਿੰਨ ਵਿਚੋਂ ਇੱਕ) 09 ਅੰਕ
4.ਭਾਗ–ਅ:2 ਵਿਚੋਂ ਵਿਆਕਰਨ ਨਾਲ ਸੰਬੰਧਿਤ ਵਰਣਾਤਮਕ ਪ੍ਰਸ਼ਨ (ਦੋ ਵਿਚੋਂ ਇੱਕ) 09 ਅੰਕ
5. ਭਾਗ–ੲ ਵਿਚ ਕਹਾਣੀਆਂ ਅਤੇ ਵਿਆਕਰਨ ਵਿੱਚੋਂ ਕੁੱਲ 10 (6+4)ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਲਾਜ਼ਮੀ ਪ੍ਰਸ਼ਨ।ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਜ਼ਰੂਰੀ ਹਨ । ਹਰੇਕ ਪ੍ਰਸ਼ਨ 2 ਅੰਕਾਂ ਦਾ ਹੋਵੇਗਾ ।
10X2=20 ਅੰਕ

ਪਾਠਕ੍ਰਮ ਅਤੇ ਪ੍ਰਸ਼ਨ–ਪੱਤਰ ਦੀ ਰੂਪ–ਰੇਖਾ

ਭਾਗ–ੳ

ੳ 1– ਕਹਾਣੀ ਸੰਸਾਰ (ਕਹਾਣੀ–ਸੰਗ੍ਰਹਿ),ਮੁੱਖ ਸੰਪਾ.ਡਾ.ਜਸਵੀਰ ਸਿੰਘ,ਸੰਪਾ.ਡਾ.ਅਵਤਾਰ ਸਿੰਘ ,ਡਾ.ਗੁਰਪ੍ਰੀਤ ਕੌਰ ਅਤੇ ਪ੍ਰੋ.ਸੁਖਵਿੰਦਰ ਸਿੰਘ,ਸ੍ਰੀ ਗੁਰੂ ਤੇਗ਼ ਬਹਾਦਰ ਖ਼ਾਲਸਾ ਕਾਲਜ,ਸ੍ਰੀ ਅਨੰਦਪੁਰ ਸਾਹਿਬ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ।

ਭਾਗ–ਅ

ਅ–1:ਅਖ਼ਬਾਰੀ ਰਿਪੋਰਟ

ਅ-2 ਵਿਆਕਰਨ:

i. ਗੁਰਮੁਖੀ ਲਿਪੀ ਦਾ ਇਤਿਹਾਸ

ii. ਗੁਰਮੁਖੀ ਲਿਪੀ ਦੀਆਂ ਵਿਸ਼ੇਸ਼ਤਾਵਾਂ

iii.ਸ਼ਬਦ ਜੋੜਾਂ ਦੇ ਨਿਯਮ

ਭਾਗ–ੲ

ਕਹਾਣੀਆਂ ਅਤੇ ਵਿਆਕਰਨ ਵਾਲੇ ਭਾਗ ਵਿਚੋਂ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਪ੍ਰਸ਼ਨ

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1. ਜੋਗਿੰਦਰ ਸਿੰਘ ਰਾਹੀ,ਮਸਲੇ ਗਲਪ ਦੇ,ਨਾਨਕ ਸਿੰਘ ਪੁਸਤਕਮਾਲਾ,ਅੰਮ੍ਰਿਤਸਰ,1992
2. ਬਲਦੇਵ ਸਿੰਘ ਧਾਲੀਵਾਲ,ਪੰਜਾਬੀ ਕਹਾਣੀ ਦਾ ਇਤਿਹਾਸ,ਪੰਜਾਬ ਅਕਾਦਮੀ,ਦਿੱਲੀ
3. ਬੂਟਾ ਸਿੰਘ ਬਰਾੜ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਸ੍ਰੋਤ ਤੇ ਸਰੂਪ,ਵਾਰਿਸ਼ ਸ਼ਾਹ ਫਾਂਉਡੇਸ਼ਨ ਅੰਮ੍ਰਿਤਸਰ,2012
4. ਬੂਟਾ ਸਿੰਘ ਬਰਾੜ, ਪੰਜਾਬੀ ਵਿਆਕਰਨ ਸਿਧਾਂਤ ਅਤੇ ਵਿਹਾਰ,ਚੇਤਨਾ ਪ੍ਰਕਾਸ਼ਨ ,ਲੁਧਿਆਣਾ,2008
5. ਬਲਦੇਵ ਸਿੰਘ ਚੀਮਾ, ਪੰਜਾਬੀ ਵਿਆਕਰਨ ਤੇ ਭਾਸ਼ਾ ਵਿਗਿਆਨ,ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ ਦਾ ਵਿਸ਼ਾ ਕੋਸ਼,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ,2009
6.ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨਕ ਭਾਗ I,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991
7.ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨਕ ਭਾਗ II,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991
8.ਗਿਆਨੀ ਲਾਲ ਸਿੰਘ ਤੇ ਹਰਕੀਰਤ ਸਿੰਘ ,ਕਾਲਜ ਪੰਜਾਬੀ ਵਿਆਕਰਣ ,ਪੰਜਾਬ ਸਟੇਟ ਯੂਨੀ.ਟੈਕਸਟ ਬੁੱਕ ਬੋਰਡ,ਚੰਡੀਗੜ੍ਹ
9.ਸੰਤ ਸਿੰਘ ਸੇਖੋਂ,ਸਾਹਿਤਆਰਥ,ਲਾਹੌਰ ਬੁੱਕ ਸ਼ਾਪ,ਲੁਧਿਆਣਾ

ਬੀ.ਏ. ਭਾਗ ਦੂਜਾ ,ਸਮੈਸਟਰ ਚੌਥਾ
ਪੇਪਰ– ਪ੍ਰੈਕਟੀਕਲ ਪੰਜਾਬੀ ਭਾਸ਼ਾ(ਲਾਜ਼ਮੀ ਪੰਜਾਬੀ ਦੇ ਵਿਦਿਆਰਥੀਆਂ ਲਈ)
ਪੇਪਰ ਕੋਡ:BA(PBI)-401,ਕ੍ਰੈਡਿਟ–01
2020-21,2021-22,2022-23 ਸੈਸ਼ਨ ਲਈ

ਪ੍ਰਯੋਗੀ ਪਰੀਖਿਆ ਦੇ ਅੰਕ:20 ਵਿਸ਼ੇ ਵਿਚੋਂ ਪਾਸ ਹੋਣ ਲਈ ਅੰਕ : 06

ਨੋਟ:ਅੰਦਰੂਨੀ ਵਿਸ਼ੇਸ਼ਗ ਦੁਆਰਾ ਮੁਲਾਂਕਣ ਕੀਤਾ ਜਾਵੇਗਾ।

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼:

1.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਆਧੁਨਿਕ ਯੁੱਗ ਦੇ ਹਾਣੀ ਬਣਾਉਣਾ।
2.ਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ ਬਾਕੀ ਭਾਸ਼ਾਵਾਂ ਅਤੇ ਲਿਪੀਆਂ ਨੂੰ ਜਾਣਨ ਲਈ ਰੁਚੀ ਪੈਦਾ ਕਰਨਾ।
3.ਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ ਲਿਪੀਅੰਤਰਨ ਕਰਨ ਦੀ ਦਿਲਚਸਪੀ ਪੈਦਾ ਕਰਨਾ।

ਪਾਠਕ੍ਰਮ:

ਸ਼ਾਹਮੁਖੀ ਲਿਪੀ ਤੋਂ ਗੁਰਮੁਖੀ ਲਿਪੀ ਵਿੱਚ ਲਿਪੀਅੰਤਰਨ

1. ਸ਼ਬਦਾਂ ਦਾ ਸ਼ਾਹਮੁਖੀ ਲਿਪੀ ਤੋਂ ਗੁਰਮੁਖੀ ਲਿਪੀ ਵਿੱਚ ਲਿਪੀਅੰਤਰਨ
2. ਵਾਕਾਂ ਦਾ ਸ਼ਾਹਮੁਖੀ ਲਿਪੀ ਤੋਂ ਗੁਰਮੁਖੀ ਲਿਪੀ ਵਿੱਚ ਲਿਪੀਅੰਤਰਨ
3. ਪੈਰ੍ਹਿਆਂ ਦਾ ਸ਼ਾਹਮੁਖੀ ਲਿਪੀ ਤੋਂ ਗੁਰਮੁਖੀ ਲਿਪੀ ਵਿੱਚ ਲਿਪੀਅੰਤਰਨ
4. ਕਵਿਤਾਵਾਂ ਦਾ ਸ਼ਾਹਮੁਖੀ ਲਿਪੀ ਤੋਂ ਗੁਰਮੁਖੀ ਲਿਪੀ ਵਿੱਚ ਲਿਪੀਅੰਤਰਨ

ਬੀ.ਏ. ਭਾਗ ਦੂਜਾ,ਸਮੈਸਟਰ ਚੌਥਾ
ਪੇਪਰ- ਪੰਜਾਬੀ ਮੁੱਢਲਾ ਗਿਆਨ
ਪੇਪਰ ਕੋਡ:BA(PBI)-401B, ਕ੍ਰੈਡਿਟ-05(04L+01P)
2020-21,2021-22,2022-23 ਸੈਸ਼ਨ ਲਈ

ਕੁੱਲ ਅੰਕ :100 ਵਿਸ਼ੇ ਵਿਚੋਂ ਪਾਸ ਅੰਕ : 35
ਬਾਹਰੀ ਪਰੀਖਿਆ:55 ਅੰਕ ਬਾਹਰੀ ਪਰੀਖਿਆ ਵਿਚੋਂ ਪਾਸ ਅੰਕ: 20
ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ :25 ਅੰਕ ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਵਿਚੋਂ ਪਾਸ ਅੰਕ:09
ਸਮਾਂ:3 ਘੰਟੇ ਕੁੱਲ ਲੈਕਚਰ:60

ਨੋਟ:ਕੁੱਲ 100 ਅੰਕਾਂ ਵਿਚ ਪ੍ਰੈਕਟੀਕਲ ਦੇ 20 ਨੰਬਰ ਵੀ ਸ਼ਾਮਿਲ ਹਨ।

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼:
1.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਸਾਹਿਤ ਪੜ੍ਹਨ ਲਈ ਪ੍ਰੇਰਿਤ ਕਰਨਾ।
2.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੀ ਜਾਣਕਾਰੀ ਦੇਣਾ।
3.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਸਹਿਤ ਸਿਰਜਣ ਲਈ ਪ੍ਰੇਰਿਤ ਕਰਨਾ।
4.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਸਭਿਆਚਾਰ,ਲੋਕਧਾਰਾ ਅਤੇ ਨੈਤਿਕ ਕਦਰਾਂ -ਕੀਮਤਾਂ ਤੋਂ ਜਾਣੂ ਕਰਵਾਉਣਾ।

ਪੇਪਰ ਸੈਂਟਰ ਅਤੇ ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਹਦਾਇਤਾਂ:

1.ਸਾਰਾ ਪੇਪਰ 'ਅੱਖਰ ਗਿਆਨ (ਭਾਗ-ਦੂਜਾ)'ਪਾਠ-ਪੁਸਤਕ ਵਿਚੋਂ ਹੀ ਪਾਇਆ ਜਾਵੇ।
2.ਭਾਗ-ੳ: ਵਿਚ ਕਹਾਣੀ ਦਾ ਵਿਸ਼ਾ-ਵਸਤੂ /ਸਾਰ (ਤਿੰਨ ਵਿਚੋਂ ਇੱਕ)10 ਅੰਕ
3.ਭਾਗ-ਅ:1 ਵਿਚ ਨਿੱਜੀ ਚਿੱਠੀ-ਪੱਤਰ (ਤਿੰਨ ਵਿਚੋਂ ਇੱਕ) 10 ਅੰਕ
4.ਭਾਗ-ਅ:2 ਵਿਚ ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ(ਅੰਗਰੇਜ਼ੀ ਤੋਂ ਪੰਜਾਬੀ ਵਿਚ ਅਨੁਵਾਦ) (ਸੱਤ ਵਿਚੋਂ ਪੰਜ) 05 ਅੰਕ
5.ਭਾਗ-ਅ:3 ਵਿਚ ਵਿਆਕਰਨ ਨਾਲ ਸੰਬੰਧਿਤ ਪ੍ਰਸ਼ਨ (ਦੋ ਵਿਚੋਂ ਇੱਕ) 10 ਅੰਕ

6.ਭਾਗ–ੲ ਵਿਚ ਕਹਾਣੀਆਂ,ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ ਅਤੇ ਵਿਆਕਰਨ ਵਿਚੋਂ ਕੁੱਲ 10 ਅਬਜੈਕਟਿਵ ਪ੍ਰਸ਼ਨ।ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਲਾਜ਼ਮੀ ਹਨ । ਹਰੇਕ ਪ੍ਰਸ਼ਨ 2 ਅੰਕਾਂ ਦਾ ਹੋਵੇਗਾ । **(10X2=20 ਅੰਕ)**

ਪਾਠਕ੍ਰਮ ਅਤੇ ਪ੍ਰਸ਼ਨ–ਪੱਤਰ ਦੀ ਰੂਪ–ਰੇਖਾ

ਭਾਗ–ੳ

ੳ – ਅੱਖਰ ਗਿਆਨ (ਭਾਗ–ਦੂਜਾ),ਮੁੱਖ ਸੰਪਾ. ਡਾ.ਜਸਵੀਰ ਸਿੰਘ ,ਸੰਪਾ.ਡਾ.ਅਵਤਾਰ ਸਿੰਘ, ਡਾ.ਗੁਰਪ੍ਰੀਤ ਕੌਰ,ਪ੍ਰੋ.ਸੁਖਵਿੰਦਰ ਸਿੰਘ, ਸ੍ਰੀ ਗੁਰੂ ਤੇਗ ਬਹਾਦਰ ਖ਼ਾਲਸਾ ਕਾਲਜ,ਸ੍ਰੀ ਅਨੰਦਪੁਰ ਸਾਹਿਬ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ,ਪੁਸਤਕ ਵਿੱਚੋਂ ਕਹਾਣੀਆਂ ਵਾਲਾ ਭਾਗ

ਭਾਗ–ਅ

ਅ–1. ਨਿੱਜੀ ਚਿੱਠੀ–ਪੱਤਰ
ਅ–2 . ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ (ਅੰਗਰੇਜ਼ੀ ਤੋਂ ਪੰਜਾਬੀ ਵਿਚ ਅਨੁਵਾਦ)
ਅ–3 .ਸੰਬੰਧਕ ਅਤੇ ਯੋਜਕ :ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਕਿਸਮਾਂ

ਭਾਗ–ੲ

ਕਹਾਣੀਆਂ,ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ ਅਤੇ ਵਿਆਕਰਨ ਵਿਚੋਂ ਅਬਜੈਕਟਿਵ ਪ੍ਰਸ਼ਨ

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1. ਬਲਦੇਵ ਸਿੰਘ ਚੀਮਾ, ਪੰਜਾਬੀ ਵਿਆਕਰਨ ਤੇ ਭਾਸ਼ਾ ਵਿਗਿਆਨ,ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ ਦਾ ਵਿਸ਼ਾ ਕੋਸ਼, ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ,2009
2.ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨ ਭਾਗ I,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991
3.ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨ ਭਾਗ II,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991
4.ਜੋਗਿੰਦਰ ਸਿੰਘ ਰਾਹੀ,ਮਸਲੇ ਗਲਪ ਦੇ,ਨਾਨਕ ਸਿੰਘ ਪੁਸਤਕਮਾਲਾ,ਅੰਮ੍ਰਿਤਸਰ,1992
5.ਬਲਦੇਵ ਸਿੰਘ ਧਾਲੀਵਾਲ,ਪੰਜਾਬੀ ਕਹਾਣੀ ਦਾ ਇਤਿਹਾਸ,ਪੰਜਾਬ ਅਕਾਦਮੀ,ਦਿੱਲੀ

ਬੀ.ਏ. ਭਾਗ ਦੂਜਾ,ਸਮੈਸਟਰ ਚੌਥਾ

ਪੇਪਰ– ਪ੍ਰੈਕਟੀਕਲ ਪੰਜਾਬੀ ਭਾਸ਼ਾ(ਪੰਜਾਬੀ ਮੁੱਢਲਾ ਗਿਆਨ ਦੇ ਵਿਦਿਆਰਥੀਆਂ ਲਈ)

ਪੇਪਰ ਕੋਡ:BA(PBI)-401,ਕ੍ਰੈਡਿਟ–01

2020-21,2021-22,2022-23 ਸੈਸ਼ਨ ਲਈ

ਪ੍ਰਯੋਗੀ ਪਰੀਖਿਆ ਦੇ ਅੰਕ:20 **ਵਿਸ਼ੇ ਵਿਚੋਂ ਪਾਸ ਹੋਣ ਲਈ ਅੰਕ : 06**

ਨੋਟ:ਅੰਦਰੂਨੀ ਵਿਸ਼ੇਸ਼ਗ ਦੁਆਰਾ ਮੁਲਾਂਕਣ ਕੀਤਾ ਜਾਵੇਗਾ।

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼:

1.ਵਿਦਿਆਰਥੀਆਂ ਦੀ ਸਾਹਿਤ ਵਿਚ ਰੁਚੀ ਪੈਦਾ ਕਰਨਾ।
2.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੀ ਜਾਣਕਾਰੀ ਦੇਣਾ।
3.ਵਿਦਿਆਰਥੀਆਂ ਵਿਚ ਅਨੁਵਾਦ ਦੀ ਰੁਚੀ ਪੈਦਾ ਕਰਨਾ।

ਪਾਠਕ੍ਰਮ:

1. ਸ਼ਬਦਾਂ ਦਾ ਅੰਗਰੇਜ਼ੀ ਭਾਸ਼ਾ ਤੋਂ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਵਿੱਚ ਅਨੁਵਾਦ
2. ਵਾਕਾਂ ਦਾ ਅੰਗਰੇਜ਼ੀ ਭਾਸ਼ਾ ਤੋਂ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਵਿੱਚ ਅਨੁਵਾਦ
3. ਪੈਰ੍ਹਿਆਂ ਦਾ ਅੰਗਰੇਜ਼ੀ ਭਾਸ਼ਾ ਤੋਂ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਵਿੱਚ ਅਨੁਵਾਦ

ਬੀ.ਏ. ਭਾਗ ਦੂਜਾ,ਸਮੈਸਟਰ ਚੌਥਾ
ਪੇਪਰ-ਪੰਜਾਬੀ ਸਾਹਿਤ (ਚੋਣਵਾਂ ਵਿਸ਼ਾ)
ਪੇਪਰ ਕੋਡ-BA(PBL)403, ਕ੍ਰੈਡਿਟ-05(04L+01T)
2020-21,2021-22,2022-23ਸੈਸ਼ਨ ਲਈ

ਕੁੱਲ ਅੰਕ :100 ਵਿਸ਼ੇ ਵਿਚੋਂ ਪਾਸ ਅੰਕ : 35

ਬਾਹਰੀ ਪਰੀਖਿਆ:75 ਅੰਕ ਬਾਹਰੀ ਪਰੀਖਿਆ ਵਿਚੋਂ ਪਾਸ ਅੰਕ: 26

ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ :25 ਅੰਕ ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਵਿਚੋਂ ਪਾਸ ਹੋਣ ਅੰਕ:09

ਸਮਾਂ:3 ਘੰਟੇ ਕੁੱਲ ਲੈਕਚਰ:60

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼:

1.ਵਿਦਿਆਰਥੀਆਂ ਵਿਚ ਸਾਹਿਤ ਪੜ੍ਹਨ ਦੀ ਰੁਚੀ ਪੈਦਾ ਕਰਨਾ।
2.ਮਾਤ ਭਾਸ਼ਾ ਵਿੱਚ ਉਚੇਰੀ ਸਿੱਖਿਆ ਗ੍ਰਹਿਣ ਕਰਨ ਦੀ ਜਾਗ ਲਾਉਣਾ।
3.ਵਿਆਕਰਨਕ ਪੱਖਾਂ ਨਾਲ ਰਾਬਤਾ ਕਾਇਮ ਕਰਵਾਉਣਾ।
4.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਨੈਤਿਕ ਕਦਰਾਂ-ਕੀਮਤਾਂ ਬਾਰੇ ਜਾਣਕਾਰੀ ਦੇਣਾ।

ਪੇਪਰ ਸੈੱਟਰ ਅਤੇ ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਹਦਾਇਤਾਂ

1.ਭਾਗ-ੳ ਵਿਚੋਂ ਸਾਹਿਤਕ ਧਾਰਾਵਾਂ ਦੇ ਇਤਿਹਾਸ ਸੰਬੰਧੀ ਪ੍ਰਸ਼ਨ (ਚਾਰ ਵਿਚੋਂ ਦੋ)11+11=22 ਅੰਕ

2.ਭਾਗ-ਅ 1. ਵਿਚੋਂ ਨਿਬੰਧ ਦਾ ਵਿਸ਼ਾ-ਵਸਤੂ ਜਾਂ ਸਾਰ (ਤਿੰਨ ਵਿਚੋਂ ਇੱਕ) 12 ਅੰਕ

3.ਭਾਗ-ਅ:2 ਵਿਚੋਂ ਸਾਹਿਤ ਦੇ ਰੂਪਾਂ ਦੀ ਪਰਿਭਾਸ਼ਾ,ਪ੍ਰਕਿਰਤੀ ਅਤੇ ਤੱਤਾਂ ਸੰਬੰਧੀ ਪ੍ਰਸ਼ਨ (ਤਿੰਨ ਵਿਚੋਂ ਇੱਕ) 11 ਅੰਕ

4. ਭਾਗ-ੲ ਵਿਚ ਸਾਰੇ ਸਿਲੇਬਸ ਵਿਚੋਂ ਕੁੱਲ 15 ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਲਾਜ਼ਮੀ ਪ੍ਰਸ਼ਨ।ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਜ਼ਰੂਰੀ ਹਨ । ਹਰੇਕ ਪ੍ਰਸ਼ਨ 2 ਅੰਕਾਂ ਦਾ ਹੋਵੇਗਾ ।

(15X2=30 ਅੰਕ)

ਪਾਠਕ੍ਰਮ ਅਤੇ ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਦੀ ਰੂਪ-ਰੇਖਾ

ਭਾਗ-ੳ

ਪੰਜਾਬੀ ਸਾਹਿਤ ਦਾ ਇਤਿਹਾਸ (1701-1900) ,ਰਤਨ ਸਿੰਘ ਜੱਗੀ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ ਪਟਿਆਲਾ :ਸਾਹਿਤਕ ਧਾਰਾਵਾਂ ਦਾ ਇਤਿਹਾਸ

ਭਾਗ-ਅ

ਅ.1-ਸਭਿਆਚਾਰ ਤੇ ਵਿਚਾਰ,ਡਾ. ਨਾਹਰ ਸਿੰਘ ਅਤੇ ਡਾ.ਰਾਜਿੰਦਰਪਾਲ ਸਿੰਘ,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ,ਪੁਸਤਕ ਦੇ ਪਹਿਲੇ ਅੱਠ ਨਿਬੰਧ

ਅ-2.ਸਾਹਿਤ ਰੂਪ:ਜੰਗਨਾਮਾ,ਕਿੱਸਾ,ਨਿਬੰਧ ਅਤੇ ਨਿੱਕੀ ਕਹਾਣੀ:ਪਰਿਭਾਸ਼ਾ, ਪ੍ਰਕਿਰਤੀ ਅਤੇ ਤੱਤ

ਭਾਗ-ੲ

ਉਪਰੋਕਤ ਸਿਲੇਬਸ 'ਤੇ ਆਧਾਰਿਤ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਪ੍ਰਸ਼ਨ

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1.ਖੋਜ ਪਤ੍ਰਿਕਾ: ਪੰਜਾਬੀ ਸਭਿਆਚਾਰ ਵਿਸ਼ੇਸ਼ ਅੰਕ, ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ।
2. ਰਤਨ ਸਿੰਘ ਜੱਗੀ ,ਪੰਜਾਬੀ ਸਾਹਿਤ ਦਾ ਇਤਿਹਾਸ (1701-1900), ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ ਪਟਿਆਲਾ।
3. ਰਤਨ ਸਿੰਘ ਜੱਗੀ, ਸਾਹਿਤ ਦੇ ਰੂਪ, ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ।
4. ਪਰਮਿੰਦਰ ਸਿੰਘ ਤੇ ਕਿਰਪਾਲ ਸਿੰਘ ਕਸੇਲ, ਸਾਹਿਤ ਦੇ ਰੂਪ, ਲਾਹੌਰ ਬੁਕ ਸ਼ਾਪ, ਲੁਧਿਆਣਾ।
5. ਪਿਆਰਾ ਸਿੰਘ ਪਦਮ, ਪੰਜਾਬੀ ਬੋਲੀ ਦਾ ਵਿਕਾਸ,ਕਲਮ ਮੰਦਿਰ,ਪਟਿਆਲਾ।
6.ਡਾ.ਗੁਰਪ੍ਰੀਤ ਕੌਰ,ਮੱਧਕਾਲੀਨ ਕਾਵਿ ਅਵਲੋਕਨ,ਲੋਕਗੀਤ ਪ੍ਰਕਾਸ਼ਨ,ਚੰਡੀਗੜ੍ਹ,2015

ਬੀ.ਕਾਮ. ਭਾਗ ਦੂਜਾ,ਸਮੈਸਟਰ ਚੌਥਾ
ਪੇਪਰ-ਪੰਜਾਬੀ ਲਾਜ਼ਮੀ
ਪੇਪਰ ਕੋਡ:BC-4.3A, ਕ੍ਰੈਡਿਟ-06(04L+02P)
2020-21,2021-22,2022-23 ਸੈਸ਼ਨ ਲਈ

ਕੁੱਲ ਅੰਕ :100 **ਵਿਸ਼ੇ ਵਿਚੋਂ ਪਾਸ ਅੰਕ : 35**
ਬਾਹਰੀ ਪਰੀਖਿਆ:55 ਅੰਕ **ਬਾਹਰੀ ਪਰੀਖਿਆ ਵਿਚੋਂ ਪਾਸ ਅੰਕ: 20**
ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ :30 ਅੰਕ **ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਵਿਚੋਂ ਪਾਸ ਅੰਕ:10**
ਸਮਾਂ:3 ਘੰਟੇ **ਕੁੱਲ ਲੈਕਚਰ:60**

ਨੋਟ:ਕੁੱਲ 100 ਅੰਕਾਂ ਵਿਚ ਪ੍ਰੈਕਟੀਕਲ ਦੇ 15 ਨੰਬਰ ਵੀ ਸ਼ਾਮਿਲ ਹਨ।

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼:

1.ਵਿਦਿਆਰਥੀਆਂ ਵਿਚ ਸਾਹਿਤ ਪੜ੍ਹਨ ਦੀ ਰੁਚੀ ਪੈਦਾ ਕਰਨਾ।
2.ਮਾਤ ਭਾਸ਼ਾ ਵਿੱਚ ਉਚੇਰੀ ਸਿੱਖਿਆ ਗ੍ਰਹਿਣ ਕਰਨ ਦੀ ਜਾਗ ਲਾਉਣਾ।
3.ਵਿਆਕਰਨਕ ਪੱਖਾਂ ਨਾਲ ਰਾਬਤਾ ਕਾਇਮ ਕਰਵਾਉਣਾ।
4.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਨੈਤਿਕ ਕਦਰਾਂ-ਕੀਮਤਾਂ ਬਾਰੇ ਜਾਣਕਾਰੀ ਦੇਣਾ।

ਪੇਪਰ ਸੈੱਟਰ ਅਤੇ ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਹਦਾਇਤਾਂ

1.ਭਾਗ-ੳ: ਵਿਚੋਂ ਕਹਾਣੀ ਦਾ ਵਿਸ਼ਾ-ਵਸਤੂ / ਸਾਰ (ਤਿੰਨ ਵਿਚੋਂ ਇੱਕ)09 ਅੰਕ
2.ਭਾਗ-ੳ: ਵਿਚੋਂ ਪਾਤਰਾਂ ਦਾ ਚਰਿੱਤਰ-ਚਿਤਰਣ (ਪੰਜ ਵਿਚੋਂ ਦੋ) 4+4=08 ਅੰਕ
3.ਭਾਗ-ਅ:1 ਵਿਚੋਂ ਅਖ਼ਬਾਰੀ ਰਿਪੋਰਟ (ਤਿੰਨ ਵਿਚੋਂ ਇੱਕ) 09 ਅੰਕ
4.ਭਾਗ-ਅ:2 ਵਿਚੋਂ ਵਿਆਕਰਨ ਨਾਲ ਸੰਬੰਧਿਤ ਵਰਣਾਤਮਕ ਪ੍ਰਸ਼ਨ (ਦੋ ਵਿਚੋਂ ਇੱਕ) 09 ਅੰਕ
5. ਭਾਗ-ੲ ਵਿਚ ਕਹਾਣੀਆਂ ਅਤੇ ਵਿਆਕਰਨ ਵਿੱਚੋਂ ਕੁੱਲ 10 (6+4)ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਲਾਜ਼ਮੀ ਪ੍ਰਸ਼ਨ।ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਜ਼ਰੂਰੀ ਹਨ । ਹਰੇਕ ਪ੍ਰਸ਼ਨ 2 ਅੰਕਾਂ ਦਾ ਹੋਵੇਗਾ ।
10X2=20 ਅੰਕ

ਪਾਠਕ੍ਰਮ ਅਤੇ ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਦੀ ਰੂਪ-ਰੇਖਾ

ਭਾਗ-ੳ

ੳ 1- ਕਹਾਣੀ ਸੰਸਾਰ (ਕਹਾਣੀ-ਸੰਗ੍ਰਹਿ),ਮੁੱਖ ਸੰਪਾ.ਡਾ.ਜਸਵੀਰ ਸਿੰਘ,ਸੰਪਾ.ਡਾ.ਅਵਤਾਰ ਸਿੰਘ ,ਡਾ.ਗੁਰਪ੍ਰੀਤ ਕੌਰ ਅਤੇ ਪ੍ਰੋ.ਸੁਖਵਿੰਦਰ ਸਿੰਘ,ਸ੍ਰੀ ਗੁਰੂ ਤੇ.ਗ ਬਹਾਦਰ ਖ਼ਾਲਸਾ ਕਾਲਜ,ਸ੍ਰੀ ਅਨੰਦਪੁਰ ਸਾਹਿਬ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ।

ਭਾਗ-ਅ

ਅ-1:ਅਖ਼ਬਾਰੀ ਰਿਪੋਰਟ

ਅ-**2** ਵਿਆਕਰਨ:

- i. ਗੁਰਮੁਖੀ ਲਿਪੀ ਦਾ ਇਤਿਹਾਸ
- ii. ਗੁਰਮੁਖੀ ਲਿਪੀ ਦੀਆਂ ਵਿਸ਼ੇਸ਼ਤਾਵਾਂ
- iii. ਸ਼ਬਦ ਜੋੜਾਂ ਦੇ ਨਿਯਮ

ਭਾਗ-ੲ

ਭਾਗ-ੳ ਅਤੇ ਵਿਆਕਰਨ ਵਾਲੇ ਭਾਗ ਵਿਚੋਂ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਪ੍ਰਸ਼ਨ

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1. ਜੋਗਿੰਦਰ ਸਿੰਘ ਰਾਹੀ,ਮਸਲੇ ਗਲਪ ਦੇ,ਨਾਨਕ ਸਿੰਘ ਪੁਸਤਕਮਾਲਾ,ਅੰਮ੍ਰਿਤਸਰ,1992
2. ਬਲਦੇਵ ਸਿੰਘ ਧਾਲੀਵਾਲ,ਪੰਜਾਬੀ ਕਹਾਣੀ ਦਾ ਇਤਿਹਾਸ,ਪੰਜਾਬ ਅਕਾਦਮੀ,ਦਿੱਲੀ
3. ਬੂਟਾ ਸਿੰਘ ਬਰਾੜ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਸ੍ਰੋਤ ਤੇ ਸਰੂਪ,ਵਾਰਿਸ਼ ਸ਼ਾਹ ਫਾਂਉਡੇਸ਼ਨ ਅੰਮ੍ਰਿਤਸਰ,2012
4. ਬੂਟਾ ਸਿੰਘ ਬਰਾੜ, ਪੰਜਾਬੀ ਵਿਆਕਰਨ ਸਿਧਾਂਤ ਅਤੇ ਵਿਹਾਰ,ਚੇਤਨਾ ਪ੍ਰਕਾਸ਼ਨ ,ਲੁਧਿਆਣਾ,2008

5. ਬਲਦੇਵ ਸਿੰਘ ਚੀਮਾ, ਪੰਜਾਬੀ ਵਿਆਕਰਨ ਤੇ ਭਾਸ਼ਾ ਵਿਗਿਆਨ,ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ ਦਾ ਵਿਸ਼ਾ ਕੋਸ਼,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ,2009
6. ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨਕ ਭਾਗ I,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991
7. ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨਕ ਭਾਗ II,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991
8. ਗਿਆਨੀ ਲਾਲ ਸਿੰਘ ਤੇ ਹਰਕੀਰਤ ਸਿੰਘ ,ਕਾਲਜ ਪੰਜਾਬੀ ਵਿਆਕਰਣ ,ਪੰਜਾਬ ਸਟੇਟ ਯੂਨੀ.ਟੈਕਸਟ ਬੁੱਕ ਬੋਰਡ,ਚੰਡੀਗੜ੍ਹ
9. ਸੰਤ ਸਿੰਘ ਸੇਖੋਂ,ਸਾਹਿਤਆਰਥ,ਲਾਹੌਰ ਬੁੱਕ ਸ਼ਾਪ,ਲੁਧਿਆਣਾ

ਬੀ.ਕਾਮ. ਭਾਗ ਦੂਜਾ,ਸਮੈਸਟਰ ਚੌਥਾ
ਪੇਪਰ– ਪੰਜਾਬੀ ਮੁੱਢਲਾ ਗਿਆਨ
ਪੇਪਰ ਕੋਡ:BC-4.3B, ਕ੍ਰੈਡਿਟ–06(04L+02P)
2020-21,2021-22,2022-23 ਸੈਸ਼ਨ ਲਈ

ਕੁੱਲ ਅੰਕ :100 ਵਿਸ਼ੇ ਵਿਚੋਂ ਪਾਸ ਅੰਕ : 35
ਬਾਹਰੀ ਪਰੀਖਿਆ:55 ਅੰਕ ਬਾਹਰੀ ਪਰੀਖਿਆ ਵਿਚੋਂ ਪਾਸ ਅੰਕ: 20

ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ :30 ਅੰਕ ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਵਿਚੋਂ ਪਾਸ ਅੰਕ:10
ਸਮਾਂ:3 ਘੰਟੇ ਕੁੱਲ
ਲੈਕਚਰ:60 ਨੋਟ:ਕੁੱਲ 100 ਅੰਕਾਂ ਵਿਚ ਪ੍ਰੈਕਟੀਕਲ ਦੇ 15 ਨੰਬਰ ਵੀ ਸ਼ਾਮਿਲ ਹਨ।

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼:

1.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਸਾਹਿਤ ਪੜ੍ਹਨ ਲਈ ਪ੍ਰੇਰਿਤ ਕਰਨਾ।
2.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੀ ਜਾਣਕਾਰੀ ਦੇਣਾ।
3.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਸਹਿਤ ਸਿਰਜਣ ਲਈ ਪ੍ਰੇਰਿਤ ਕਰਨਾ।
4.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਸਭਿਆਚਾਰ,ਲੋਕਧਾਰਾ ਅਤੇ ਨੈਤਿਕ ਕਦਰਾਂ -ਕੀਮਤਾਂ ਤੋਂ ਜਾਣੂ ਕਰਵਾਉਣਾ।

ਪੇਪਰ ਸੈਂਟਰ ਅਤੇ ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਹਦਾਇਤਾਂ:

1.ਸਾਰਾ ਪੇਪਰ 'ਅੱਖਰ ਗਿਆਨ (ਭਾਗ-ਦੂਜਾ)'ਪਾਠ-ਪੁਸਤਕ ਵਿਚੋਂ ਹੀ ਪਾਇਆ ਜਾਵੇ।
2.ਭਾਗ-ੳ: ਵਿਚ ਕਹਾਣੀ ਦਾ ਵਿਸ਼ਾ-ਵਸਤੂ /ਸਾਰ (ਤਿੰਨ ਵਿਚੋਂ ਇੱਕ)10 ਅੰਕ
3.ਭਾਗ-ਅ:1 ਵਿਚ ਨਿੱਜੀ ਚਿੱਠੀ-ਪੱਤਰ (ਤਿੰਨ ਵਿਚੋਂ ਇੱਕ) 10 ਅੰਕ
4.ਭਾਗ-ਅ:2 ਵਿਚ ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ(ਅੰਗਰੇਜ਼ੀ ਤੋਂ ਪੰਜਾਬੀ ਵਿਚ ਅਨੁਵਾਦ) (ਸੱਤ ਵਿਚੋਂ ਪੰਜ) 05 ਅੰਕ
5.ਭਾਗ-ਅ:3 ਵਿਚ ਵਿਆਕਰਨ ਨਾਲ ਸੰਬੰਧਿਤ ਪ੍ਰਸ਼ਨ (ਦੋ ਵਿਚੋਂ ਇੱਕ) 10 ਅੰਕ
6.ਭਾਗ-ੲ ਵਿਚ ਕਹਾਣੀਆਂ,ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ ਅਤੇ ਵਿਆਕਰਨ ਵਿਚੋਂ ਕੁੱਲ 10 ਅਬਜੈਕਟਿਵ ਪ੍ਰਸ਼ਨ।ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਲਾਜ਼ਮੀ ਹਨ । ਹਰੇਕ ਪ੍ਰਸ਼ਨ 2 ਅੰਕਾਂ ਦਾ ਹੋਵੇਗਾ । **(10X2=20 ਅੰਕ)**

ਪਾਠਕ੍ਰਮ ਅਤੇ ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਦੀ ਰੂਪ-ਰੇਖਾ

ਭਾਗ-ੳ

ੳ - ਅੱਖਰ ਗਿਆਨ (ਭਾਗ-ਦੂਜਾ),ਮੁੱਖ ਸੰਪਾ. ਡਾ.ਜਸਵੀਰ ਸਿੰਘ ,ਸੰਪਾ.ਡਾ.ਅਵਤਾਰ ਸਿੰਘ, ਡਾ.ਗੁਰਪ੍ਰੀਤ ਕੌਰ,ਪ੍ਰੋ.ਸੁਖਵਿੰਦਰ ਸਿੰਘ, ਸ੍ਰੀ ਗੁਰੂ ਤੇਗ ਬਹਾਦਰ ਖ਼ਾਲਸਾ ਕਾਲਜ,ਸ੍ਰੀ ਅਨੰਦਪੁਰ ਸਾਹਿਬ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ,ਪੁਸਤਕ ਵਿੱਚੋਂ ਕਹਾਣੀਆਂ ਵਾਲਾ ਭਾਗ

ਭਾਗ-ਅ

ਅ-1. ਨਿੱਜੀ ਚਿੱਠੀ-ਪੱਤਰ
ਅ-2 . ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ (ਅੰਗਰੇਜ਼ੀ ਤੋਂ ਪੰਜਾਬੀ ਵਿਚ ਅਨੁਵਾਦ)
ਅ-3 .ਸੰਬੰਧਕ ਅਤੇ ਯੋਜਕ :ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਕਿਸਮਾਂ

ਭਾਗ-ੲ

ਕਹਾਣੀਆਂ,ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ ਅਤੇ ਵਿਆਕਰਨ ਵਿਚੋਂ ਅਬਜੈਕਟਿਵ ਪ੍ਰਸ਼ਨ

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1. ਬਲਦੇਵ ਸਿੰਘ ਚੀਮਾ, ਪੰਜਾਬੀ ਵਿਆਕਰਨ ਤੇ ਭਾਸ਼ਾ ਵਿਗਿਆਨ,ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ ਦਾ ਵਿਸ਼ਾ ਕੋਸ਼, ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ,2009
2. ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨ ਭਾਗ I,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991
3. ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨ ਭਾਗ II,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991
4. ਜੋਗਿੰਦਰ ਸਿੰਘ ਰਾਹੀ,ਮਸਲੇ ਗਲਪ ਦੇ,ਨਾਨਕ ਸਿੰਘ ਪੁਸਤਕਮਾਲਾ,ਅੰਮ੍ਰਿਤਸਰ,1992
5. ਬਲਦੇਵ ਸਿੰਘ ਧਾਲੀਵਾਲ,ਪੰਜਾਬੀ ਕਹਾਣੀ ਦਾ ਇਤਿਹਾਸ,ਪੰਜਾਬ ਅਕਾਦਮੀ,ਦਿੱਲੀ

ਬੀ.ਕਾਮ. ਭਾਗ ਦੂਜਾ,ਸਮੈਸਟਰ ਚੌਥਾ

ਪੇਪਰ– ਪ੍ਰੈਕਟੀਕਲ ਪੰਜਾਬੀ ਭਾਸ਼ਾ(ਪੰਜਾਬੀ ਲਾਜ਼ਮੀ ਅਤੇ ਮੁੱਢਲਾ ਗਿਆਨ ਦੇ ਵਿਦਿਆਰਥੀਆਂ ਲਈ)

ਪੇਪਰ ਕੋਡ:BC-4.3,ਕ੍ਰੈਡਿਟ–01

2020-21,2021-22,2022-23 ਸੈਸ਼ਨ ਲਈ

ਪ੍ਰਯੋਗੀ ਪਰੀਖਿਆ ਦੇ ਅੰਕ:15 ਪਾਸ ਅੰਕ : 05

ਨੋਟ:ਅੰਦਰੂਨੀ ਵਿਸ਼ੇਸ਼ਗ ਦੁਆਰਾ ਮੁਲਾਂਕਣ ਕੀਤਾ ਜਾਵੇਗਾ।

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼:

1.ਵਿਦਿਆਰਥੀਆਂ ਦੀ ਸਾਹਿਤ ਵਿਚ ਰੁਚੀ ਪੈਦਾ ਕਰਨਾ।
2.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੀ ਜਾਣਕਾਰੀ ਦੇਣਾ।
3.ਵਿਦਿਆਰਥੀਆਂ ਵਿਚ ਅਨੁਵਾਦ ਦੀ ਰੁਚੀ ਪੈਦਾ ਕਰਨਾ।

ਪਾਠਕ੍ਰਮ:

1. ਸ਼ਬਦਾਂ ਦਾ ਅੰਗਰੇਜ਼ੀ ਭਾਸ਼ਾ ਤੋਂ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਵਿੱਚ ਅਨੁਵਾਦ
2. ਵਾਕਾਂ ਦਾ ਅੰਗਰੇਜ਼ੀ ਭਾਸ਼ਾ ਤੋਂ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਵਿੱਚ ਅਨੁਵਾਦ
3. ਪੈਰ੍ਹਿਆਂ ਦਾ ਅੰਗਰੇਜ਼ੀ ਭਾਸ਼ਾ ਤੋਂ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਵਿੱਚ ਅਨੁਵਾਦ
4. ਪੁਸਤਕਾਂ ਦਾ ਅੰਗਰੇਜ਼ੀ ਭਾਸ਼ਾ ਤੋਂ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਵਿੱਚ ਅਨੁਵਾਦ

ਬੀ.ਬੀ.ਏ. ਭਾਗ ਦੂਜਾ ,ਸਮੈਸਟਰ ਚੌਥਾ

ਪੇਪਰ– ਪੰਜਾਬੀ ਲਾਜ਼ਮੀ

ਪੇਪਰ ਕੋਡ:BBA-401A, ਕ੍ਰੈਡਿਟ–04

2020-21,2021-22,2022-23 ਸੈਸ਼ਨ ਲਈ

ਕੁੱਲ ਅੰਕ :100 ਵਿਸ਼ੇ ਵਿਚੋਂ ਪਾਸ ਅੰਕ : 35

ਬਾਹਰੀ ਪਰੀਖਿਆ:60 ਅੰਕ ਬਾਹਰੀ ਪਰੀਖਿਆ ਵਿਚੋਂ ਪਾਸ ਅੰਕ: 21

ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ :40 ਅੰਕ ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਵਿਚੋਂ ਪਾਸ ਅੰਕ:14

ਸਮਾਂ:3 ਘੰਟੇ ਕੁੱਲ ਲੈਕਚਰ:60

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼:

1.ਵਿਦਿਆਰਥੀਆਂ ਵਿਚ ਸਾਹਿਤ ਪੜ੍ਹਨ ਦੀ ਰੁਚੀ ਪੈਦਾ ਕਰਨਾ।

2.ਮਾਤ ਭਾਸ਼ਾ ਵਿੱਚ ਉਚੇਰੀ ਸਿੱਖਿਆ ਗ੍ਰਹਿਣ ਕਰਨ ਦੀ ਜਾਗ ਲਾਉਣਾ।

3.ਵਿਆਕਰਨਕ ਪੱਖਾਂ ਨਾਲ ਰਾਬਤਾ ਕਾਇਮ ਕਰਵਾਉਣਾ।

4.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਨੈਤਿਕ ਕਦਰਾਂ–ਕੀਮਤਾਂ ਬਾਰੇ ਜਾਣਕਾਰੀ ਦੇਣਾ।

ਪੇਪਰ ਸੈੱਟਰ ਅਤੇ ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਹਦਾਇਤਾਂ

1.ਭਾਗ–ੳ ਵਿਚੋਂ ਲੇਖਕ ਦਾ ਯੋਗਦਾਨ (ਦੋ ਵਿਚੋਂ ਇੱਕ)10ਅੰਕ

2. ਭਾਗ–ੳ ਵਿਚੋਂ ਕਵਿਤਾਵਾਂ ਦਾ ਵਿਸ਼ਾ–ਵਸਤੂ (ਚਾਰ ਵਿਚੋਂ ਦੋ)05+05=10 ਅੰਕ

3.ਭਾਗ ਅ–1 ਵਿਚੋਂ ਅਖ਼ਬਾਰੀ ਰਿਪੋਰਟ (ਤਿੰਨ ਵਿਚੋਂ ਇੱਕ)10 ਅੰਕ

4.ਭਾਗ–ਅ ਵਿਚੋਂ ਵਿਆਕਰਨ ਨਾਲ ਸੰਬੰਧਿਤ ਵਰਣਾਤਮਕ ਪ੍ਰਸ਼ਨ (ਦੋ ਵਿਚੋਂ ਇੱਕ) 10ਅੰਕ

5. ਭਾਗ–ੲ ਵਿਚ ਕਵਿਤਾਵਾਂ ਅਤੇ ਵਿਆਕਰਨ ਵਿੱਚੋਂ ਕੁੱਲ 10(6+4) ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਲਾਜ਼ਮੀ ਪ੍ਰਸ਼ਨ।ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਜ਼ਰੂਰੀ ਹਨ । ਹਰੇਕ ਪ੍ਰਸ਼ਨ 02 ਅੰਕ ਦਾ ਹੋਵੇਗਾ । 10X2=20ਅੰਕ

ਪਾਠਕ੍ਰਮ ਅਤੇ ਪ੍ਰਸ਼ਨ–ਪੱਤਰ ਦੀ ਰੂਪ–ਰੇਖਾ

ਭਾਗ–ੳ

ੳ –ਪੰਜਾਬੀ ਕਾਵਿ–ਸੰਗ੍ਰਹਿ(1700 ਈ.ਤੱਕ),ਸੰਪਾ.ਡਾ.ਜਸਵਿੰਦਰ ਸਿੰਘ,ਡਾ.ਮਾਨ ਸਿੰਘ ਢੀਂਡਸਾ ਅਤੇ ਡਾ.ਗੁਰਸ਼ਰਨ ਕੌਰ ਜੱਗੀ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ ਪੁਸਤਕ ਵਿੱਚੋਂ ਸ਼ੇਖ ਫ਼ਰੀਦ(ਖੈਰੁ ਦੀਜੈ ਬੰਦਗੀ),ਹੀਰ ਦਮੋਦਰ(ਹੀਰ ਅਤੇ ਧੀਦੋ ਰਾਂਝੇ ਦਾ ਜਨਮ ਅਤੇ ਬਾਲ ਵਰੇਸ),ਕਾਫ਼ੀਆਂ ਸ਼ਾਹ ਹੁਸੈਨ(ਰੱਬਾ ਮੇਰੇ ਹਾਲ ਦਾ ਮਹਿਰਮ ਤੂੰ ਅਤੇ ਦਿਲ ਦਰਦਾਂ ਕੀਤੀ ਪੂਰੀ),ਗੁਰੂ ਤੇਗ਼ ਬਹਾਦਰ(ਸਾਧੋ ਰਚਨਾ ਰਾਮ ਬਨਾਈ),ਗੁਰੂ ਗੋਬਿੰਦ ਸਿੰਘ(ਮਿਤ੍ਰ ਪਿਆਰੇ ਨੂੰ) ਕਵਿਤਾਵਾਂ

ਭਾਗ–ਅ

ਅ-1.ਅਖ਼ਬਾਰੀ ਰਿਪੋਰਟ

ਅ-2 ਵਿਆਕਰਨ:

1.ਗੁਰਮੁਖੀ ਲਿਪੀ ਦਾ ਇਤਿਹਾਸ

2. ਗੁਰਮੁਖੀ ਲਿਪੀ ਦੀਆਂ ਵਿਸ਼ੇਸ਼ਤਾਵਾਂ

ਭਾਗ-ੲ

ਭਾਗ-ੳ ਅਤੇ ਵਿਆਕਰਨ ਵਾਲੇ ਭਾਗ ਵਿਚੋਂ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਪ੍ਰਸ਼ਨ

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1. ਪੰਜਾਬੀ ਦੁਨੀਆ,ਗੁਰੂ ਨਾਨਕ ਅੰਕ, ਭਾਸ਼ਾ ਵਿਭਾਗ ਪੰਜਾਬ, ਪਟਿਆਲਾ।
2. ਡਾ.ਤਾਰਨ ਸਿੰਘ ,ਬਾਬਾ ਫਰੀਦ: ਜੀਵਨ ਤੇ ਰਚਨਾ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ।
3. ਬੂਟਾ ਸਿੰਘ ਬਰਾੜ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਸ੍ਰੋਤ ਤੇ ਸਰੂਪ,ਵਾਰਿਸ਼ ਸ਼ਾਹ ਫਾਂਊਡੇਸ਼ਨ ਅੰਮ੍ਰਿਤਸਰ,2012
4. ਬੂਟਾ ਸਿੰਘ ਬਰਾੜ, ਪੰਜਾਬੀ ਵਿਆਕਰਨ ਸਿਧਾਂਤ ਅਤੇ ਵਿਹਾਰ,ਚੇਤਨਾ ਪ੍ਰਕਾਸ਼ਨ ,ਲੁਧਿਆਣਾ,2008
5. ਬਲਦੇਵ ਸਿੰਘ ਚੀਮਾ, ਪੰਜਾਬੀ ਵਿਆਕਰਨ ਤੇ ਭਾਸ਼ਾ ਵਿਗਿਆਨ,ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ ਦਾ ਵਿਸ਼ਾ ਕੋਸ਼,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ,2009
6. ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨਕ ਭਾਗ I,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991
7. ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨਕ ਭਾਗ II,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991
8. ਗਿਆਨੀ ਲਾਲ ਸਿੰਘ ਤੇ ਹਰਕੀਰਤ ਸਿੰਘ ,ਕਾਲਜ ਪੰਜਾਬੀ ਵਿਆਕਰਣ ,ਪੰਜਾਬ ਸਟੇਟ ਯੂਨੀ.ਟੈਕਸਟ ਬੁੱਕ ਬੋਰਡ,ਚੰਡੀਗੜ੍ਹ
9. ਸੰਤ ਸਿੰਘ ਸੇਖੋਂ,ਸਾਹਿਤਆਰਥ,ਲਾਹੌਰ ਬੁੱਕ ਸ਼ਾਪ,ਲੁਧਿਆਣਾ

ਬੀ.ਬੀ.ਏ. ਭਾਗ ਦੂਜਾ, ਸਮੈਸਟਰ ਚੌਥਾ
ਪੇਪਰ- ਪੰਜਾਬੀ ਮੁੱਢਲਾ ਗਿਆਨ
ਪੇਪਰ ਕੋਡ:BBA-401B, ਕ੍ਰੈਡਿਟ-04
2020-21,2021-22,2022-23 ਸੈਸ਼ਨ ਲਈ

ਕੁੱਲ ਅੰਕ :100 ਵਿਸ਼ੇ ਵਿਚੋਂ ਪਾਸ ਅੰਕ : 35

ਬਾਹਰੀ ਪਰੀਖਿਆ:60 ਅੰਕ ਬਾਹਰੀ ਪਰੀਖਿਆ ਵਿਚੋਂ ਪਾਸ ਅੰਕ:21

ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ :40 ਅੰਕ ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਵਿਚੋਂ ਪਾਸ ਅੰਕ:14

ਸਮਾਂ:3 ਘੰਟੇ ਕੁੱਲ ਲੈਕਚਰ:45

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼:

1.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਸਾਹਿਤ ਪੜ੍ਹਨ ਲਈ ਪ੍ਰੇਰਿਤ ਕਰਨਾ।
2.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੀ ਜਾਣਕਾਰੀ ਦੇਣਾ।
3.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਸਹਿਤ ਸਿਰਜਣ ਲਈ ਪ੍ਰੇਰਿਤ ਕਰਨਾ।
4.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਸਭਿਆਚਾਰ,ਲੋਕਧਾਰਾ ਅਤੇ ਨੈਤਿਕ ਕਦਰਾਂ -ਕੀਮਤਾਂ ਤੋਂ ਜਾਣੂ ਕਰਵਾਉਣਾ।

ਪੇਪਰ ਸੈਂਟਰ ਅਤੇ ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਹਦਾਇਤਾਂ

1.ਸਾਰਾ ਪੇਪਰ 'ਅੱਖਰ ਗਿਆਨ (ਭਾਗ-ਦੂਜਾ)'ਪਾਠ-ਪੁਸਤਕ ਵਿਚੋਂ ਹੀ ਪਾਇਆ ਜਾਵੇ।
2.ਭਾਗ-ੳ: ਵਿਚ ਕਹਾਣੀ ਦਾ ਵਿਸ਼ਾ-ਵਸਤੂ /ਸਾਰ (ਤਿੰਨ ਵਿਚੋਂ ਇੱਕ)10 ਅੰਕ
3.ਭਾਗ-ਅ:1 ਵਿਚ ਨਿੱਜੀ ਚਿੱਠੀ-ਪੱਤਰ (ਤਿੰਨ ਵਿਚੋਂ ਇੱਕ) 10 ਅੰਕ
4.ਭਾਗ-ਅ:2 ਵਿਚ ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ(ਅੰਗਰੇਜ਼ੀ ਤੋਂ ਪੰਜਾਬੀ ਵਿਚ ਅਨੁਵਾਦ) (ਪੰਦਰਾਂ ਵਿਚੋਂ ਦਸ) 10 ਅੰਕ
5.ਭਾਗ-ਅ:3 ਵਿਚ ਵਿਆਕਰਨ ਨਾਲ ਸੰਬੰਧਿਤ ਪ੍ਰਸ਼ਨ (ਦੋ ਵਿਚੋਂ ਇੱਕ) 10 ਅੰਕ
6.ਭਾਗ-ੲ ਵਿਚ ਕਹਾਣੀਆਂ,ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ ਅਤੇ ਵਿਆਕਰਨ ਵਿਚੋਂ ਕੁੱਲ 10 ਅਬਜੈਕਟਿਵ ਪ੍ਰਸ਼ਨ।ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਲਾਜ਼ਮੀ ਹਨ । ਹਰੇਕ ਪ੍ਰਸ਼ਨ 02 ਅੰਕਾਂ ਦਾ ਹੋਵੇਗਾ । **(10X2=20 ਅੰਕ)**

ਪਾਠਕ੍ਰਮ ਅਤੇ ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਦੀ ਰੂਪ-ਰੇਖਾ

ਭਾਗ-ੳ

ੳ - ਅੱਖਰ ਗਿਆਨ (ਭਾਗ-ਦੂਜਾ),ਮੁੱਖ ਸੰਪਾ. ਡਾ.ਜਸਵੀਰ ਸਿੰਘ ,ਸੰਪਾ.ਡਾ.ਅਵਤਾਰ ਸਿੰਘ, ਡਾ.ਗੁਰਪ੍ਰੀਤ ਕੌਰ,ਪ੍ਰੋ.ਸੁਖਵਿੰਦਰ ਸਿੰਘ, ਸ੍ਰੀ ਗੁਰੂ ਤੇਗ ਬਹਾਦਰ ਖ਼ਾਲਸਾ ਕਾਲਜ,ਸ੍ਰੀ ਅਨੰਦਪੁਰ ਸਾਹਿਬ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ,ਪੁਸਤਕ ਵਿੱਚੋਂ ਕਹਾਣੀਆਂ ਵਾਲਾ ਭਾਗ

ਭਾਗ-ਅ

ਅ-1. ਨਿੱਜੀ ਚਿੱਠੀ-ਪੱਤਰ

ਅ-2 . ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ

ਅ-3 .ਸੰਬੰਧਕ ਅਤੇ ਯੋਜਕ :ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਕਿਸਮਾਂ

ਭਾਗ-ੲ

ਕਹਾਣੀਆਂ,ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ ਅਤੇ ਵਿਆਕਰਨ ਵਿਚੋਂ ਅਬਜੈਕਟਿਵ ਪ੍ਰਸ਼ਨ

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1. ਬਲਦੇਵ ਸਿੰਘ ਚੀਮਾ, ਪੰਜਾਬੀ ਵਿਆਕਰਨ ਤੇ ਭਾਸ਼ਾ ਵਿਗਿਆਨ,ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ ਦਾ ਵਿਸ਼ਾ ਕੋਸ਼, ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ,2009
2.ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨ ਭਾਗ I,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991
3.ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨ ਭਾਗ II,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991
4.ਜੋਗਿੰਦਰ ਸਿੰਘ ਰਾਹੀ,ਮਸਲੇ ਗਲਪ ਦੇ,ਨਾਨਕ ਸਿੰਘ ਪੁਸਤਕਮਾਲਾ,ਅੰਮ੍ਰਿਤਸਰ,1992
5.ਬਲਦੇਵ ਸਿੰਘ ਧਾਲੀਵਾਲ,ਪੰਜਾਬੀ ਕਹਾਣੀ ਦਾ ਇਤਿਹਾਸ,ਪੰਜਾਬ ਅਕਾਦਮੀ,ਦਿੱਲੀ

ਬੀ.ਐਸ.ਸੀ.(ਮੈਡੀਕਲ/ਨਾਨ ਮੈਡੀਕਲ) ਭਾਗ ਦੂਜਾ, ਸਮੈਸਟਰ ਚੌਥਾ

ਪੇਪਰ-ਪੰਜਾਬੀ ਲਾਜ਼ਮੀ

ਪੇਪਰ ਕੋਡ:BSP-401A, ਕ੍ਰੈਡਿਟ-04

2020-21,2021-22,2022-23 ਸੈਸ਼ਨ ਲਈ

ਕੁੱਲ ਅੰਕ :100 ਵਿਸ਼ੇ ਵਿਚੋਂ ਪਾਸ ਅੰਕ : 35

ਬਾਹਰੀ ਪਰੀਖਿਆ:70 ਅੰਕ ਬਾਹਰੀ ਪਰੀਖਿਆ ਵਿਚੋਂ ਪਾਸ ਅੰਕ: 26

ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ :30 ਅੰਕ ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਵਿਚੋਂ ਪਾਸ ਅੰਕ:09

ਸਮਾਂ:3 ਘੰਟੇ ਕੁੱਲ ਲੈਕਚਰ:60

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼:

1.ਵਿਦਿਆਰਥੀਆਂ ਵਿਚ ਸਾਹਿਤ ਪੜ੍ਹਨ ਦੀ ਰੁਚੀ ਪੈਦਾ ਕਰਨਾ।
2.ਮਾਤ ਭਾਸ਼ਾ ਵਿੱਚ ਉਚੇਰੀ ਸਿੱਖਿਆ ਗ੍ਰਹਿਣ ਕਰਨ ਦੀ ਜਾਗ ਲਾਉਣਾ।
3.ਵਿਆਕਰਨਕ ਪੱਖਾਂ ਨਾਲ ਰਾਬਤਾ ਕਾਇਮ ਕਰਵਾਉਣਾ।
4.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਨੈਤਿਕ ਕਦਰਾਂ-ਕੀਮਤਾਂ ਬਾਰੇ ਜਾਣਕਾਰੀ ਦੇਣਾ।

ਪੇਪਰ ਸੈੱਟਰ ਅਤੇ ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਹਦਾਇਤਾਂ

1.ਭਾਗ-ੳ: ਵਿਚੋਂ ਕਹਾਣੀ ਦਾ ਵਿਸ਼ਾ-ਵਸਤੂ / ਸਾਰ (ਤਿੰਨ ਵਿਚੋਂ ਇੱਕ)10 ਅੰਕ
2.ਭਾਗ-ੳ: ਵਿਚੋਂ ਪਾਤਰਾਂ ਦਾ ਚਰਿੱਤਰ-ਚਿਤਰਣ (ਪੰਜ ਵਿਚੋਂ ਦੋ) 5+5=10 ਅੰਕ
3.ਭਾਗ-ਅ:1 ਵਿਚੋਂ ਅਖ਼ਬਾਰੀ ਰਿਪੋਰਟ (ਤਿੰਨ ਵਿਚੋਂ ਇੱਕ) 10 ਅੰਕ
4.ਭਾਗ-ਅ:2 ਵਿਚੋਂ ਵਿਆਕਰਨ ਨਾਲ ਸੰਬੰਧਿਤ ਵਰਣਾਤਮਕ ਪ੍ਰਸ਼ਨ (ਦੋ ਵਿਚੋਂ ਇੱਕ) 10 ਅੰਕ
5. ਭਾਗ-ੲ ਵਿਚ ਕਹਾਣੀਆਂ ਅਤੇ ਵਿਆਕਰਨ ਵਿੱਚੋਂ ਕੁੱਲ 15 (8+7)ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਲਾਜ਼ਮੀ ਪ੍ਰਸ਼ਨ।ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਜ਼ਰੂਰੀ ਹਨ । ਹਰੇਕ ਪ੍ਰਸ਼ਨ 2 ਅੰਕਾਂ ਦਾ ਹੋਵੇਗਾ । 15X2=30 ਅੰਕ

ਪਾਠਕ੍ਰਮ ਅਤੇ ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਦੀ ਰੂਪ-ਰੇਖਾ

ਭਾਗ-ੳ

ੳ 1– ਕਹਾਣੀ ਸੰਸਾਰ (ਕਹਾਣੀ–ਸੰਗ੍ਰਹਿ),ਮੁੱਖ ਸੰਪਾ.ਡਾ.ਜਸਵੀਰ ਸਿੰਘ,ਸੰਪਾ.ਡਾ.ਅਵਤਾਰ ਸਿੰਘ ,ਡਾ.ਗੁਰਪ੍ਰੀਤ ਕੌਰ ਅਤੇ ਪ੍ਰੋ.ਸੁਖਵਿੰਦਰ ਸਿੰਘ,ਸ੍ਰੀ ਗੁਰੂ ਤੇਗ਼ ਬਹਾਦਰ ਖ਼ਾਲਸਾ ਕਾਲਜ,ਸ੍ਰੀ ਅਨੰਦਪੁਰ ਸਾਹਿਬ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ। ਭਾਗ–ਅ

ਅ–1:ਅਖ਼ਬਾਰੀ ਰਿਪੋਰਟ

ਅ-2 ਵਿਆਕਰਨ:

i.ਗੁਰਮੁਖੀ ਲਿਪੀ ਦਾ ਇਤਿਹਾਸ

ii.ਗੁਰਮੁਖੀ ਲਿਪੀ ਦੀਆਂ ਵਿਸ਼ੇਸ਼ਤਾਵਾਂ

iii.ਸ਼ਬਦ ਜੋੜਾਂ ਦੇ ਨਿਯਮ

ਭਾਗ–ੲ

ਕਹਾਣੀਆਂ ਅਤੇ ਵਿਆਕਰਨ ਵਾਲੇ ਭਾਗ ਵਿਚੋਂ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਪ੍ਰਸ਼ਨ

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1. ਬੂਟਾ ਸਿੰਘ ਬਰਾੜ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਸ੍ਰੋਤ ਤੇ ਸਰੂਪ,ਵਾਰਿਸ਼ ਸ਼ਾਹ ਫਾਂਊਡੇਸ਼ਨ ਅੰਮ੍ਰਿਤਸਰ,2012
2. ਬੂਟਾ ਸਿੰਘ ਬਰਾੜ, ਪੰਜਾਬੀ ਵਿਆਕਰਨ ਸਿਧਾਂਤ ਅਤੇ ਵਿਹਾਰ,ਚੇਤਨਾ ਪ੍ਰਕਾਸ਼ਨ ,ਲੁਧਿਆਣਾ,2008
3. ਬਲਦੇਵ ਸਿੰਘ ਚੀਮਾ, ਪੰਜਾਬੀ ਵਿਆਕਰਨ ਤੇ ਭਾਸ਼ਾ ਵਿਗਿਆਨ,ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ ਦਾ ਵਿਸ਼ਾ ਕੋਸ਼,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ,2009
4. ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨਕ ਭਾਗ I,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991
5. ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨਕ ਭਾਗ II,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991
6. ਗਿਆਨੀ ਲਾਲ ਸਿੰਘ ਤੇ ਹਰਕੀਰਤ ਸਿੰਘ ,ਕਾਲਜ ਪੰਜਾਬੀ ਵਿਆਕਰਣ ,ਪੰਜਾਬ ਸਟੇਟ ਯੂਨੀ.ਟੈਕਸਟ ਬੁੱਕ ਬੋਰਡ,ਚੰਡੀਗੜ੍ਹ
7. ਸੰਤ ਸਿੰਘ ਸੇਖੋਂ,ਸਾਹਿਤਆਰਥ,ਲਾਹੌਰ ਬੁੱਕ ਸ਼ਾਪ,ਲੁਧਿਆਣਾ
8. ਜੋਗਿੰਦਰ ਸਿੰਘ ਰਾਹੀ,ਮਸਲੇ ਗਲਪ ਦੇ,ਨਾਨਕ ਸਿੰਘ ਪੁਸਤਕਮਾਲਾ,ਅੰਮ੍ਰਿਤਸਰ,1992
9. ਬਲਦੇਵ ਸਿੰਘ ਧਾਲੀਵਾਲ,ਪੰਜਾਬੀ ਕਹਾਣੀ ਦਾ ਇਤਿਹਾਸ,ਪੰਜਾਬੀ ਅਕਾਦਮੀ,ਦਿੱਲੀ

ਬੀ.ਐਸ.ਸੀ.(ਮੈਡੀਕਲ/ਨਾਨ ਮੈਡੀਕਲ) ਭਾਗ ਦੂਜਾ, ਸਮੈਸਟਰ ਚੌਥਾ
ਪੇਪਰ–ਪੰਜਾਬੀ ਮੁੱਢਲਾ ਗਿਆਨ
ਪੇਪਰ ਕੋਡ:**BSP-401B**, ਕ੍ਰੈਡਿਟ–04
2020-21,2021-22,2022-23 ਸੈਸ਼ਨ ਲਈ

ਕੁੱਲ ਅੰਕ :100 ਵਿਸ਼ੇ ਵਿਚੋਂ ਪਾਸ ਅੰਕ : 35
ਬਾਹਰੀ ਪਰੀਖਿਆ:70 ਅੰਕ ਬਾਹਰੀ ਪਰੀਖਿਆ ਵਿਚੋਂ ਪਾਸ ਅੰਕ: 25
ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ :30 ਅੰਕ ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਵਿਚੋਂ ਪਾਸ ਅੰਕ:10
ਸਮਾਂ:3 ਘੰਟੇ ਕੁੱਲ ਲੈਕਚਰ:60

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼:

1.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਸਾਹਿਤ ਪੜ੍ਹਨ ਲਈ ਪ੍ਰੇਰਿਤ ਕਰਨਾ।
2.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੀ ਜਾਣਕਾਰੀ ਦੇਣਾ।
3.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਸਹਿਤ ਸਿਰਜਣ ਲਈ ਪ੍ਰੇਰਿਤ ਕਰਨਾ।
4.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਸਭਿਆਚਾਰ,ਲੋਕਧਾਰਾ ਅਤੇ ਨੈਤਿਕ ਕਦਰਾਂ –ਕੀਮਤਾਂ ਤੋਂ ਜਾਣੂ ਕਰਵਾਉਣਾ।

ਪੇਪਰ ਸੈੱਟਰ ਅਤੇ ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਹਦਾਇਤਾਂ

1.ਸਾਰਾ ਪੇਪਰ 'ਅੱਖਰ ਗਿਆਨ (ਭਾਗ–ਦੂਜਾ)'ਪਾਠ–ਪੁਸਤਕ ਵਿਚੋਂ ਹੀ ਪਾਇਆ ਜਾਵੇ।
2.ਭਾਗ–ੳ: ਵਿਚ ਕਹਾਣੀ ਦਾ ਵਿਸ਼ਾ–ਵਸਤੂ /ਸਾਰ (ਤਿੰਨ ਵਿਚੋਂ ਇੱਕ)10 ਅੰਕ
3.ਭਾਗ–ਅ:1 ਵਿਚ ਨਿੱਜੀ ਚਿੱਠੀ–ਪੱਤਰ (ਤਿੰਨ ਵਿਚੋਂ ਇੱਕ) 10 ਅੰਕ
4.ਭਾਗ–ਅ:2 ਵਿਚ ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ(ਅੰਗਰੇਜ਼ੀ ਤੋਂ ਪੰਜਾਬੀ ਵਿਚ ਅਨੁਵਾਦ) (ਪੰਦਰਾਂ ਵਿਚੋਂ ਦਸ) 10 ਅੰਕ
5.ਭਾਗ–ਅ:3 ਵਿਚ ਵਿਆਕਰਨ ਨਾਲ ਸੰਬੰਧਿਤ ਪ੍ਰਸ਼ਨ (ਦੋ ਵਿਚੋਂ ਇੱਕ) 10 ਅੰਕ

6.ਭਾਗ-ੲ ਵਿਚ ਕਹਾਣੀਆਂ,ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ ਅਤੇ ਵਿਆਕਰਨ ਵਿਚੋਂ ਕੁੱਲ 15 ਅਬਜੈਕਟਿਵ ਪ੍ਰਸ਼ਨ।ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਲਾਜ਼ਮੀ ਹਨ । ਹਰੇਕ ਪ੍ਰਸ਼ਨ 2 ਅੰਕਾਂ ਦਾ ਹੋਵੇਗਾ । **(15X2=30 ਅੰਕ)**

ਪਾਠਕ੍ਰਮ ਅਤੇ ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਦੀ ਰੂਪ-ਰੇਖਾ

ਭਾਗ-ੳ

ੳ - ਅੱਖਰ ਗਿਆਨ (ਭਾਗ-ਦੂਜਾ),ਮੁੱਖ ਸੰਪਾ. ਡਾ.ਜਸਵੀਰ ਸਿੰਘ ,ਸੰਪਾ.ਡਾ.ਅਵਤਾਰ ਸਿੰਘ, ਡਾ.ਗੁਰਪ੍ਰੀਤ ਕੌਰ,ਪ੍ਰੋ.ਸੁਖਵਿੰਦਰ ਸਿੰਘ, ਸ੍ਰੀ ਗੁਰੂ ਤੇਗ਼ ਬਹਾਦਰ ਖ਼ਾਲਸਾ ਕਾਲਜ,ਸ੍ਰੀ ਅਨੰਦਪੁਰ ਸਾਹਿਬ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ,ਪੁਸਤਕ ਵਿੱਚੋਂ ਕਹਾਣੀਆਂ ਵਾਲਾ ਭਾਗ

ਭਾਗ-ਅ

ਅ-1. ਨਿੱਜੀ ਚਿੱਠੀ-ਪੱਤਰ
ਅ-2 . ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ
ਅ-3 .ਸੰਬੰਧਕ ਅਤੇ ਯੋਜਕ :ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਕਿਸਮਾਂ

ਭਾਗ-ੲ

ਕਹਾਣੀਆਂ,ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ ਅਤੇ ਵਿਆਕਰਨ ਵਿਚੋਂ ਅਬਜੈਕਟਿਵ ਪ੍ਰਸ਼ਨ

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1. ਬਲਦੇਵ ਸਿੰਘ ਚੀਮਾ, ਪੰਜਾਬੀ ਵਿਆਕਰਨ ਤੇ ਭਾਸ਼ਾ ਵਿਗਿਆਨ,ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ ਦਾ ਵਿਸ਼ਾ ਕੋਸ਼, ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ,2009
2.ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨ ਭਾਗ I,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991
3.ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨ ਭਾਗ II,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991
4.ਜੋਗਿੰਦਰ ਸਿੰਘ ਰਾਹੀ,ਮਸਲੇ ਗਲਪ ਦੇ,ਨਾਨਕ ਸਿੰਘ ਪੁਸਤਕਮਾਲਾ,ਅੰਮ੍ਰਿਤਸਰ,1992
5.ਬਲਦੇਵ ਸਿੰਘ ਧਾਲੀਵਾਲ,ਪੰਜਾਬੀ ਕਹਾਣੀ ਦਾ ਇਤਿਹਾਸ,ਪੰਜਾਬ ਅਕਾਦਮੀ,ਦਿੱਲੀ

ਬੀ.ਸੀ.ਏ ਭਾਗ ਦੂਜਾ ,ਸਮੈਸਟਰ ਚੌਥਾ
ਪੇਪਰ-ਪੰਜਾਬੀ ਲਾਜ਼ਮੀ
ਪੇਪਰ ਕੋਡ:BCA-401A,ਕ੍ਰੈਡਿਟ-02
2020-21,2021-22,2022-23 ਸੈਸ਼ਨ ਲਈ

ਕੁੱਲ ਅੰਕ :50 **ਵਿਸ਼ੇ ਵਿਚੋਂ ਪਾਸ ਅੰਕ : 17**
ਬਾਹਰੀ ਪਰੀਖਿਆ:35 ਅੰਕ **ਬਾਹਰੀ ਪਰੀਖਿਆ ਵਿਚੋਂ ਪਾਸ ਅੰਕ: 12**
ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ :15 ਅੰਕ **ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਵਿਚੋਂ ਪਾਸ ਅੰਕ:05**
ਸਮਾਂ:3 ਘੰਟੇ **ਕੁੱਲ ਲੈਕਚਰ:30**

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼:

1.ਵਿਦਿਆਰਥੀਆਂ ਵਿਚ ਸਾਹਿਤ ਪੜ੍ਹਨ ਦੀ ਰੁਚੀ ਪੈਦਾ ਕਰਨਾ।
2.ਮਾਤ ਭਾਸ਼ਾ ਵਿੱਚ ਉਚੇਰੀ ਸਿੱਖਿਆ ਗ੍ਰਹਿਣ ਕਰਨ ਦੀ ਜਾਗ ਲਾਉਣਾ।
3.ਵਿਆਕਰਨਕ ਪੱਖਾਂ ਨਾਲ ਰਾਬਤਾ ਕਾਇਮ ਕਰਵਾਉਣਾ।
4.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਨੈਤਿਕ ਕਦਰਾਂ-ਕੀਮਤਾਂ ਬਾਰੇ ਜਾਣਕਾਰੀ ਦੇਣਾ।

ਪੇਪਰ ਸੈਂਟਰ ਅਤੇ ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਹਦਾਇਤਾਂ

1.ਭਾਗ-ੳ ਵਿਚੋਂ ਲੇਖਕ ਦਾ ਯੋਗਦਾਨ (ਦੋ ਵਿਚੋਂ ਇੱਕ)08ਅੰਕ

2. ਭਾਗ–ੳ ਵਿਚੋਂ ਕਵਿਤਾਵਾਂ ਦਾ ਵਿਸ਼ਾ–ਵਸਤੂ (ਤਿੰਨ ਵਿਚੋਂ ਇੱਕ)04 ਅੰਕ
3.ਭਾਗ ਅ–1 ਵਿਚੋਂ ਅਖ਼ਬਾਰੀ ਰਿਪੋਰਟ (ਤਿੰਨ ਵਿਚੋਂ ਇੱਕ)05 ਅੰਕ
4.ਭਾਗ–ਅ ਵਿਚੋਂ ਵਿਆਕਰਨ ਨਾਲ ਸੰਬੰਧਿਤ ਵਰਣਾਤਮਕ ਪ੍ਰਸ਼ਨ (ਦੋ ਵਿਚੋਂ ਇੱਕ) 08ਅੰਕ
5. ਭਾਗ–ੲ ਵਿਚ ਕਵਿਤਾਵਾਂ ਅਤੇ ਵਿਆਕਰਨ ਵਿੱਚੋਂ ਕੁੱਲ 10(6+4) ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਲਾਜ਼ਮੀ ਪ੍ਰਸ਼ਨ।ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਜ਼ਰੂਰੀ ਹਨ । ਹਰੇਕ ਪ੍ਰਸ਼ਨ 01 ਅੰਕ ਦਾ ਹੋਵੇਗਾ । **10X1=10ਅੰਕ**

ਪਾਠਕ੍ਰਮ ਅਤੇ ਪ੍ਰਸ਼ਨ–ਪੱਤਰ ਦੀ ਰੂਪ–ਰੇਖਾ

ਭਾਗ–ੳ

ੳ -ਪੰਜਾਬੀ ਕਾਵਿ–ਸੰਗ੍ਰਹਿ(1700 ਈ.ਤੱਕ),ਸੰਪਾ.ਡਾ.ਜਸਵਿੰਦਰ ਸਿੰਘ,ਡਾ.ਮਾਨ ਸਿੰਘ ਢੀਂਡਸਾ ਅਤੇ ਡਾ.ਗੁਰਸ਼ਰਨ ਕੌਰ ਜੱਗੀ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ ਪੁਸਤਕ ਵਿੱਚੋਂ ਸ਼ੇਖ ਫ਼ਰੀਦ(ਖੈਰੁ ਦੀਜੈ ਬੰਦਗੀ),ਹੀਰ ਦਮੋਦਰ(ਹੀਰ ਅਤੇ ਧੀਦੋ ਰਾਂਝੇ ਦਾ ਜਨਮ ਅਤੇ ਬਾਲ ਵਰੇਸ),ਕਾਫ਼ੀਆਂ ਸ਼ਾਹ ਹੁਸੈਨ(ਰੱਬਾ ਮੇਰੇ ਹਾਲ ਦਾ ਮਹਿਰਮ ਤੂੰ ਅਤੇ ਦਿਲ ਦਰਦਾਂ ਕੀਤੀ ਪੂਰੀ),ਗੁਰੂ ਤੇਗ਼ ਬਹਾਦਰ(ਸਾਧੋ ਰਚਨਾ ਰਾਮ ਬਨਾਈ),ਗੁਰੂ ਗੋਬਿੰਦ ਸਿੰਘ(ਮਿਤ੍ਰ ਪਿਆਰੇ ਨੂੰ) ਕਵਿਤਾਵਾਂ

ਭਾਗ–ਅ

ਅ-**1**.ਅਖ਼ਬਾਰੀ ਰਿਪੋਰਟ

ਅ–2. ਵਿਆਕਰਨ:

- i.ਗੁਰਮੁਖੀ ਲਿਪੀ ਦਾ ਇਤਿਹਾਸ
- ii.ਗੁਰਮੁਖੀ ਲਿਪੀ ਦੀਆਂ ਵਿਸ਼ੇਸ਼ਤਾਵਾਂ

ਭਾਗ–ੲ

ਭਾਗ–ੳ ਅਤੇ ਵਿਆਕਰਨ ਵਾਲੇ ਭਾਗ ਵਿਚੋਂ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਪ੍ਰਸ਼ਨ

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1.ਪੰਜਾਬੀ ਦੁਨੀਆ,ਗੁਰੂ ਨਾਨਕ ਅੰਕ, ਭਾਸ਼ਾ ਵਿਭਾਗ ਪੰਜਾਬ, ਪਟਿਆਲਾ।
2. ਡਾ.ਤਾਰਨ ਸਿੰਘ ,ਬਾਬਾ ਫਰੀਦ: ਜੀਵਨ ਤੇ ਰਚਨਾ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ।
3. ਬੂਟਾ ਸਿੰਘ ਬਰਾੜ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਸ੍ਰੋਤ ਤੇ ਸਰੂਪ,ਵਾਰਿਸ਼ ਸ਼ਾਹ ਫਾਂਊਡੇਸ਼ਨ ਅੰਮ੍ਰਿਤਸਰ,2012
4. ਬੂਟਾ ਸਿੰਘ ਬਰਾੜ, ਪੰਜਾਬੀ ਵਿਆਕਰਨ ਸਿਧਾਂਤ ਅਤੇ ਵਿਹਾਰ,ਚੇਤਨਾ ਪ੍ਰਕਾਸ਼ਨ ,ਲੁਧਿਆਣਾ,2008
5. ਬਲਦੇਵ ਸਿੰਘ ਚੀਮਾ, ਪੰਜਾਬੀ ਵਿਆਕਰਨ ਤੇ ਭਾਸ਼ਾ ਵਿਗਿਆਨ,ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ ਦਾ ਵਿਸ਼ਾ ਕੋਸ਼,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ,2009

6.ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨਕ ਭਾਗ I,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991
7.ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨਕ ਭਾਗ II,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991
8.ਗਿਆਨੀ ਲਾਲ ਸਿੰਘ ਤੇ ਹਰਕੀਰਤ ਸਿੰਘ ,ਕਾਲਜ ਪੰਜਾਬੀ ਵਿਆਕਰਣ ,ਪੰਜਾਬ ਸਟੇਟ ਯੂਨੀ.ਟੈਕਸਟ ਬੁੱਕ ਬੋਰਡ,ਚੰਡੀਗੜ੍ਹ
9.ਸੰਤ ਸਿੰਘ ਸੇਖੋਂ,ਸਾਹਿਤਆਰਥ,ਲਾਹੌਰ ਬੁੱਕ ਸ਼ਾਪ,ਲੁਧਿਆਣਾ

ਬੀ.ਸੀ.ਏ. ਭਾਗ ਦੂਜਾ,ਸਮੈਸਟਰ ਚੌਥਾ
ਪੇਪਰ– ਪੰਜਾਬੀ ਮੁੱਢਲਾ ਗਿਆਨ
ਪੇਪਰ ਕੋਡ:BCA-401B,ਕ੍ਰੈਡਿਟ–02
2020-21,2021-22,2022-23 ਸੈਸ਼ਨ ਲਈ

ਕੁੱਲ ਅੰਕ :50	ਵਿਸ਼ੇ ਵਿਚੋਂ ਪਾਸ ਅੰਕ : 17
ਬਾਹਰੀ ਪਰੀਖਿਆ:35 ਅੰਕ	ਬਾਹਰੀ ਪਰੀਖਿਆ ਵਿਚੋਂ ਪਾਸ ਅੰਕ: 12
ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ :15 ਅੰਕ	ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਵਿਚੋਂ ਪਾਸ ਅੰਕ:05
ਸਮਾਂ:3 ਘੰਟੇ	ਕੁੱਲ ਲੈਕਚਰ:30

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼:

1.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਸਾਹਿਤ ਪੜ੍ਹਨ ਲਈ ਪ੍ਰੇਰਿਤ ਕਰਨਾ।
2.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੀ ਜਾਣਕਾਰੀ ਦੇਣਾ।
3.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਸਹਿਤ ਸਿਰਜਣ ਲਈ ਪ੍ਰੇਰਿਤ ਕਰਨਾ।
4.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਸਭਿਆਚਾਰ,ਲੋਕਧਾਰਾ ਅਤੇ ਨੈਤਿਕ ਕਦਰਾਂ –ਕੀਮਤਾਂ ਤੋਂ ਜਾਣੂ ਕਰਵਾਉਣਾ।

ਪੇਪਰ ਸੈੱਟਰ ਅਤੇ ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਹਦਾਇਤਾਂ:

1.ਸਾਰਾ ਸਿਲੇਬਸ 'ਅੱਖਰ ਗਿਆਨ (ਭਾਗ-ਦੂਜਾ)'ਵਿਚੋਂ ਹੀ ਪਾਇਆ ਜਾਵੇ।

2.ਭਾਗ-ੳ: ਵਿਚ ਕਹਾਣੀ ਦਾ ਵਿਸ਼ਾ-ਵਸਤੂ /ਸਾਰ (ਤਿੰਨ ਵਿਚੋਂ ਇੱਕ)08ਅੰਕ

3.ਭਾਗ-ਅ:1 ਵਿਚ ਨਿੱਜੀ ਚਿੱਠੀ-ਪੱਤਰ (ਤਿੰਨ ਵਿਚੋਂ ਇੱਕ) 05 ਅੰਕ

4.ਭਾਗ-ਅ:2 ਵਿਚ ਅੰਗਰੇਜ਼ੀ ਤੋਂ ਪੰਜਾਬੀ ਵਿਚ ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ (ਸੋਲਾ ਵਿਚੋਂ ਅੱਠ) 04 ਅੰਕ

5.ਭਾਗ-ਅ:3 ਵਿਚ ਵਿਆਕਰਨ ਨਾਲ ਸੰਬੰਧਿਤ ਪ੍ਰਸ਼ਨ (ਦੋ ਵਿਚੋਂ ਇੱਕ) 08 ਅੰਕ

6.ਭਾਗ-ੲ ਵਿਚ ਕਹਾਣੀਆਂ,ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ ਅਤੇ ਵਿਆਕਰਨ ਵਿਚੋਂ ਕੁੱਲ 10 ਅਬਜੈਕਟਿਵ ਪ੍ਰਸ਼ਨ ।ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਲਾਜ਼ਮੀ ਹਨ । ਇੱਕ ਪ੍ਰਸ਼ਨ 01 ਅੰਕ ਦਾ ਹੋਵੇਗਾ ।

(10X1=10 ਅੰਕ)

ਪਾਠਕ੍ਰਮ ਅਤੇ ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਦੀ ਰੂਪ-ਰੇਖਾ

ਭਾਗ-ੳ

ੳ -ਅੱਖਰ ਗਿਆਨ (ਭਾਗ-ਦੂਜਾ),ਮੁੱਖ ਸੰਪਾ. ਡਾ.ਜਸਵੀਰ ਸਿੰਘ ,ਸੰਪਾ.ਡਾ.ਅਵਤਾਰ ਸਿੰਘ, ਡਾ.ਗੁਰਪ੍ਰੀਤ ਕੌਰ,ਪ੍ਰੋ.ਸੁਖਵਿੰਦਰ ਸਿੰਘ, ਸ੍ਰੀ ਗੁਰੂ ਤੇਗ ਬਹਾਦਰ ਖ਼ਾਲਸਾ ਕਾਲਜ,ਸ੍ਰੀ ਅਨੰਦਪੁਰ ਸਾਹਿਬ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ,ਪੁਸਤਕ ਵਿੱਚੋਂ ਕਹਾਣੀਆਂ ਵਾਲਾ ਭਾਗ

ਭਾਗ-ਅ

ਅ-1.ਨਿੱਜੀ ਚਿੱਠੀ-ਪੱਤਰ

ਅ-2 .ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ

ਅ-3 .ਸੰਬੰਧਕ ਅਤੇ ਯੋਜਕ :ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਕਿਸਮਾਂ

ਭਾਗ-ੲ

ਕਹਾਣੀਆਂ,ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ ਅਤੇ ਵਿਆਕਰਨ ਵਿਚੋਂ ਅਬਜੈਕਟਿਵ ਪ੍ਰਸ਼ਨ

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1.ਬਲਦੇਵ ਸਿੰਘ ਚੀਮਾ, ਪੰਜਾਬੀ ਵਿਆਕਰਨ ਤੇ ਭਾਸ਼ਾ ਵਿਗਿਆਨ,ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ ਦਾ ਵਿਸ਼ਾ ਕੋਸ਼, ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ,2009

2.ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨ ਭਾਗ I,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991

3.ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨ ਭਾਗ II,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991

ਬੀ.ਕਾਮ. ਭਾਗ ਪਹਿਲਾ ,ਸਮੈਸਟਰ ਦੂਜਾ

ਪੇਪਰ-ਪੰਜਾਬੀ ਲਾਜ਼ਮੀ
ਪੇਪਰ ਕੋਡ:BC-2.5A, ਕ੍ਰੈਡਿਟ-02
2020-21,2021-22 ਸੈਸ਼ਨ ਲਈ

ਕੁੱਲ ਅੰਕ:50 ਵਿਸ਼ੇ ਵਿਚੋਂ ਪਾਸ ਹੋਣ ਲਈ ਅੰਕ:17
ਬਾਹਰੀ ਪਰੀਖਿਆ :35 ਅੰਕ ਬਾਹਰੀ ਪਰੀਖਿਆ ਵਿਚੋਂ ਪਾਸ ਹੋਣ ਲਈ ਅੰਕ: 12
ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ :15 ਅੰਕ ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਵਿਚੋਂ ਪਾਸ ਹੋਣ ਲਈ ਅੰਕ:05
ਸਮਾਂ : 3 ਘੰਟੇ ਕੁੱਲ ਲੈਕਚਰ:30

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼:

1.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਸਾਹਿਤ ਪੜ੍ਹਨ ਲਈ ਪ੍ਰੇਰਿਤ ਕਰਨਾ।
2.ਮਾਤ ਭਾਸ਼ਾ ਵਿੱਚ ਉਚੇਰੀ ਸਿੱਖਿਆ ਗ੍ਰਹਿਣ ਕਰਨ ਦੀ ਜਾਗ ਲਾਉਣਾ।
3.ਵਿਆਕਰਨਕ ਪੱਖਾਂ ਨਾਲ ਰਾਬਤਾ ਕਾਇਮ ਕਰਵਾਉਣਾ।
4.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਚਿੱਠੀ-ਪੱਤਰ ਲਿਖਣਾ ਸਿਖਾਉਣਾ।

ਪੇਪਰ ਸੈੱਟਰ ਅਤੇ ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਹਦਾਇਤਾਂ

1.ਭਾਗ-ੳ: ਵਿਚੋਂ ਨਿਬੰਧ ਦਾ ਵਿਸ਼ਾ-ਵਸਤੂ ਜਾਂ ਸਾਰ (ਤਿੰਨ ਵਿਚੋਂ ਇੱਕ)05ਅੰਕ
2.ਭਾਗ-ੳ: ਵਿਚੋਂ ਪੁਸਤਕ ਵਿਚਲੇ ਵਿਚਾਰਾਂ ਸੰਬੰਧੀ ਪ੍ਰਸ਼ਨ (ਪੰਜ ਵਿਚੋਂ ਤਿੰਨ) 2+2+2=06 ਅੰਕ
3.ਭਾਗ-ਅ:1 ਵਿਚੋਂ ਚਿੱਠੀ-ਪੱਤਰ (ਤਿੰਨ ਵਿਚੋਂ ਇੱਕ) 04 ਅੰਕ
4.ਭਾਗ-ਅ:2 ਵਿਚੋਂ ਵਿਆਕਰਨ ਨਾਲ ਸੰਬੰਧਿਤ ਵਰਣਾਤਮਕ ਪ੍ਰਸ਼ਨ (ਦੋ ਵਿਚੋਂ ਇੱਕ) 05ਅੰਕ
5. ਭਾਗ-ੲ ਵਿਚ ਨਿਬੰਧ ਅਤੇ ਵਿਆਕਰਨ ਵਿੱਚੋਂ ਕੁੱਲ 15(8+7) ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਲਾਜ਼ਮੀ ਪ੍ਰਸ਼ਨ।ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਜ਼ਰੂਰੀ ਹਨ ।ਹਰੇਕ ਪ੍ਰਸ਼ਨ 1 ਅੰਕ ਦਾ ਹੋਵੇਗਾ ।15X1=15 ਅੰਕ

ਪਾਠਕ੍ਰਮ ਅਤੇ ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਦੀ ਰੂਪ-ਰੇਖਾ

ਭਾਗ-ੳ

ੳ -ਜੀਵਨ-ਵਿਹਾਰ (ਵਾਰਤਕ-ਸੰਗ੍ਰਹਿ),ਮੁੱਖ ਸੰਪਾ.ਡਾ.ਜਸਵੀਰ ਸਿੰਘ,ਸੰਪਾ.ਡਾ.ਅਵਤਾਰ ਸਿੰਘ , ਡਾ.ਗੁਰਪ੍ਰੀਤ ਕੌਰ,ਪ੍ਰੋ.ਸੁਖਵਿੰਦਰ ਸਿੰਘ,ਸ੍ਰੀ ਗੁਰੂ ਤੇਗ਼ ਬਹਾਦਰ ਖ਼ਾਲਸਾ ਕਾਲਜ, ਸ੍ਰੀ ਅਨੰਦਪੁਰ ਸਾਹਿਬ ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ

ਭਾਗ-ਅ

ਅ-1: ਦਫ਼ਤਰੀ ਚਿੱਠੀ- ਪੱਤਰ
ਅ-2: ਵਿਆਕਰਨ
 (i) ਭਾਸ਼ਾ ਦਾ ਟਕਸਾਲੀ ਰੂਪ
 (ii) ਭਾਸ਼ਾ ਅਤੇ ਉਪਭਾਸ਼ਾ ਦਾ ਅੰਤਰ
 (iii) ਪੂਰਬੀ ਪੰਜਾਬ ਦੀਆਂ ਉਪਭਾਸ਼ਾਵਾਂ ਦੇ ਪਛਾਣ- ਚਿੰਨ੍ਹ
 (iv) ਸ਼ਬਦ :ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਵਰਗੀਕਰਣ

(v) ਵਧੇਤਰ

ਭਾਗ-ੲ

ਨਿਬੰਧ ਅਤੇ ਵਿਆਕਰਨ ਵਿਚੋਂ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਪ੍ਰਸ਼ਨ

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1. ਬੂਟਾ ਸਿੰਘ ਬਰਾੜ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਸ੍ਰੋਤ ਤੇ ਸਰੂਪ,ਵਾਰਿਸ਼ ਸ਼ਾਹ ਫਾਂਊਡੇਸ਼ਨ ਅੰਮ੍ਰਿਤਸਰ,2012
2. ਬੂਟਾ ਸਿੰਘ ਬਰਾੜ, ਪੰਜਾਬੀ ਵਿਆਕਰਨ ਸਿਧਾਂਤ ਅਤੇ ਵਿਹਾਰ,ਚੇਤਨਾ ਪ੍ਰਕਾਸ਼ਨ ,ਲੁਧਿਆਣਾ,2008
3. ਬਲਦੇਵ ਸਿੰਘ ਚੀਮਾ, ਪੰਜਾਬੀ ਵਿਆਕਰਨ ਤੇ ਭਾਸ਼ਾ ਵਿਗਿਆਨ,ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ ਦਾ ਵਿਸ਼ਾ ਕੋਸ਼,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ,2009
4. ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨਕ ਭਾਗ I,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991
5. ਡਾ.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨਕ ਭਾਗ II,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ,1991
6. ਗਿਆਨੀ ਲਾਲ ਸਿੰਘ ਤੇ ਹਰਕੀਰਤ ਸਿੰਘ ,ਕਾਲਜ ਪੰਜਾਬੀ ਵਿਆਕਰਣ ,ਪੰਜਾਬ ਸਟੇਟ ਯੂਨੀ.ਟੈਕਸਟ ਬੁੱਕ ਬੋਰਡ,ਚੰਡੀਗੜ੍ਹ
7. ਸੰਤ ਸਿੰਘ ਸੇਖੋਂ,ਸਾਹਿਤਆਰਥ,ਲਾਹੌਰ ਬੁੱਕ ਸ਼ਾਪ,ਲੁਧਿਆਣਾ
8. ਬਲਵੀਰ ਸਿੰਘ ਦਿਲ, ਪੰਜਾਬੀ ਨਿਬੰਧ :ਸਰੂਪ, ਸਿਧਾਂਤ ਅਤੇ ਵਿਕਾਸ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ, ਪੰਜਾਬੀ,ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।
9. ਖੋਜ ਪੱਤ੍ਰਿਕਾ, ਨਿਬੰਧ ਅੰਕ-29,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ, ਪੰਜਾਬੀ,ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।

ਬੀ.ਕਾਮ. ਭਾਗ ਪਹਿਲਾ , ਸਮੈਸਟਰ ਦੂਜਾ
ਪੇਪਰ-ਪੰਜਾਬੀ ਮੁੱਢਲਾ ਗਿਆਨ
ਪੇਪਰ ਕੋਡ:BC-2.5B, ਕ੍ਰੈਡਿਟ-02
2020-21,2021-22 ਸੈਸ਼ਨ ਲਈ

ਕੁੱਲ ਅੰਕ:50 ਵਿਸ਼ੇ ਵਿਚੋਂ ਪਾਸ ਹੋਣ ਲਈ
ਅੰਕ:17
2ਬਾਹਰੀ ਪਰੀਖਿਆ :35 ਅੰਕ ਬਾਹਰੀ ਪਰੀਖਿਆ ਵਿਚੋਂ ਪਾਸ ਹੋਣ ਲਈ ਅੰਕ:
12
ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ :15 ਅੰਕ ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਵਿਚੋਂ ਪਾਸ ਹੋਣ ਲਈ ਅੰਕ:05
ਸਮਾਂ : 3 ਘੰਟੇ ਕੁੱਲ ਲੈਕਚਰ:30

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼:

1.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਸਾਹਿਤ ਪੜ੍ਹਨ ਲਈ ਪ੍ਰੇਰਿਤ ਕਰਨਾ।
2.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੀ ਜਾਣਕਾਰੀ ਦੇਣਾ।
3.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਪੰਜਾਬੀ ਪੜ੍ਹਨਾ ਅਤੇ ਲਿਖਣਾ ਸਿਖਾਉਣਾ।

ਪੇਪਰ ਸੈੱਟਰ ਅਤੇ ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਹਦਾਇਤਾਂ:

1.ਭਾਗ-ੳ: ਵਿਚੋਂ ਵੱਡੇ ਪ੍ਰਸ਼ਨ (ਦੋ ਵਿਚੋਂ ਇੱਕ)04 ਅੰਕ
2.ਭਾਗ-ੳ ਵਿਚੋਂ ਛੇ ਛੋਟੇ ਪ੍ਰਸ਼ਨ (ਛੇ ਵਿਚੋਂ ਤਿੰਨ) 3+3+3=09
ਅੰਕ
3.ਭਾਗ-ਅ ਵਿਚੋਂ ਵੱਡੇ ਪ੍ਰਸ਼ਨ (ਦੋ ਵਿਚੋਂ ਇੱਕ)04 ਅੰਕ
4.ਭਾਗ-ਅ ਵਿਚੋਂ ਛੇ ਛੋਟੇ ਪ੍ਰਸ਼ਨ (ਛੇ ਵਿਚੋਂ ਤਿੰਨ)
3+3+3=09 ਅੰਕ
5.ਭਾਗ-ੲ ਵਿਚ ਭਾਗ ੳ ਅਤੇ ਭਾਗ ਅ ਵਿਚੋ ਕੁੱਲ 09 ਅਬਜੈਕਟਿਵ ਪ੍ਰਸ਼ਨ।ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਲਾਜ਼ਮੀ ਹਨ । ਹਰੇਕ ਪ੍ਰਸ਼ਨ 01 ਅੰਕ ਦਾ ਹੋਵੇਗਾ ।
(09X1=09 ਅੰਕ)

ਪਾਠਕ੍ਰਮ ਅਤੇ ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਦੀ ਰੂਪ-ਰੇਖਾ

ਭਾਗ-ੳ

ੳ -1.ਵਿਰੋਧੀ ਸ਼ਬਦ,ਸਮਾਨਾਰਥਕ ਸ਼ਬਦ
2.ਲਿੰਗ,ਵਚਨ,ਕਾਲ ਅਤੇ ਪੁਰਖ
3.ਸ਼ਬਦ ਸ਼੍ਰੇਣੀਆਂ(ਨਾਂਵ,ਪੜਨਾਂਵ ਅਤੇ ਕਿਰਿਆ):ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਉਦਾਹਰਣਾਂ
4.ਵਿਸ਼ਰਾਮ ਚਿੰਨ੍ਹਾਂ ਦੀ ਵਰਤੋਂ

ਭਾਗ-ਅ

ਅ -ਲੇਖ ਰਚਨਾ(200 ਸ਼ਬਦਾਂ ਵਿੱਚ):ਮੇਰਾ ਅਧਿਆਪਕ,ਮੇਰਾ ਕਾਲਜ ਅਤੇ ਦੀਵਾਲੀ

2. ਚਿੱਠੀ ਪੱਤਰ:ਫ਼ੀਸ ਮੁਆਫ਼ੀ ਅਤੇ ਬਿਮਾਰੀ ਕਾਰਨ ਛੁੱਟੀ ਲੈਣ ਸੰਬੰਧੀ
3.ਦੇਸੀ ਅਤੇ ਅੰਗਰੇਜ਼ੀ ਮਹੀਨਿਆਂ ਦੇ ਨਾਂ
4. ਇੱਕ ਤੋਂ ਸੌ ਤੱਕ ਗਿਣਤੀ

ਭਾਗ-ੲ

ਭਾਗ ੳ ਅਤੇ ਅ ਵਿਚੋਂ ਅਬਜੈਕਟਿਵ ਪ੍ਰਸ਼ਨ

ਨੋਟ:ਵਿਦਿਆਰਥੀ ਗੁਰਮੁਖੀ ਸਿੱਖ ਰਹੇ ਹਨ।ਇਸ ਲਈ ਵਿਦਿਆਰਥੀਆਂ ਦੇ ਪੱਧਰ ਨੂੰ ਧਿਆਨ ਵਿੱਚ ਰੱਖਦੇ ਹੋਏ ਸਰਲ ਅਤੇ ਸਪੱਸ਼ਟ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣ।

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1.ਸਤਿਨਾਮ ਸਿੰਘ ਸੰਧੂ,ਆਓ ਪੰਜਾਬੀ ਸਿੱਖੀਏ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ,2009
2. ਸਤਿਨਾਮ ਸਿੰਘ ਸੰਧੂ,ਗੁਰਮੁਖੀ ਸਿੱਖੋ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ,2011
3.ਸੀਤਾ ਰਾਮ ਬਾਹਰੀ, ਪੰਜਾਬੀ ਸਿੱਖੀਏ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ,2002
4.ਪੰਜਾਬੀ ਗਿਆਨ ਸੀ.ਡੀ.(ਕੰਪਿਊਟਰ ਐਪਲੀਕੇਸ਼ਨ ਟੂ-ਲਰਨ ਐਂਡ ਟੀਚ ਪੰਜਾਬੀ), ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ
5. ਚਰਨ ਪੁਆਧੀ,ਆਓ ਪੰਜਾਬੀ ਸਿੱਖੀਏ,ਸੰਗਮ ਪਬਲੀਕੇਸ਼ਨ,ਪਟਿਆਲਾ

ਸ੍ਰੀ ਗੁਰੂ ਤੇਗ਼ ਬਹਾਦਰ ਖ਼ਾਲਸਾ ਕਾਲਜ, ਸ੍ਰੀ ਅਨੰਦਪੁਰ ਸਾਹਿਬ

(ਆਟੋਨੌਮਸ ਕਾਲਜ)

ਪੋਸਟ ਗ੍ਰੈਜੂਏਟ ਪੰਜਾਬੀ ਵਿਭਾਗ

ਸਿਲੇਬਸ

ਐਮ.ਏ.ਪੰਜਾਬੀ,ਭਾਗ–ਦੂਜਾ ,ਸਮੈਸਟਰ–ਤੀਜਾ

ਐਮ.ਏ.ਪੰਜਾਬੀ,ਭਾਗ–ਦੂਜਾ

ਸਮੈਸਟਰ–ਤੀਜਾ				
ਪੇਪਰ	ਵਿਸ਼ਾ	ਲਿਖਤੀ / ਪ੍ਰੈਕਟੀਕਲ ਪ੍ਰੀਖਿਆ ਦੇ ਅੰਕ	ਪੇਪਰ ਕੋਡ	ਕ੍ਰੈਡਿਟ
ਕੋਰ ਪੇਪਰ ਪਹਿਲਾ	ਭਾਸ਼ਾ ਵਿਗਿਆਨ ਅਤੇ ਪੰਜਾਬੀ ਭਾਸ਼ਾ	40L+16P	PUN-301	05(04L+01P)

ਕੋਰ ਪੇਪਰ ਦੂਜਾ	ਸਭਿਆਚਾਰ ਅਤੇ ਪੰਜਾਬੀ ਸਭਿਆਚਾਰ	56	PUN-302	05
ਇਲੈਕਟਿਵ ਕੋਰਸ ਤੀਜਾ	ਗੁਰਮਤਿ ਕਾਵਿ(ਆਪਸ਼ਨ-1) ਸ੍ਰੀ ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਜੀ ਵਿਸ਼ੇਸ਼ ਅਧਿਐਨ(ਆਪਸ਼ਨ-2)	40L+16P	PUN-303A (I) PUN-303B(II)	05(04L+01P)
ਇਲੈਕਟਿਵ ਕੋਰਸ ਚੌਥਾ	ਪੰਜਾਬੀ ਵਾਰਤਕ	56	PUN-304	05
ਇਲੈਕਟਿਵ ਕੋਰਸ ਪੰਜਵਾਂ	ਸੂਫ਼ੀ ਅਤੇ ਬੀਰ ਕਾਵਿ	56	PUN-305	05

ਨੋਟ: ਐਮ.ਏ. ਭਾਗ ਦੂਜਾ ਦੇ ਕੋਰਸ ਦਾ ਹਰੇਕ ਪੇਪਰ 80 ਅੰਕਾਂ ਦਾ ਹੋਵੇਗਾ ,ਪਾਸ ਅੰਕ 28 ਹੋਣਗੇ।ਹਰੇਕ ਪੇਪਰ ਵਿਚ 24 ਨੰਬਰਾਂ ਦਾ ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਹੋਵੇਗਾ।ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਦੀ ਵੰਡ ਦਾ ਵੇਰਵਾ ਹੇਠ ਲਿਖੇ ਅਨੁਸਾਰ ਹੋਵੇਗਾ:

1.ਐਮ.ਐਸ.ਟੀ.(I&II) –25%+25%=50%ਅੰਕ
2.ਅਸਾਈਨਮੈਂਟ / ਸੈਮੀਨਾਰ –35% ਅੰਕ
3.ਕਲਾਸ ਵਿੱਚ ਹਾਜ਼ਰੀ – 15% ਅੰਕ

ਐਮ.ਏ.ਪੰਜਾਬੀ ਕੋਰਸ ਦੇ ਉਦੇਸ਼

1. ਪੰਜਾਬੀ ਭਾਸ਼ਾ,ਸਾਹਿਤ ਅਤੇ ਸਭਿਆਚਾਰ ਬਾਰੇ ਸਰਬਪੱਖੀ ਗਿਆਨ ਪ੍ਰਦਾਨ ਕਰਨਾ।
2. ਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ ਉਚੇਰੀ ਖੋਜ ਲਈ ਸਿਰਜਣਾਤਮਕ ਅਤੇ ਆਲੋਚਨਾਤਮਕ ਨਜ਼ਰੀਆ ਪੈਦਾ ਕਰਨਾ।
3. ਰਾਸ਼ਟਰੀ ਪ੍ਰਤੀਯੋਗਤਾ ਵਾਲੇ ਇਮਤਿਹਾਨਾਂ ਜਿਵੇਂ ਯੂ. ਜੀ. ਸੀ. , ਆਈ. ਏ. ਐਸ, ਆਈ. ਪੀ.ਐਸ. , ਪੀ.ਸੀ.ਐਸ. ਆਦਿ ’ਚ ਸਫ਼ਲਤਾ ਨੂੰ ਆਸਾਨ ਬਣਾਉਣਾ।
4. ਅਧਿਆਪਕ ,ਅਨੁਵਾਦਕ ,ਪਰੂਫ਼ ਰੀਡਰ,ਪੱਤਰਕਾਰ,ਐਂਕਰ ਆਦਿ ਵਿਵਸਾਇਕ ਕਿੱਤਿਆਂ ’ਚ ਰੁਜ਼ਗਾਰ ਲਈ ਤਿਆਰ ਕਰਨਾ।

ਐਮ.ਏ. (ਪੰਜਾਬੀ), ਭਾਗ ਦੂਜਾ ,ਸਮੈਸਟਰ ਤੀਜਾ
ਕੋਰ ਕੋਰਸ ਪਹਿਲਾ- ਭਾਸ਼ਾ ਵਿਗਿਆਨ ਅਤੇ ਪੰਜਾਬੀ ਭਾਸ਼ਾ
ਪੇਪਰ ਕੋਡ:PUN-301, ਕ੍ਰੈਡਿਟ-05(04L+01P)
2020-21,2021-22 ਸੈਸ਼ਨ ਲਈ

ਕੁੱਲ ਅੰਕ 80 ਪਾਸ ਅੰਕ : 28
ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ : 24 ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਵਿਚੋਂ ਪਾਸ ਅੰਕ : 08

ਬਾਹਰੀ ਪ੍ਰੀਖਿਆ : 40 ਬਾਹਰੀ ਪ੍ਰੀਖਿਆ ਵਿਚੋਂ ਪਾਸ ਅੰਕ : 14

ਪ੍ਰੀਖਿਆ ਦਾ ਸਮਾਂ : 3 ਘੰਟੇ ਕੁੱਲ ਲੈਕਚਰ:60

ਨੋਟ:ਕੁੱਲ 80 ਅੰਕਾਂ ਵਿਚ ਪ੍ਰੈਕਟੀਕਲ ਦੇ 16 ਅੰਕ ਵੀ ਸ਼ਾਮਿਲ ਹਨ।

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼ :

1. ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਭਾਸ਼ਾ ਵਿਗਿਆਨ ਅਤੇ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੇ ਇਤਿਹਾਸਕ ਸਫ਼ਰ ਬਾਰੇ ਗਿਆਨ ਦੇਣਾ।
2. ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਨੂੰ ਭਵਿੱਖ ਵਿੱਚ ਆਉਣ ਵਾਲੀਆਂ ਦਰਪੇਸ਼ ਚੁਣੌਤੀਆਂ ਬਾਰੇ ਜਾਗਰੂਕ ਕਰਨਾ ।
3. ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਭਾਸ਼ਾ ਵਿਗਿਆਨ ਅਤੇ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੇ ਬਹੁਪੱਖਾਂ ਬਾਰੇ ਜਾਣਕਾਰੀ ਦੇਣਾ।
4. ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਸਾਹਿਤ ਸਿਰਜਨਾ ਲਈ ਪ੍ਰੇਰਿਤ ਕਰਨਾ ।

ਪੇਪਰ ਸੈੱਟਰ ਲਈ ਹਦਾਇਤਾਂ

1. ਸਾਰੇ ਸਿਲੇਬਸ ਵਿਚੋਂ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣ। ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਨੂੰ ਤਿੰਨ ਭਾਗਾਂ(ੳ,ਅ, ਅਤੇ ੲ) ਵਿਚ ਵੰਡਿਆ ਜਾਵੇ।ਭਾਗ ੳ ਅਤੇ ਅ ਦੇ ਹਰੇਕ ਉਪ-ਭਾਗ (ੳ-1,ੳ-2 ਅਤੇ ਅ-1,ਅ-2)ਵਿਚੋਂ ਦੋ-ਦੋ ਪ੍ਰਸ਼ਨ,ਕੁੱਲ ਅੱਠ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣ,ਜਿਨ੍ਹਾਂ ਵਿਚੋਂ ਵਿਦਿਆਰਥੀਆਂ ਨੇ ਹਰੇਕ ਉਪ-ਭਾਗ ਵਿਚੋਂ ਇਕ-ਇਕ ਪ੍ਰਸ਼ਨ ,ਭਾਵ ਕੁੱਲ ਚਾਰ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹੋਣਗੇ।ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 06 ਅੰਕ ਹੋਣਗੇ। ਇਸ ਤਰ੍ਹਾਂ ਭਾਗ ੳ ਅਤੇ ਅ ਦੇ ਉਪ-ਭਾਗਾਂ ਦੇ ਕੁੱਲ 24 ਅੰਕ ਹੋਣਗੇ।
2. ਤੀਜੇ ਭਾਗ (ਭਾਗ-ੲ) ਵਿਚ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ 08 ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ। ਪ੍ਰੀਖਿਆਰਥੀ ਨੇ ਸਾਰੇ ਪ੍ਰਸ਼ਨਾਂ ਦਾ ਉੱਤਰ ਦੇਣਾ ਹੋਵੇਗਾ। ਇਸ ਭਾਗ ਦੇ ਪ੍ਰਸ਼ਨਾਂ ਦਾ ਉੱਤਰ 5-6 ਸਤਰਾਂ ਵਿਚ ਦੇਣਾ ਹੋਵੇਗਾ। ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 2 ਅੰਕ ਹੋਣਗੇ। ਇਸ ਭਾਗ ਦੇ ਕੁੱਲ 16 ਅੰਕ ਹੋਣਗੇ।
3. ਸਾਰੇ ਭਾਗਾਂ ਵਿਚੋਂ ਪ੍ਰਸ਼ਨ ਇਸ ਢੰਗ ਨਾਲ ਪੁੱਛੇ ਜਾਣ ਕਿ ਸਿਲੇਬਸ ਦੇ ਸਾਰੇ ਪੱਖਾਂ ਸੰਬੰਧੀ ਪ੍ਰੀਖਿਆਰਥੀ ਵਲੋਂ ਕੀਤੇ ਅਧਿਐਨ ਨੂੰ ਪਰਖਿਆ ਜਾ ਸਕੇ ਅਤੇ ਇਹ ਵੀ ਪਰਖਿਆ ਜਾ ਸਕੇ ਕਿ ਉਸਨੇ ਸਮੁੱਚੇ ਸਿਲੇਬਸ ਦਾ ਅਧਿਐਨ ਕੀਤਾ ਹੈ। ਤੀਜੇ ਭਾਗ (ਭਾਗ-ੲ) ਦੇ ਲਾਜ਼ਮੀ ਪ੍ਰਸ਼ਨ ਦੇ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਸਾਰੇ 08 ਪ੍ਰਸ਼ਨ ਇਸ ਢੰਗ ਨਾਲ ਪੁੱਛੇ ਜਾਣ ਕਿ ਪੇਪਰ ਨਾਲ ਸੰਬੰਧਿਤ ਸਿਲੇਬਸ ਦੇ ਨਿਕਟ ਅਤੇ ਪਾਠ-ਮੂਲਕ ਅਧਿਐਨ ਨੂੰ ਪਰਖਿਆ ਜਾ ਸਕੇ।
4. ਪ੍ਰਸ਼ਨਾਂ ਦੀ ਭਾਸ਼ਾ ਸਰਲ, ਸਪੱਸ਼ਟ ਅਤੇ ਪ੍ਰੀਖਿਆਰਥੀ ਦੀ ਬੌਧਿਕ ਪੱਧਰ ਦੇ ਅਨੁਕੂਲ ਹੋਣੀ ਚਾਹੀਦੀ ਹੈ।
5. ਪ੍ਰਸ਼ਨ ਅਜਿਹੇ ਹੋਣ ਜਿਹੜੇ ਨਿਰਧਾਰਿਤ ਸਮੇਂ ਵਿਚ ਸਹਿਜੇ ਹੀ ਹੱਲ ਕੀਤੇ ਜਾ ਸਕਣ।

ਪ੍ਰੀਖਿਆਰਥੀਆਂ ਲਈ ਹਦਾਇਤਾਂ

1. ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਨੂੰ ਤਿੰਨ ਭਾਗਾਂ(ੳ,ਅ, ਅਤੇ ੲ) ਵਿਚ ਵੰਡਿਆ ਜਾਵੇਗਾ।ਭਾਗ ੳ ਅਤੇ ਅ ਦੇ ਹਰੇਕ ਉਪ-ਭਾਗ (ੳ-1,ੳ-2 ਅਤੇ ਅ-1,ਅ-2)ਵਿਚੋਂ ਦੋ-ਦੋ ਪ੍ਰਸ਼ਨ,ਕੁੱਲ ਅੱਠ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ,ਜਿਨ੍ਹਾਂ ਵਿਚੋਂ ਪ੍ਰੀਖਿਆਰਥੀ ਨੇ ਹਰੇਕ ਉਪ-ਭਾਗ ਵਿਚੋਂ ਇਕ-ਇਕ ਪ੍ਰਸ਼ਨ ,ਭਾਵ ਕੁੱਲ ਚਾਰ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹੋਣਗੇ।ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 06 ਅੰਕ ਹੋਣਗੇ। ਇਸ ਤਰ੍ਹਾਂ ਭਾਗ ੳ ਅਤੇ ਅ ਦੇ ਉਪ-ਭਾਗਾਂ ਦੇ ਕੁੱਲ 24 ਅੰਕ ਹੋਣਗੇ।ਹਰ ਉਪ-ਭਾਗ ਵਿੱਚੋਂ ਇੱਕ ਪ੍ਰਸ਼ਨ ਕਰਨਾ ਲਾਜ਼ਮੀ ਹੋਵੇਗਾ।
2. ਤੀਜੇ ਭਾਗ (ਭਾਗ-ੲ) ਦੇ ਸਾਰੇ 08 ਪ੍ਰਸ਼ਨ ਲਾਜ਼ਮੀ ਹਨ। ਸਾਰੇ ਪ੍ਰਸ਼ਨਾਂ ਦਾ ਸੰਖੇਪ ਉੱਤਰ ਦੇਣਾ ਹੈ।ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 2 ਅੰਕ ਹਨ।
3. ਉੱਤਰ ਪ੍ਰਸ਼ਨ ਨੂੰ ਧਿਆਨ ਵਿਚ ਰੱਖ ਕੇ ਪ੍ਰਸ਼ਨ ਦੀ ਸੀਮਾ ਵਿਚ ਰਹਿ ਕੇ ਦਿੱਤੇ ਜਾਣ।

ਪਾਠਕ੍ਰਮ ਅਤੇ ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਦੀ ਰੂਪ-ਰੇਖਾ

ਭਾਗ-ੳ

ੳ-I.ਭਾਸ਼ਾ ਅਤੇ ਭਾਸ਼ਾ ਵਿਗਿਆਨ:

1.ਭਾਸ਼ਾ ਦੀ ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਵਿਸ਼ੇਸ਼ਤਾਵਾਂ
2.ਭਾਸ਼ਾ ਵਿਗਿਆਨ :ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਅਧਿਐਨ ਖੇਤਰ
3.ਭਾਸ਼ਾ ਵਿਗਿਆਨ ਅਤੇ ਹੋਰ ਖੇਤਰ
4.ਭਾਸ਼ਾ ਅਤੇ ਉਪਭਾਸ਼ਾ :ਅੰਤਰ–ਸੰਬੰਧ

ੳ–II. ਸੋਸਿਊਰ ਦੇ ਭਾਸ਼ਾਈ ਸੰਕਲਪ:

1.ਭਾਸ਼ਾ ਅਤੇ ਉਚਾਰ
2.ਚਿੰਨ੍ਹ,ਚਿੰਨ੍ਹਕ ਅਤੇ ਚਿੰਨ੍ਹਤ
3.ਇਕਾਲਕ ਅਤੇ ਦੁਕਾਲਕ
4.ਕੜੀਦਾਰ ਅਤੇ ਲੜੀਦਾਰ

ਭਾਗ–ਅ

ਅ–I . ਰੂਪਾਂਤਰੀ ਵਿਗਿਆਨ:

1.ਸਮਰੱਥਾ ਅਤੇ ਨਿਭਾਉ
2.ਗਹਿਨ ਅਤੇ ਸਤਹੀ ਬਣਤਰ
3.ਵਾਕੰਸ਼ ਉਸਾਰੀ ਵਿਆਕਰਨ

ਅ–II. ਪੰਜਾਬੀ ਭਾਸ਼ਾ:

1.ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਨਿਕਾਸ ਅਤੇ ਵਿਕਾਸ
2.ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੀਆਂ ਵਿਸ਼ੇਸ਼ਤਾਵਾਂ
3.ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਉੱਤੇ ਵਿਸ਼ਵੀਕਰਨ ਦਾ ਪ੍ਰਭਾਵ

ਭਾਗ–ੲ

ਉਪਰੋਕਤ ਸਿਲੇਬਸ'ਤੇ ਆਧਾਰਿਤ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ 10 ਪ੍ਰਸ਼ਨ

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1.ਅਗਨੀਹੋਤਰੀ ਵੇਦ,ਪਰਿਚਾਇਕ ਭਾਸ਼ਾ ਵਿਗਿਆਨ,ਦੀਪਕ ਪਬਲਿਸ਼ਰਜ਼,ਜਲੰਧਰ।
2.ਹਰਕੀਰਤ ਸਿੰਘ,ਭਾਸ਼ਾ ਵਿਗਿਆਨ ਅਤੇ ਪੰਜਾਬੀ ਭਾਸ਼ਾ,ਬਾਹਰੀ ਪਬਲਿਸ਼ਰਜ਼,ਦਿੱਲੀ।
3.ਹਰਕੀਰਤ ਸਿੰਘ,ਰੂਪਾਂਤਰੀ ਵਿਆਕਰਨ,ਪੰਜਾਬ ਸਟੇਟ ਟੈਕਸਟ ਬੁੱਕ ਬੋਰਡ,ਚੰਡੀਗੜ੍ਹ।
4.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ,ਭਾਸ਼ਾ ਵਿਗਿਆਨ :ਸੰਕਲਪ ਤੇ ਦਿਸ਼ਾਵਾਂ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ।
5.ਬਲਦੇਵ ਸਿੰਘ ਚੀਮਾ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਵਿਗਿਆਨ ਅਤੇ ਵਿਆਕਰਨ(ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ ਦਾ ਵਿਸ਼ਾ ਕੋਸ਼) ,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।
6.ਬੂਟਾ ਸਿੰਘ ਬਰਾੜ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ:ਸ੍ਰੋਤ ਤੇ ਸਰੂਪ,ਵਾਰਿਸ ਸ਼ਾਹ ਫਾਊਂਡੇਸ਼ਨ,ਅੰਮ੍ਰਿਤਸਰ।

7.ਬੂਟਾ ਸਿੰਘ ਬਰਾੜ,ਪੰਜਾਬੀ ਵਿਆਕਰਨ:ਸਿਧਾਂਤ ਤੇ ਵਿਹਾਰ,ਚੇਤਨਾ ਪ੍ਰਕਾਸ਼ਨ,ਲੁਧਿਆਣਾ।

8.ਪ੍ਰੇਮ ਪ੍ਰਕਾਸ਼ ਸਿੰਘ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਸ੍ਰੋਤ ਤੇ ਬਣਤਰ,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।

9.ਦੁਨੀ ਚੰਦ੍ਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਕਾਸ,ਪੰਜਾਬ ਯੂਨੀਵਰਸਿਟੀ,ਚੰਡੀਗੜ੍ਹ।

10.ਸੁਖਵਿੰਦਰ ਸਿੰਘ ਸੰਘਾ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਵਿਗਿਆਨ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ।

12.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨ(I,II,III)ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ।

13.ਹਰਕੀਰਤ ਸਿੰਘ,ਸਾਡੀ ਭਾਸ਼ਾ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।

14.ਭੁਪਿੰਦਰ ਸਿੰਘ ਖਹਿਰਾ,ਨਵੀਨ ਭਾਸ਼ਾ ਵਿਗਿਆਨ,ਪੈਪਸੂ ਬੁੱਕ ਡਿਪੂ,ਪਟਿਆਲਾ।

15.ਖੋਜ ਪਤ੍ਰਿਕਾ,ਭਾਸ਼ਾ ਤੇ ਵਿਆਕਰਨ–ਵਿਸ਼ੇਸ਼ ਅੰਕ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।

16. ਡਾ. ਜਗਜੀਤ ਸਿੰਘ,ਪੰਜਾਬੀ ਵਿਆਕਰਨ:ਸ਼੍ਰੇਣੀਆ ਅਤੇ ਇਕਾਈਆ,ਨਿਊ ਬੁੱਕ ਕੰਪਨੀ,ਚੰਡੀਗੜ੍ਹ।

17. ਗਿਆਨੀ ਲਾਲ ਸਿੰਘ ਤੇ ਹਰਕੀਰਤ ਸਿੰਘ ,ਕਾਲਜ ਪੰਜਾਬੀ ਵਿਆਕਰਣ ,ਪੰਜਾਬ ਸਟੇਟ ਯੂਨੀ.ਟੈਕਸਟ ਬੁੱਕ ਬੋਰਡ,ਚੰਡੀਗੜ੍ਹ।

18.ਆਲੋਚਨਾ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਵਿਸ਼ੇਸ਼ ਅੰਕ,ਸਾਜਿਤ ਅਕਾਦਮੀ ,ਲੁਧਿਆਣਾ।

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ਕੋਰ ਕੋਰਸ ਪਹਿਲਾ– ਭਾਸ਼ਾ ਵਿਗਿਆਨ ਅਤੇ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਪ੍ਰੈਕਟੀਕਲ
ਪੇਪਰ ਕੋਡ:PUN-301,ਕ੍ਰੈਡਿਟ–01
2020–21,2021–22 ਸੈਸ਼ਨ ਲਈ

ਕੁੱਲ ਅੰਕ :16 ਪਾਸ ਅੰਕ : 06

ਨੋਟ:ਅੰਦਰੂਨੀ ਵਿਸ਼ੇਸ਼ਗ ਦੁਆਰਾ ਮੁਲਾਂਕਣ ਕੀਤਾ ਜਾਵੇਗਾ।

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼

1.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਆਧੁਨਿਕ ਯੁੱਗ ਦੇ ਹਾਣੀ ਬਣਾਉਣਾ।
2.ਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ ਬਾਕੀ ਭਾਸ਼ਾਵਾਂ ਅਤੇ ਲਿਪੀਆਂ ਨੂੰ ਜਾਣਨ ਲਈ ਰੁਚੀ ਪੈਦਾ ਕਰਨਾ।
3.ਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ ਤਕਨਾਲੋਜੀ ਦੀ ਵਰਤੋਂ ਕਰਨ ਦੀ ਦਿਲਚਸਪੀ ਪੈਦਾ ਕਰਨਾ।

ਪਾਠਕ੍ਰਮ:
ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਲਈ ਅੱਖਰ ਸਾਫ਼ਟਵੇਅਰ ਦੀ ਵਰਤੋਂ

ਐਮ.ਏ. (ਪੰਜਾਬੀ), ਭਾਗ ਦੂਜਾ ,ਸਮੈਸਟਰ ਤੀਜਾ
ਕੋਰ ਕੋਰਸ ਦੂਜਾ -ਸਭਿਆਚਾਰ ਅਤੇ ਪੰਜਾਬੀ ਸਭਿਆਚਾਰ
ਪੇਪਰ ਕੋਡ:**PUN-302**,ਕ੍ਰੈਡਿਟ-05
2020-21,2021-22 ਸੈਸ਼ਨ ਲਈ

ਕੁੱਲ ਅੰਕ 80	ਪਾਸ ਅੰਕ : 28
ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ : 24	ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਵਿਚੋਂ ਪਾਸ ਅੰਕ : 08
ਬਾਹਰੀ ਪ੍ਰੀਖਿਆ : 56	ਬਾਹਰੀ ਪ੍ਰੀਖਿਆ ਵਿਚੋਂ ਪਾਸ ਅੰਕ : 20
ਪ੍ਰੀਖਿਆ ਦਾ ਸਮਾਂ : 3 ਘੰਟੇ	ਕੁੱਲ ਲੈਕਚਰ: 75

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼

1. ਸਭਿਆਚਾਰ ਦੇ ਸੰਕਲਪ ਬਾਰੇ ਜਾਣਕਾਰੀ ਦੇਣਾ।
2. ਪੰਜਾਬੀ ਸਭਿਆਚਾਰ ਦੇ ਨਿਵੇਕਲੇ ਅਤੇ ਵਿਲੱਖਣ ਸੁਭਾਅ ਤੋਂ ਜਾਣੂ ਕਰਵਾਉਣਾ।
3. ਸਭਿਆਚਾਰ ਨਾਲ ਸੰਬੰਧਿਤ ਅਨੁਸ਼ਾਸ਼ਨਾਂ ਬਾਰੇ ਜਾਣਕਾਰੀ ਦੇਣਾ।

ਪੇਪਰ ਸੈੱਟਰ ਲਈ ਹਦਾਇਤਾਂ

1. ਸਾਰੇ ਸਿਲੇਬਸ ਵਿਚੋਂ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣ। ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਨੂੰ ਤਿੰਨ ਭਾਗਾਂ(ੳ,ਅ, ਅਤੇ ੲ) ਵਿਚ ਵੰਡਿਆ ਜਾਵੇ।ਭਾਗ ੳ ਅਤੇ ਅ ਦੇ ਹਰੇਕ ਉਪ-ਭਾਗ (ੳ-1,ੳ-2 ਅਤੇ ਅ-1,ਅ-2)ਵਿਚੋਂ ਦੋ-ਦੋਪ੍ਰਸ਼ਨ,ਕੁੱਲ ਅੱਠ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣ,ਜਿਨ੍ਹਾਂ ਵਿਚੋਂ ਵਿਦਿਆਰਥੀਆਂ ਨੇ ਹਰੇਕ ਉਪ-ਭਾਗ ਵਿਚੋਂ ਇਕ-ਇਕ ਪ੍ਰਸ਼ਨ ,ਭਾਵ ਕੁੱਲ ਚਾਰ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹੋਣਗੇ।ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 09 ਅੰਕ ਹੋਣਗੇ। ਇਸ ਤਰ੍ਹਾਂ ਭਾਗ ੳ ਅਤੇ ਅ ਦੇ ਉਪ-ਭਾਗਾਂ ਦੇ ਕੁੱਲ 36 ਅੰਕ ਹੋਣਗੇ।
2. ਤੀਜੇ ਭਾਗ (ਭਾਗ-ੲ) ਵਿਚ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ 10 ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ। ਪ੍ਰੀਖਿਆਰਥੀ ਨੇ ਸਾਰੇ ਪ੍ਰਸ਼ਨਾਂ ਦਾ ਉੱਤਰ ਦੇਣਾ ਹੋਵੇਗਾ। ਇਸ ਭਾਗ ਦੇ ਪ੍ਰਸ਼ਨਾਂ ਦਾ ਉੱਤਰ 5-6 ਸਤਰਾਂ ਵਿਚ ਦੇਣਾ ਹੋਵੇਗਾ। ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 2 ਅੰਕ ਹੋਣਗੇ। ਇਸ ਭਾਗ ਦੇ ਕੁੱਲ 20 ਅੰਕ ਹੋਣਗੇ।
3. ਸਾਰੇ ਭਾਗਾਂ ਵਿਚੋਂ ਪ੍ਰਸ਼ਨ ਇਸ ਢੰਗ ਨਾਲ ਪੁੱਛੇ ਜਾਣ ਕਿ ਸਿਲੇਬਸ ਦੇ ਸਾਰੇ ਪੱਖਾਂ ਸੰਬੰਧੀ ਪ੍ਰੀਖਿਆਰਥੀ ਵਲੋਂ ਕੀਤੇ ਅਧਿਐਨ ਨੂੰ ਪਰਖਿਆ ਜਾ ਸਕੇ ਅਤੇ ਇਹ ਵੀ ਪਰਖਿਆ ਜਾ ਸਕੇ ਕਿ ਉਸਨੇ ਸਮੁੱਚੇ ਸਿਲੇਬਸ ਦਾ ਅਧਿਐਨ ਕੀਤਾ ਹੈ। ਤੀਜੇ ਭਾਗ (ਭਾਗ-ੲ) ਦੇ ਲਾਜ਼ਮੀ ਪ੍ਰਸ਼ਨ ਦੇ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਸਾਰੇ 10 ਪ੍ਰਸ਼ਨ ਇਸ ਢੰਗ ਨਾਲ ਪੁੱਛੇ ਜਾਣ ਕਿ ਪੇਪਰ ਨਾਲ ਸੰਬੰਧਿਤ ਸਿਲੇਬਸ ਦੇ ਨਿਕਟ ਅਤੇ ਪਾਠ-ਮੂਲਕ ਅਧਿਐਨ ਨੂੰ ਪਰਖਿਆ ਜਾ ਸਕੇ।

4.ਪ੍ਰਸ਼ਨਾਂ ਦੀ ਭਾਸ਼ਾ ਸਰਲ, ਸਪੱਸ਼ਟ ਅਤੇ ਪ੍ਰੀਖਿਆਰਥੀ ਦੀ ਬੌਧਿਕ ਪੱਧਰ ਦੇ ਅਨੁਕੂਲ ਹੋਣੀ ਚਾਹੀਦੀ ਹੈ।

5.ਪ੍ਰਸ਼ਨ ਅਜਿਹੇ ਹੋਣ ਜਿਹੜੇ ਨਿਰਧਾਰਿਤ ਸਮੇਂ ਵਿਚ ਸਹਿਜੇ ਹੀ ਹੱਲ ਕੀਤੇ ਜਾ ਸਕਣ।

ਪ੍ਰੀਖਿਆਰਥੀਆਂ ਲਈ ਹਦਾਇਤਾਂ

1. ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਨੂੰ ਤਿੰਨ ਭਾਗਾਂ(ੳ,ਅ, ਅਤੇ ੲ) ਵਿਚ ਵੰਡਿਆ ਜਾਵੇਗਾ।ਭਾਗ ੳ ਅਤੇ ਅ ਦੇ ਹਰੇਕ ਉਪ-ਭਾਗ (ੳ-1,ੳ-2 ਅਤੇ ਅ-1,ਅ-2)ਵਿਚੋਂ ਦੋ-ਦੋ ਪ੍ਰਸ਼ਨ,ਕੁੱਲ ਅੱਠ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ,ਜਿਨ੍ਹਾਂ ਵਿਚੋਂ ਪ੍ਰੀਖਿਆਰਥੀ ਨੇ ਹਰੇਕ ਉਪ-ਭਾਗ ਵਿਚੋਂ ਇਕ-ਇਕ ਪ੍ਰਸ਼ਨ ,ਭਾਵ ਕੁੱਲ ਚਾਰ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹੋਣਗੇ।ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 09 ਅੰਕ ਹੋਣਗੇ। ਇਸ ਤਰ੍ਹਾਂ ਭਾਗ ੳ ਅਤੇ ਅ ਦੇ ਉਪ-ਭਾਗਾਂ ਦੇ ਕੁੱਲ 36 ਅੰਕ ਹੋਣਗੇ।ਹਰ ਉਪ-ਭਾਗ ਵਿੱਚੋਂ ਇੱਕ ਪ੍ਰਸ਼ਨ ਕਰਨਾ ਲਾਜ਼ਮੀ ਹੋਵੇਗਾ।
2. ਤੀਜੇ ਭਾਗ (ਭਾਗ-ੲ) ਦੇ ਸਾਰੇ 10 ਪ੍ਰਸ਼ਨ ਲਾਜ਼ਮੀ ਹਨ। ਸਾਰੇ ਪ੍ਰਸ਼ਨਾਂ ਦਾ ਸੰਖੇਪ ਉੱਤਰ ਦੇਣਾ ਹੈ।ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 2 ਅੰਕ ਹਨ।
3. ਉੱਤਰ ਪ੍ਰਸ਼ਨ ਨੂੰ ਧਿਆਨ ਵਿਚ ਰੱਖ ਕੇ ਪ੍ਰਸ਼ਨ ਦੀ ਸੀਮਾ ਵਿਚ ਰਹਿ ਕੇ ਦਿੱਤੇ ਜਾਣ।

ਪਾਠਕ੍ਰਮ ਅਤੇ ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਦੀ ਰੂਪ-ਰੇਖਾ

ਭਾਗ-ੳ

ੳ-I.ਸਭਿਆਚਾਰ:ਸਿਧਾਂਤਕ ਪੱਖ

1.ਸਭਿਆਚਾਰ ਦੀ ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਲੱਛਣ
2.ਸਭਿਆਚਾਰ ਦੇ ਅੰਗ
3.ਸਭਿਆਚਾਰਕ ਰੂਪਾਂਤਰਣ

ੳ-II.ਸਭਿਆਚਾਰ ਅਤੇ ਹੋਰ ਖੇਤਰ:

1.ਸਭਿਆਚਾਰ ਅਤੇ ਸਾਹਿਤ
2.ਸਭਿਆਚਾਰ ਅਤੇ ਲੋਕਧਾਰਾ
3.ਸਭਿਆਚਾਰ ਅਤੇ ਭਾਸ਼ਾ
4.ਸਭਿਆਚਾਰ ਅਤੇ ਪੰਜਾਬੀ ਮੀਡੀਆ

ਭਾਗ-ਅ

ਅ-I.ਪੰਜਾਬੀ ਸਭਿਆਚਾਰ :ਇਤਿਹਾਸਕ ਪਰਿਪੇਖ
    1.ਪੰਜਾਬੀ ਸਭਿਆਚਾਰ ਦੀ ਭੂਗੋਲਿਕ ਰੂਪ-ਰੇਖਾ
    2.ਪੰਜਾਬੀ ਸਭਿਆਚਾਰ ਦੇ ਮੂਲ ਸੋਮੇ
    3.ਪੰਜਾਬੀ ਸਭਿਆਚਾਰ ਦਾ ਬਦਲਦਾ ਮੁਹਾਂਦਰਾ:ਵਿਸ਼ਵੀਕਰਨ ਦੇ ਪਰਿਪੇਖ ਵਿਚ
    4.ਪੰਜਾਬੀ ਸਭਿਆਚਾਰ ਦੇ ਨਿਖੜਵੇਂ ਲੱਛਣ
ਅ-II. ਪੰਜਾਬੀ ਸਭਿਆਚਾਰ ਦੀ ਬਣਤਰ:
    1.ਪਹਿਰਾਵਾ
    2.ਪਰਿਵਾਰ ਅਤੇ ਵਿਆਹ
    3.ਰਿਸ਼ਤਾ-ਨਾਤਾ ਪ੍ਰਬੰਧ
    4.ਪੰਜਾਬ,ਪੰਜਾਬੀ ਅਤੇ ਪੰਜਾਬੀਅਤ

ਭਾਗ-ੲ

ਉਪਰੋਕਤ ਸਿਲੇਬਸ’ਤੇ ਆਧਾਰਿਤ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ 10 ਪ੍ਰਸ਼ਨ

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1.ਡਾ.ਵਣਜਾਰਾ ਬੇਦੀ,ਲੋਕਧਾਰਾ ਵਿਸ਼ਵਕੋਸ਼(ਜਿਲਦ ਪਹਿਲੀ ਤੋਂ ਅੱਠਵੀਂ ਤੱਕ),ਨੈਸ਼ਨਲ ਬੁੱਕ ਸ਼ਾਪ,ਨਵੀਂ ਦਿੱਲੀ।
2.ਡਾ.ਵਣਜਾਰਾ ਬੇਦੀ,ਮੱਧਕਾਲੀਨ ਪੰਜਾਬੀ ਕਥਾ:ਰੂਪ ਤੇ ਪਰੰਪਰਾ,ਪਰੰਪਰਾ ਪ੍ਰਕਾਸ਼ਨ,ਨਵੀਂ ਦਿੱਲੀ।
3.ਡਾ.ਵਣਜਾਰਾ ਬੇਦੀ,ਬਾਤਾਂ ਮੁੱਢ ਕਦੀਮ ਦੀਆਂ,ਨਵਯੁਗ ਪ੍ਰੈਸ,ਨਵੀਂ ਦਿੱਲੀ।
4.ਡਾ.ਨਾਹਰ ਸਿੰਘ,ਲੋਕ ਕਾਵਿ ਦੀ ਸਿਰਜਨ ਪ੍ਰਕਿਰਿਆ, ਲੋਕਗੀਤ ਪ੍ਰਕਾਸ਼ਨ,ਚੰਡੀਗੜ੍ਹ।
5.ਡਾ.ਨਾਹਰ ਸਿੰਘ,ਮਾਂ ਸੁਹਾਗਣ ਸ਼ਗਨ ਕਰੇ,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।
6.ਡਾ.ਨਾਹਰ ਸਿੰਘ,ਬਾਗੀ ਚੰਬਾ ਖਿੜ ਰਿਹਾ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।
7.ਗਿਆਨੀ ਗੁਰਦਿੱਤ ਸਿੰਘ,ਮੇਰਾ ਪਿੰਡ,ਸਾਹਿਤ ਸਦਨ,ਚੰਡੀਗੜ੍ਹ।
8. ਟੀ.ਆਰ.ਵਿਨੋਦ,ਸੰਸਕ੍ਰਿਤੀ:ਸਿਧਾਂਤ ਤੇ ਵਿਹਾਰ, ਲੋਕਗੀਤ ਪ੍ਰਕਾਸ਼ਨ,ਚੰਡੀਗੜ੍ਹ।

9.ਟੀ.ਆਰ.ਵਿਨੋਦ,ਸੰਸਕ੍ਰਿਤੀ ਤੇ ਪੰਜਾਬੀ ਸੰਸਕ੍ਰਿਤੀ,ਲੋਕਗੀਤ ਪ੍ਰਕਾਸ਼ਨ,ਚੰਡੀਗੜ੍ਹ।
10.ਗੁਰਬਖਸ਼ ਸਿੰਘ ਫ਼ਰੈਕ,ਸਭਿਆਚਾਰ ਅਤੇ ਪੰਜਾਬੀ ਸਭਿਆਚਾਰ,ਦੀ ਪੰਜਾਬੀ ਰਾਈਟਰਜ਼ ਕੋਆਪਰੇਟਿਵ ਸੁਸਾਇਟੀ ਲਿਮਿਟਿਡ,ਲੁਧਿਆਣਾ।
11.ਦੇਵਿੰਦਰ ਸਤਿਆਰਥੀ,ਗਿੱਧਾ,ਨਵਯੁਗ ਪਬਲਿਸ਼ਰਜ਼,ਨਵੀਂ ਦਿੱਲੀ।
12.ਜਸਵਿੰਦਰ ਸਿੰਘ,ਪੰਜਾਬੀ ਸਭਿਆਚਾਰ:ਪਛਾਣ ਚਿੰਨ੍ਹ,ਪੁਨੀਤ ਪ੍ਰਕਾਸ਼ਨ,ਪਟਿਆਲਾ
13.ਰਾਜਵੰਤ ਕੌਰ,ਵਿਆਹ ਦੇ ਲੋਕਗੀਤ:ਵਿਭਿੰਨ ਪਰਿਪੇਖ,ਲੋਕਗੀਤ ਪ੍ਰਕਾਸ਼ਨ,ਚੰਡੀਗੜ੍ਹ।
14.ਖੋਜ ਪਤ੍ਰਿਕਾ,ਪੰਜਾਬੀ ਸਭਿਆਚਾਰ ਵਿਸ਼ੇਸ਼ ਅੰਕ,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।
15.ਪੰਜਾਬੀ ਦੁਨੀਆ,ਸਭਿਆਚਾਰ ਵਿਸ਼ੇਸ਼ ਅੰਕ,ਭਾਸ਼ਾ ਵਿਭਾਗ,ਪੰਜਾਬ,ਪਟਿਆਲਾ।
16.ਪਰਮਜੀਤ ਕੌਰ ਸਰਹਿੰਦ,ਪੰਜਾਬੀ ਸਾਕ-ਸਕੀਰੀਆਂ ਤੇ ਰਹੁ-ਰੀਤਾਂ,ਲੋਕਗੀਤ ਪ੍ਰਕਾਸ਼ਨ,ਚੰਡੀਗੜ੍ਹ।
17.ਮਨਜੀਤ ਸਿੰਘ,ਪਿੰਡ ਵਿਉਂਤ ਤੇ ਸਭਿਆਚਾਰ,ਵਾਰਿਸ ਸ਼ਾਹ ਫਾਊਂਡੇਸ਼ਨ,ਅੰਮ੍ਰਿਤਸਰ।
18.ਡਾ.ਜਸਵਿੰਦਰ ਸਿੰਘ,ਪੰਜਾਬੀ ਲੋਕ-ਸਾਹਿਤ ਸ਼ਾਸ਼ਤਰ,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।
19.ਡਾ.ਧਨਵੰਤ ਕੌਰ ਅਤੇ ਇੰਦਰਜੀਤ ਕੌਰ(ਅਨੁਵਾਦਕ),ਸਭਿਆਚਾਰ ਦੇ ਚਾਰ ਅਧਿਆਇ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।
20.ਡਾ.ਗੁਰਪ੍ਰੀਤ ਕੌਰ,ਪੰਜਾਬੀ ਲੋਕਧਾਰਾ:ਸਿਧਾਂਤ ਤੇ ਵਿਹਾਰ,ਤਰਲੋਚਨ ਪਬਲਿਸ਼ਰਜ਼,ਚੰਡੀਗੜ੍ਹ

ਐਮ.ਏ. (ਪੰਜਾਬੀ), ਭਾਗ ਦੂਜਾ ,ਸਮੈਸਟਰ ਤੀਜਾ
ਇਲੈਕਟਿਵ ਕੋਰਸ ਤੀਜਾ -ਗੁਰਮਤਿ ਕਾਵਿ(ਆਪਸ਼ਨ-1)
ਪੇਪਰ ਕੋਡ:PUN-303A, ਕ੍ਰੈਡਿਟ-05(04L+01P)
2020-21,2021-22 ਸੈਸ਼ਨ ਲਈ

ਕੁੱਲ ਅੰਕ 80 ਪਾਸ ਅੰਕ : 28
ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ : 24 ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਵਿਚੋਂ ਪਾਸ ਅੰਕ : 08
ਬਾਹਰੀ ਪ੍ਰੀਖਿਆ : 40 ਬਾਹਰੀ ਪ੍ਰੀਖਿਆ ਵਿਚੋਂ ਪਾਸ ਅੰਕ : 14
ਪ੍ਰੀਖਿਆ ਦਾ ਸਮਾਂ : 3 ਘੰਟੇ ਕੁੱਲ ਲੈਕਚਰ:60

ਨੋਟ:ਕੁੱਲ 80 ਅੰਕਾਂ ਵਿਚ ਪ੍ਰੈਕਟੀਕਲ ਦੇ 16 ਅੰਕ ਵੀ ਸ਼ਾਮਿਲ ਹਨ।

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼

1. ਗੁਰਮਤਿ ਕਾਵਿ ਦੀ ਪੰਜਾਬੀ ਸਾਹਿਤ ਵਿਚ ਸ਼੍ਰੇਸ਼ਟਤਾਂ ਅਤੇ ਵਿਸ਼ੇਸ਼ਤਾ ਬਾਰੇ ਗਿਆਨ ਦੇਣਾ।
2. ਗੁਰਮਤਿ ਕਾਵਿ ਧਾਰਾ ਦੇ ਇਤਿਹਾਸਕ,ਸਿਧਾਂਤਕ,ਦਾਰਸ਼ਨਿਕ ਅਤੇ ਸਭਿਆਚਾਰਕ ਪੱਖਾਂ ਤੋਂ ਜਾਣੂ ਕਰਵਾਉਣਾ।
3. ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਗੁਰੂ ਗ੍ਰੰਥ ਸਾਹਿਬ ਵਿਚਲੀ ਬਾਣੀ ਦੇ ਬਹੁਪੱਖਾਂ ਬਾਰੇ ਜਾਣਕਾਰੀ ਦੇਣਾ।
4. ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਗੁਰਬਾਣੀ ਦੇ ਵਿਲੱਖਣ ਕਾਵਿ-ਸ਼ਾਸਤਰ ਤੋਂ ਜਾਣੂ ਕਰਵਾਉਣਾ ।

ਪੇਪਰ ਸੈੱਟਰ ਲਈ ਹਦਾਇਤਾਂ

1. ਸਾਰੇ ਸਿਲੇਬਸ ਵਿਚੋਂ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣ। ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਨੂੰ ਤਿੰਨ ਭਾਗਾਂ(ੳ,ਅ, ਅਤੇ ੲ) ਵਿਚ ਵੰਡਿਆ ਜਾਵੇ।ਭਾਗ ੳ ਅਤੇ ਅ ਦੇ ਹਰੇਕ ਉਪ-ਭਾਗ (ੳ-1,ੳ-2 ਅਤੇ ਅ-1,ਅ-2)ਵਿਚੋਂ ਦੋ-ਦੋ ਪ੍ਰਸ਼ਨ,ਕੁੱਲ ਅੱਠ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣ,ਜਿਨ੍ਹਾਂ ਵਿਚੋਂ ਵਿਦਿਆਰਥੀਆਂ ਨੇ ਹਰੇਕ ਉਪ-ਭਾਗ ਵਿਚੋਂ ਇਕ-ਇਕ ਪ੍ਰਸ਼ਨ ,ਭਾਵ ਕੁੱਲ ਚਾਰ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹੋਣਗੇ।ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 06 ਅੰਕ ਹੋਣਗੇ। ਇਸ ਤਰ੍ਹਾਂ ਭਾਗ ੳ ਅਤੇ ਅ ਦੇ ਉਪ-ਭਾਗਾਂ ਦੇ ਕੁੱਲ 24 ਅੰਕ ਹੋਣਗੇ।
2. ਤੀਜੇ ਭਾਗ (ਭਾਗ-ੲ) ਵਿਚ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ 08 ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ। ਪ੍ਰੀਖਿਆਰਥੀ ਨੇ ਸਾਰੇ ਪ੍ਰਸ਼ਨਾਂ ਦਾ ਉੱਤਰ ਦੇਣਾ ਹੋਵੇਗਾ। ਇਸ ਭਾਗ ਦੇ ਪ੍ਰਸ਼ਨਾਂ ਦਾ ਉੱਤਰ 5-6 ਸਤਰਾਂ ਵਿਚ ਦੇਣਾ ਹੋਵੇਗਾ। ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 2 ਅੰਕ ਹੋਣਗੇ। ਇਸ ਭਾਗ ਦੇ ਕੁੱਲ 16 ਅੰਕ ਹੋਣਗੇ।
3. ਸਾਰੇ ਭਾਗਾਂ ਵਿਚੋਂ ਪ੍ਰਸ਼ਨ ਇਸ ਢੰਗ ਨਾਲ ਪੁੱਛੇ ਜਾਣ ਕਿ ਸਿਲੇਬਸ ਦੇ ਸਾਰੇ ਪੱਖਾਂ ਸੰਬੰਧੀ ਪ੍ਰੀਖਿਆਰਥੀ ਵਲੋਂ ਕੀਤੇ ਅਧਿਐਨ ਨੂੰ ਪਰਖਿਆ ਜਾ ਸਕੇ ਅਤੇ ਇਹ ਵੀ ਪਰਖਿਆ ਜਾ ਸਕੇ ਕਿ ਉਸਨੇ ਸਮੁੱਚੇ ਸਿਲੇਬਸ ਦਾ ਅਧਿਐਨ ਕੀਤਾ ਹੈ। ਤੀਜੇ ਭਾਗ (ਭਾਗ-ੲ) ਦੇ ਲਾਜ਼ਮੀ ਪ੍ਰਸ਼ਨ ਦੇ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਸਾਰੇ 08 ਪ੍ਰਸ਼ਨ ਇਸ ਢੰਗ ਨਾਲ ਪੁੱਛੇ ਜਾਣ ਕਿ ਪੇਪਰ ਨਾਲ ਸੰਬੰਧਿਤ ਸਿਲੇਬਸ ਦੇ ਨਿਕਟ ਅਤੇ ਪਾਠ-ਮੂਲਕ ਅਧਿਐਨ ਨੂੰ ਪਰਖਿਆ ਜਾ ਸਕੇ।
4. ਪ੍ਰਸ਼ਨਾਂ ਦੀ ਭਾਸ਼ਾ ਸਰਲ, ਸਪੱਸ਼ਟ ਅਤੇ ਪ੍ਰੀਖਿਆਰਥੀ ਦੀ ਬੌਧਿਕ ਪੱਧਰ ਦੇ ਅਨੁਕੂਲ ਹੋਣੀ ਚਾਹੀਦੀ ਹੈ।
5. ਪ੍ਰਸ਼ਨ ਅਜਿਹੇ ਹੋਣ ਜਿਹੜੇ ਨਿਰਧਾਰਿਤ ਸਮੇਂ ਵਿਚ ਸਹਿਜੇ ਹੀ ਹੱਲ ਕੀਤੇ ਜਾ ਸਕਣ।

ਪ੍ਰੀਖਿਆਰਥੀਆਂ ਲਈ ਹਦਾਇਤਾਂ

1. ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਨੂੰ ਤਿੰਨ ਭਾਗਾਂ(ੳ,ਅ, ਅਤੇ ੲ) ਵਿਚ ਵੰਡਿਆ ਜਾਵੇਗਾ।ਭਾਗ ੳ ਅਤੇ ਅ ਦੇ ਹਰੇਕ ਉਪ-ਭਾਗ (ੳ-1,ੳ-2 ਅਤੇ ਅ-1,ਅ-2)ਵਿਚੋਂ ਦੋ-ਦੋ ਪ੍ਰਸ਼ਨ,ਕੁੱਲ ਅੱਠ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ,ਜਿਨ੍ਹਾਂ ਵਿਚੋਂ ਪ੍ਰੀਖਿਆਰਥੀ ਨੇ ਹਰੇਕ ਉਪ-ਭਾਗ ਵਿਚੋਂ ਇਕ-ਇਕ ਪ੍ਰਸ਼ਨ ,ਭਾਵ ਕੁੱਲ ਚਾਰ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹੋਣਗੇ।ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 06 ਅੰਕ ਹੋਣਗੇ। ਇਸ ਤਰ੍ਹਾਂ ਭਾਗ ੳ ਅਤੇ ਅ ਦੇ ਉਪ-ਭਾਗਾਂ ਦੇ ਕੁੱਲ 24 ਅੰਕ ਹੋਣਗੇ।ਹਰ ਉਪ-ਭਾਗ ਵਿੱਚੋਂ ਇੱਕ ਪ੍ਰਸ਼ਨ ਕਰਨਾ ਲਾਜ਼ਮੀ ਹੋਵੇਗਾ।
2. ਤੀਜੇ ਭਾਗ (ਭਾਗ-ੲ) ਦੇ ਸਾਰੇ 08 ਪ੍ਰਸ਼ਨ ਲਾਜ਼ਮੀ ਹਨ। ਸਾਰੇ ਪ੍ਰਸ਼ਨਾਂ ਦਾ ਸੰਖੇਪ ਉੱਤਰ ਦੇਣਾ ਹੈ।ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 2 ਅੰਕ ਹਨ।
3. ਉੱਤਰ ਪ੍ਰਸ਼ਨ ਨੂੰ ਧਿਆਨ ਵਿਚ ਰੱਖ ਕੇ ਪ੍ਰਸ਼ਨ ਦੀ ਸੀਮਾ ਵਿਚ ਰਹਿ ਕੇ ਦਿੱਤੇ ਜਾਣ।

ਭਾਗ-ੳ

ੳ-I. ਗੁਰਮਤਿ ਕਾਵਿ ਸਿਧਾਂਤ(ਭਾਗ ਪਹਿਲਾ), ਸੰਪਾਦਕ ਡਾ. ਅੰਮ੍ਰਿਤਪਾਲ ਕੌਰ ਅਤੇ ਸ.ਲਖਵੀਰ ਸਿੰਘ ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ।

1. ਗੁਰਮਤਿ ਕਾਵਿ : ਸੰਕਲਪ ਤੇ ਸਰੂਪ: ਡਾ.ਅੰਮ੍ਰਿਤਪਾਲ ਕੌਰ
2. ਗੁਰਮਤਿ ਕਾਵਿ ਦੇ ਮੂਲ ਸੰਕਲਪ:ਗਿਆਨ,ਧਿਆਨ ਅਤੇ ਨਾਮ:ਡਾ.ਬਲਕਾਰ ਸਿੰਘ

3. ਸਿੱਖ ਕੀਮਤ ਸਿਧਾਂਤ:ਡਾ.ਵਜੀਰ ਸਿੰਘ
4. ਸ੍ਰੀ ਗੁਰੂ ਗ੍ਰੰਥ ਸਾਹਿਬ ਜੀ ਦਾ ਇਤਿਹਾਸਕ ਪੱਖ ਤੋਂ ਅਧਿਐਨ:ਡਾ.ਫੌਜਾ ਸਿੰਘ

ੳ–II. ਸਲੋਕ (ਸ੍ਰੀ ਗੁਰੂ ਗ੍ਰੰਥ ਸਾਹਿਬ ਵਿਚ ਦਰਜ਼): ਸ਼ੇਖ ਫਰੀਦ

1. ਸ਼ੇਖ ਫਰੀਦ ਦੇ ਸਲੋਕਾਂ ਦਾ ਦਾਰਸ਼ਨਿਕ ਪੱਖ
2. ਸ਼ੇਖ ਫਰੀਦ ਦੇ ਸਲੋਕਾਂ ਦਾ ਸੁਹਜ–ਸ਼ਾਸ਼ਤਰ
3. ਸ਼ੇਖ ਫਰੀਦ ਦੇ ਸਲੋਕਾਂ ਦਾ ਸਦਾਚਾਰਕ ਪੱਖ
4. ਸ਼ੇਖ ਫਰੀਦ ਦੇ ਸਲੋਕਾਂ ਵਿਚ ਪੇਸ਼ ਨਾਸ਼ਵਾਨਤਾ

ਭਾਗ–ਅ

ਅ–I. ਆਸਾ ਦੀ ਵਾਰ:ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਜੀ

1.ਆਸਾ ਦੀ ਵਾਰ ਦੇ ਦਾਰਸ਼ਨਿਕ ਪੱਖ
2.ਆਸਾ ਦੀ ਵਾਰ ਦਾ ਸੁਹਜ–ਸ਼ਾਸ਼ਤਰ
3.ਆਸਾ ਦੀ ਵਾਰ ਦਾ ਸਮਾਜਿਕ,ਸਭਿਆਚਾਰਕ ਅਤੇ ਇਤਿਹਾਸਕ ਪਰਿਪੇਖ
4. ਆਸਾ ਦੀ ਵਾਰ ਦੇ ਪ੍ਰਮੁੱਖ ਸਰੋਕਾਰ

ਅ–II. ਅਨੰਦ ਸਾਹਿਬ: ਗੁਰੂ ਅਮਰਦਾਸ ਜੀ

1.ਅਨੰਦ ਸਾਹਿਬ ਦਾ ਦਾਰਸ਼ਨਿਕ ਪੱਖ
2.ਅਨੰਦ ਸਾਹਿਬ ਦਾ ਸੁਹਜ–ਸ਼ਾਸ਼ਤਰ
3.ਅਨੰਦ ਸਾਹਿਬ ਵਿਚ ਅਨੰਦ ਦਾ ਸੰਕਲਪ
4. ਅਨੰਦ ਸਾਹਿਬ ਦੇ ਪ੍ਰਮੁੱਖ ਸਰੋਕਾਰ

ਭਾਗ–ੲ

ਉਪਰੋਕਤ ਸਿਲੇਬਸ'ਤੇ ਆਧਾਰਿਤ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ 10 ਪ੍ਰਸ਼ਨ

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1.ਅਤਰ ਸਿੰਘ,ਦ੍ਰਿਸ਼ਟੀਕੋਣ,ਲਾਹੌਰ ਬੁੱਕ ਸ਼ਾਪ,ਲੁਧਿਆਣਾ।
2.ਅਤਰ ਸਿੰਘ,ਸਮਦਰਸ਼ਨ,ਰਘਵੀਰ ਰਚਨਾ ਪ੍ਰਕਾਸ਼ਨ,ਚੰਡੀਗੜ੍ਹ।
3.ਸੰਤ ਸਿੰਘ ਸੇਖੋਂ,ਪੰਜਾਬੀ ਕਾਵਿ ਸ਼ਿਰੋਮਣੀ, ਲਾਹੌਰ ਬੁੱਕ ਸ਼ਾਪ,ਲੁਧਿਆਣਾ।
4.ਹਰਿਭਜਨ ਸਿੰਘ,ਅਧਿਅਨ ਅਤੇ ਅਧਿਆਪਨ,ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਯੂਨੀਵਰਸਿਟੀ, ਅੰਮ੍ਰਿਤਸਰ।
5.ਪ੍ਰੋ.ਕਿਸ਼ਨ ਸਿੰਘ,ਗੁਰਬਾਣੀ ਦਾ ਸੱਚ,ਲੋਕਗੀਤ ਪ੍ਰਕਾਸ਼ਨ,ਚੰਡੀਗੜ੍ਹ।
6.ਡਾ.ਜਗਬੀਰ ਸਿੰਘ,ਮੱਧਕਾਲੀ ਸ਼ਬਦ ਸਭਿਆਚਾਰ,ਮਨੋਹਰ ਪਾਰਕ,ਨਵੀਂ ਦਿੱਲੀ।

7.ਡਾ.ਜਗਬੀਰ ਸਿੰਘ,ਗੁਰਬਾਣੀ:ਵਿਸ਼ਵ ਦ੍ਰਿਸ਼ਟੀ ਤੇ ਵਿਚਾਰਧਾਰਾ,ਵੈੱਲਵਿਸ਼ ਪਬਲਿਸ਼ਰਜ਼,ਦਿੱਲੀ।
8.ਡਾ.ਹਰਚਰਨ ਕੌਰ(ਸੰਪਾ.),ਮੱਧਕਾਲੀਨ ਪੰਜਾਬੀ ਸਾਹਿਤ,ਪੁਨਰ ਵਿਚਾਰ,ਪੰਜਾਬੀ ਅਕਾਦਮੀ,ਦਿੱਲੀ।
9.ਪ੍ਰੋ.ਪ੍ਰੀਤਮ ਸਿੰਘ(ਸੰਪਾ.),ਸਿੱਖ ਫ਼ਲਸਫ਼ੇ ਦੀ ਰੂਪ-ਰੇਖਾ,ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਯੂਨੀਵਰਸਿਟੀ,ਅੰਮ੍ਰਿਤਸਰ।
10.ਡਾ.ਮਹਿੰਦਰ ਕੌਰ ਗਿੱਲ,ਗੁਰਬਾਣੀ ਸਮੀਖਿਆ,ਪੰਜਾਬੀ ਅਕਾਦਮੀ ,ਦਿੱਲੀ।
11.ਬਿਕਰਮ ਸਿੰਘ ਘੁੰਮਣ, ਗੁਰਬਾਣੀ:ਚਿੰਤਨ ਤੇ ਕਲਾ, ਵਾਰਿਸ ਸ਼ਾਹ ਫਾਊਂਡੇਸ਼ਨ, ਅੰਮ੍ਰਿਤਸਰ।
12. ਗੁਲਵੰਤ ਸਿੰਘ, ਗੁਰਮਤਿ ਸਾਹਿਤ ਚਿੰਤਨ, ਸਿੰਘ ਬ੍ਰਦਰਜ਼, ਬਜ਼ਾਰ ਮਾਈ ਸੇਵਾ, ਅੰਮ੍ਰਿਤਸਰ।
13. ਸਾਹਿਬ ਸਿੰਘ, ਆਸਾ ਕੀ ਵਾਰ ਸਟੀਕ, ਸਿੰਘ ਬ੍ਰਦਰਜ਼,ਅੰਮ੍ਰਿਤਸਰ।
14. ਪ੍ਰੋ.ਆਤਮਾ ਸਿੰਘ, ਆਸਾ ਕੀ ਵਾਰ:ਇਕ ਦਾਰਸ਼ਨਿਕ ਅਧਿਐਨ ,ਨਵੀਨ ਪ੍ਰਕਾਸ਼ਨ, ਅੰਮ੍ਰਿਤਸਰ।
15. ਪੰਜਾਬੀ ਦੁਨੀਆ,ਗੁਰੂ ਨਾਨਕ ਅੰਕ, ਦੋ ਭਾਗ, ਭਾਸ਼ਾ ਵਿਭਾਗ ਪੰਜਾਬ, ਪਟਿਆਲਾ।
16. ਡਾ.ਤਾਰਨ ਸਿੰਘ ,ਬਾਬਾ ਫਰੀਦ: ਜੀਵਨ ਤੇ ਰਚਨਾ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ।
17. ਤਾਰਨ ਸਿੰਘ, ਅਨੰਦ ਸਾਹਿਬ: ਰਚਨਾ ਸੰਸਾਰ, ਵਾਰਿਸ ਸ਼ਾਹ ਫਾਊਂਡੇਸ਼ਨ, ਅੰਮ੍ਰਿਤਸਰ।
18. ਤਾਰਨ ਸਿੰਘ, ਗੁਰੂ ਅਮਰਦਾਸ: ਜੀਵਨ ਤੇ ਰਚਨਾ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ।
19. ਮਹਿੰਦਰ ਕੌਰ ਗਿੱਲ, ਬਾਣੀ ਸਾਰ, ਨਵਯੁਗ ਪਬਲਿਸ਼ਰਜ਼, ਚਾਂਦਨੀ ਚੌਕ, ਦਿੱਲੀ।
20.ਦੀਵਾਨ ਸਿੰਘ,ਗੁਰਬਾਣੀ ਚਿੰਤਨ,ਵਾਰਿਸ ਸ਼ਾਹ ਫਾਊਂਡੇਸ਼ਨ,ਅੰਮ੍ਰਿਤਸਰ।
21.ਸ਼ੇਰ ਸਿੰਘ ਸ਼ੇਰ,ਗੁਰਮਤਿ ਦਰਸ਼ਨ,ਸ਼੍ਰੋਮਣੀ ਗੁਰਦੁਆਰਾ ਪ੍ਰਬੰਧਕ ਕਮੇਟੀ,ਸ੍ਰੀ ਅੰਮ੍ਰਿਤਸਰ।
22.ਤਾਰਨ ਸਿੰਘ,ਬਾਰਾਹਮਾਹ ਦਰਪਣ,ਨਿਊ ਬੁੱਕ ਕੰਪਨੀ,ਜਲੰਧਰ।
23.ਸਰਬਜਿੰਦਰ ਸਿੰਘ(ਸੰਪਾ.)ਸਿੱਖ ਧਰਮ ਸਿਧਾਂਤਕ ਤੇ ਇਤਿਹਾਸਕ ਪਰਿਪੇਖ,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।
24.ਡਾ.ਗੁਰਪ੍ਰੀਤ ਕੌਰ(ਸੰਪਾ.),ਗੁਰਮਤਿ ਸਾਹਿਤ ਦਰਸ਼ਨ,ਲੋਕਗੀਤ ਪ੍ਰਕਾਸ਼ਨ,ਚੰਡੀਗੜ੍ਹ।
25.ਡਾ.ਮਨਪ੍ਰੀਤ ਕੌਰ,ਆਸਾ ਕੀ ਵਾਰ:ਦਰਸ਼ਨ,ਤਰਲੋਚਨ ਪਬਲਿਸ਼ਰਜ਼,ਚੰਡੀਗੜ੍ਹ।

ਐਮ.ਏ. (ਪੰਜਾਬੀ), ਭਾਗ ਦੂਜਾ ,ਸਮੈਸਟਰ ਤੀਜਾ

ਇਲੈਕਟਿਵ ਕੋਰਸ ਤੀਜਾ -ਗੁਰਮਤਿ ਕਾਵਿ ਪ੍ਰੈਕਟੀਕਲ(ਆਪਸ਼ਨ-1 ਅਤੇ ਆਪਸ਼ਨ-2ਲਈ)

ਪੇਪਰ ਕੋਡ:PUN-303,ਕ੍ਰੈਡਿਟ-01

2020-21,2021-22 ਸੈਸ਼ਨ ਲਈ

ਕੁੱਲ ਅੰਕ :16 ਪਾਸ ਅੰਕ : 06

ਨੋਟ:ਅੰਦਰੂਨੀ ਵਿਸ਼ੇਸ਼ਗ ਦੁਆਰਾ ਮੁਲਾਂਕਣ ਕੀਤਾ ਜਾਵੇਗਾ।

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼:

1.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਆਧੁਨਿਕ ਯੁੱਗ ਦੇ ਹਾਣੀ ਬਣਾਉਣਾ।
2.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਗੁਰਬਾਣੀ ਦੀ ਵਿਸ਼ੇਸ਼ਤਾ ਦਾ ਗਿਆਨ ਕਰਵਾਉਣਾ।
3.ਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ ਤਕਨਾਲੋਜੀ ਦੀ ਵਰਤੋਂ ਕਰਨ ਦੀ ਦਿਲਚਸਪੀ ਪੈਦਾ ਕਰਨਾ।

ਪਾਠਕ੍ਰਮ:

ਗੁਰਬਾਣੀ ਨਾਲ ਸੰਬੰਧਿਤ ਸ੍ਰੋਤਾਂ ਬਾਰੇ ਉਪਲੱਬਧ ਸਾਫ਼ਟਵੇਅਰ:ਸਰਵੇਖਣ ਅਤੇ ਵਰਤੋਂ

ਐਮ.ਏ. (ਪੰਜਾਬੀ), ਭਾਗ ਦੂਜਾ ,ਸਮੈਸਟਰ ਤੀਜਾ

ਇਲੈਕਟਿਵ ਕੋਰਸ ਤੀਜਾ-ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਜੀ ਵਿਸ਼ੇਸ਼ ਅਧਿਐਨ(ਆਪਸ਼ਨ-2)

ਪੇਪਰ ਕੋਡ:PUN-303B, ਕ੍ਰੈਡਿਟ-05(04L+01P)

2020-21,2021-22ਸੈਸ਼ਨ ਲਈ

ਕੁੱਲ ਅੰਕ 80 **ਪਾਸ ਅੰਕ : 28**

ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ : 24 **ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਵਿਚੋਂ ਪਾਸ ਅੰਕ : 08**

ਬਾਹਰੀ ਪ੍ਰੀਖਿਆ : 40 **ਬਾਹਰੀ ਪ੍ਰੀਖਿਆ ਵਿਚੋਂ ਪਾਸ ਅੰਕ : 14**

ਪ੍ਰੀਖਿਆ ਦਾ ਸਮਾਂ : 3 ਘੰਟੇ **ਕੁੱਲ ਲੈਕਚਰ:60**

ਨੋਟ:ਕੁੱਲ 80 ਅੰਕਾਂ ਵਿਚ ਪ੍ਰੈਕਟੀਕਲ ਦੇ 16 ਅੰਕ ਵੀ ਸ਼ਾਮਿਲ ਹਨ।

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼ :

1. ਗੁਰਮਤਿ ਸਾਹਿਤ ਵਿਚ ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਜੀ ਦੀ ਦੇਣ ਬਾਰੇ ਗਿਆਨ ਦੇਣਾ।
2. ਗੁਰਮਤਿ ਕਾਵਿ ਧਾਰਾ ਦੇ ਸਿਧਾਂਤਕ,ਦਾਰਸ਼ਨਿਕ,ਸਭਿਆਚਾਰਕ ਅਤੇ ਕਾਵਿਕ ਪੱਖਾਂ ਤੋਂ ਜਾਣੂ ਕਰਵਾਉਣਾ।
3. ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਜੀ ਦੀ ਬਾਣੀ ਦੇ ਬਹੁਪੱਖਾਂ ਬਾਰੇ ਜਾਣਕਾਰੀ ਦੇਣਾ।

ਪੇਪਰ ਸੈੱਟਰ ਲਈ ਹਦਾਇਤਾਂ

1. ਸਾਰੇ ਸਿਲੇਬਸ ਵਿਚੋਂ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣ। ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਨੂੰ ਤਿੰਨ ਭਾਗਾਂ(ੳ,ਅ, ਅਤੇ ੲ) ਵਿਚ ਵੰਡਿਆ ਜਾਵੇ।ਭਾਗ ੳ ਅਤੇ ਅ ਦੇ ਹਰੇਕ ਉਪ-ਭਾਗ (ੳ-1,ੳ-2 ਅਤੇ ਅ-1,ਅ-2)ਵਿਚੋਂ ਦੋ-ਦੋ ਪ੍ਰਸ਼ਨ,ਕੁੱਲ ਅੱਠ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣ,ਜਿਨ੍ਹਾਂ ਵਿਚੋਂ ਵਿਦਿਆਰਥੀਆਂ ਨੇ ਹਰੇਕ ਉਪ-ਭਾਗ ਵਿਚੋਂ ਇਕ-ਇਕ ਪ੍ਰਸ਼ਨ ,ਭਾਵ ਕੁੱਲ ਚਾਰ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹੋਣਗੇ।ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 06 ਅੰਕ ਹੋਣਗੇ। ਇਸ ਤਰ੍ਹਾਂ ਭਾਗ ੳ ਅਤੇ ਅ ਦੇ ਉਪ-ਭਾਗਾਂ ਦੇ ਕੁੱਲ 24 ਅੰਕ ਹੋਣਗੇ।
2. ਤੀਜੇ ਭਾਗ (ਭਾਗ-ੲ) ਵਿਚ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ 08 ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ। ਪ੍ਰੀਖਿਆਰਥੀ ਨੇ ਸਾਰੇ ਪ੍ਰਸ਼ਨਾਂ ਦਾ ਉੱਤਰ ਦੇਣਾ ਹੋਵੇਗਾ। ਇਸ ਭਾਗ ਦੇ ਪ੍ਰਸ਼ਨਾਂ ਦਾ ਉੱਤਰ 5-6 ਸਤਰਾਂ ਵਿਚ ਦੇਣਾ ਹੋਵੇਗਾ। ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 2 ਅੰਕ ਹੋਣਗੇ। ਇਸ ਭਾਗ ਦੇ ਕੁੱਲ 16 ਅੰਕ ਹੋਣਗੇ।
3. ਸਾਰੇ ਭਾਗਾਂ ਵਿਚੋਂ ਪ੍ਰਸ਼ਨ ਇਸ ਢੰਗ ਨਾਲ ਪੁੱਛੇ ਜਾਣ ਕਿ ਸਿਲੇਬਸ ਦੇ ਸਾਰੇ ਪੱਖਾਂ ਸੰਬੰਧੀ ਪ੍ਰੀਖਿਆਰਥੀ ਵਲੋਂ ਕੀਤੇ ਅਧਿਐਨ ਨੂੰ ਪਰਖਿਆ ਜਾ ਸਕੇ ਅਤੇ ਇਹ ਵੀ ਪਰਖਿਆ ਜਾ ਸਕੇ ਕਿ ਉਸਨੇ ਸਮੁੱਚੇ ਸਿਲੇਬਸ ਦਾ ਅਧਿਐਨ ਕੀਤਾ ਹੈ। ਤੀਜੇ ਭਾਗ (ਭਾਗ-ੲ) ਦੇ ਲਾਜ਼ਮੀ ਪ੍ਰਸ਼ਨ ਦੇ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਸਾਰੇ 08 ਪ੍ਰਸ਼ਨ ਇਸ ਢੰਗ ਨਾਲ ਪੁੱਛੇ ਜਾਣ ਕਿ ਪੇਪਰ ਨਾਲ ਸੰਬੰਧਿਤ ਸਿਲੇਬਸ ਦੇ ਨਿਕਟ ਅਤੇ ਪਾਠ-ਮੂਲਕ ਅਧਿਐਨ ਨੂੰ ਪਰਖਿਆ ਜਾ ਸਕੇ।
4. ਪ੍ਰਸ਼ਨਾਂ ਦੀ ਭਾਸ਼ਾ ਸਰਲ, ਸਪੱਸ਼ਟ ਅਤੇ ਪ੍ਰੀਖਿਆਰਥੀ ਦੀ ਬੌਧਿਕ ਪੱਧਰ ਦੇ ਅਨੁਕੂਲ ਹੋਣੀ ਚਾਹੀਦੀ ਹੈ।
5. ਪ੍ਰਸ਼ਨ ਅਜਿਹੇ ਹੋਣ ਜਿਹੜੇ ਨਿਰਧਾਰਿਤ ਸਮੇਂ ਵਿਚ ਸਹਿਜੇ ਹੀ ਹੱਲ ਕੀਤੇ ਜਾ ਸਕਣ।

ਪ੍ਰੀਖਿਆਰਥੀਆਂ ਲਈ ਹਦਾਇਤਾਂ

1. ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਨੂੰ ਤਿੰਨ ਭਾਗਾਂ(ੳ,ਅ, ਅਤੇ ੲ) ਵਿਚ ਵੰਡਿਆ ਜਾਵੇਗਾ।ਭਾਗ ੳ ਅਤੇ ਅ ਦੇ ਹਰੇਕ ਉਪ-ਭਾਗ (ੳ-1,ੳ-2 ਅਤੇ ਅ-1,ਅ-2)ਵਿਚੋਂ ਦੋ-ਦੋ ਪ੍ਰਸ਼ਨ,ਕੁੱਲ ਅੱਠ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ,ਜਿਨ੍ਹਾਂ ਵਿਚੋਂ ਪ੍ਰੀਖਿਆਰਥੀ ਨੇ ਹਰੇਕ ਉਪ-ਭਾਗ ਵਿਚੋਂ ਇਕ-ਇਕ ਪ੍ਰਸ਼ਨ ,ਭਾਵ ਕੁੱਲ ਚਾਰ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹੋਣਗੇ।ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 06 ਅੰਕ ਹੋਣਗੇ। ਇਸ ਤਰ੍ਹਾਂ ਭਾਗ ੳ ਅਤੇ ਅ ਦੇ ਉਪ-ਭਾਗਾਂ ਦੇ ਕੁੱਲ 24 ਅੰਕ ਹੋਣਗੇ।ਹਰ ਉਪ-ਭਾਗ ਵਿੱਚੋਂ ਇੱਕ ਪ੍ਰਸ਼ਨ ਕਰਨਾ ਲਾਜ਼ਮੀ ਹੋਵੇਗਾ।
2. ਤੀਜੇ ਭਾਗ (ਭਾਗ-ੲ) ਦੇ ਸਾਰੇ 08 ਪ੍ਰਸ਼ਨ ਲਾਜ਼ਮੀ ਹਨ। ਸਾਰੇ ਪ੍ਰਸ਼ਨਾਂ ਦਾ ਸੰਖੇਪ ਉੱਤਰ ਦੇਣਾ ਹੈ।ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 2 ਅੰਕ ਹਨ।
3. ਉੱਤਰ ਪ੍ਰਸ਼ਨ ਨੂੰ ਧਿਆਨ ਵਿਚ ਰੱਖ ਕੇ ਪ੍ਰਸ਼ਨ ਦੀ ਸੀਮਾ ਵਿਚ ਰਹਿ ਕੇ ਦਿੱਤੇ ਜਾਣ।

ਪਾਠਕ੍ਰਮ ਅਤੇ ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਦੀ ਰੂਪ-ਰੇਖਾ:

ਭਾਗ-ੳ

ੳ-I. ਗੁਰਮਤਿ ਕਾਵਿ ਸਿਧਾਂਤ(ਭਾਗ ਪਹਿਲਾ), ਸੰਪਾਦਕ ਡਾ. ਅੰਮ੍ਰਿਤਪਾਲ ਕੌਰ ਅਤੇ ਸ.ਲਖਵੀਰ ਸਿੰਘ ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ।

1.ਗੁਰਮਤਿ ਕਾਵਿ : ਸੰਕਲਪ ਤੇ ਸਰੂਪ: ਡਾ.ਅੰਮ੍ਰਿਤਪਾਲ ਕੌਰ
2.ਗੁਰਮਤਿ ਕਾਵਿ ਦੇ ਮੂਲ ਸੰਕਲਪ:ਗਿਆਨ,ਧਿਆਨ ਅਤੇ ਨਾਮ:ਡਾ.ਬਲਕਾਰ ਸਿੰਘ
3.ਸਿੱਖ ਕੀਮਤ ਸਿਧਾਂਤ:ਡਾ.ਵਜੀਰ ਸਿੰਘ

4. ਸ੍ਰੀ ਗੁਰੂ ਗ੍ਰੰਥ ਸਾਹਿਬ ਜੀ ਦਾ ਇਤਿਹਾਸਕ ਪੱਖ ਤੋਂ ਅਧਿਐਨ:ਡਾ.ਫੌਜਾ ਸਿੰਘ

ੳ-II. ਜਪੁ ਜੀ ਸਾਹਿਬ:ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਜੀ

1.ਜਪੁ ਜੀ ਸਾਹਿਬ ਦੇ ਦਾਰਸ਼ਨਿਕ ਪੱਖ

2.ਜਪੁ ਜੀ ਸਾਹਿਬ ਦਾ ਸੁਹਜ-ਸ਼ਾਸ਼ਤਰ

3.ਜਪੁ ਜੀ ਸਾਹਿਬ ਵਿਚ ਪੇਸ਼ ਪੰਜ ਖੰਡ

4. ਜਪੁ ਜੀ ਸਾਹਿਬ ਵਿਚ ਆਦਰਸ਼ਕ ਮਨੁੱਖ ਦਾ ਸੰਕਲਪ

ਭਾਗ-ਅ

ਅ-I. ਸਿੱਧ ਗੋਸਟਿ:ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਜੀ

1.ਸਿੱਧ ਗੋਸਟਿ ਦਾ ਦਾਰਸ਼ਨਿਕ ਪੱਖ

2.ਸਿੱਧ ਗੋਸਟਿ ਦਾ ਸੁਹਜ-ਸ਼ਾਸ਼ਤਰ

3.ਸਿੱਧ ਗੋਸਟਿ ਦਾ ਇਤਿਹਾਸਕ ਪਰਿਪੇਖ

4. ਸਿੱਧ ਗੋਸਟਿ ਦੇ ਪ੍ਰਮੁੱਖ ਸਰੋਕਾਰ

ਅ-II. ਬਾਰਹਮਾਹ:ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਜੀ

1.ਬਾਰਹਮਾਹ ਦਾ ਦਾਰਸ਼ਨਿਕ ਪੱਖ

2.ਬਾਰਹਮਾਹ ਦਾ ਸੁਹਜ-ਸ਼ਾਸ਼ਤਰ

3.ਬਾਰਹਮਾਹ ਵਿਚ ਪ੍ਰਕਿਰਤੀ ਚਿਤਰਣ

4.ਬਾਰਹਮਾਹ ਦੇ ਪ੍ਰਮੁੱਖ ਸਰੋਕਾਰ

ਭਾਗ-ੲ

ਉਪਰੋਕਤ ਸਿਲੇਬਸ'ਤੇ ਆਧਾਰਿਤ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ 10 ਪ੍ਰਸ਼ਨ

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1.ਅਤਰ ਸਿੰਘ,ਦ੍ਰਿਸ਼ਟੀਕੋਣ,ਲਾਹੌਰ ਬੁੱਕ ਸ਼ਾਪ,ਲੁਧਿਆਣਾ।

2.ਅਤਰ ਸਿੰਘ,ਸਮਦਰਸ਼ਨ,ਰਘਵੀਰ ਰਚਨਾ ਪ੍ਰਕਾਸ਼ਨ,ਚੰਡੀਗੜ੍ਹ।

3.ਸੰਤ ਸਿੰਘ ਸੇਖੋਂ,ਪੰਜਾਬੀ ਕਾਵਿ ਸ਼ਿਰੋਮਣੀ, ਲਾਹੌਰ ਬੁੱਕ ਸ਼ਾਪ,ਲੁਧਿਆਣਾ।

4.ਹਰਿਭਜਨ ਸਿੰਘ,ਅਧਿਅਨ ਅਤੇ ਅਧਿਆਪਨ,ਗੁਰੁ ਨਾਨਕ ਦੇਵ ਯੂਨੀਵਰਸਿਟੀ, ਅੰਮ੍ਰਿਤਸਰ।

5.ਬਿਕਰਮ ਸਿੰਘ ਘੁੰਮਣ, ਗੁਰਬਾਣੀ:ਚਿੰਤਨ ਤੇ ਕਲਾ, ਵਾਰਿਸ ਸ਼ਾਹ ਫਾਉਂਡੇਸ਼ਨ, ਅੰਮ੍ਰਿਤਸਰ।

6. ਗੁਲਵੰਤ ਸਿੰਘ, ਗੁਰਮਤਿ ਸਾਹਿਤ ਚਿੰਤਨ, ਸਿੰਘ ਬ੍ਰਦਰਜ਼, ਬਜ਼ਾਰ ਮਾਈ ਸੇਵਾ, ਅੰਮ੍ਰਿਤਸਰ।

7. ਭਾਈ ਵੀਰ ਸਿੰਘ, ਜਪੁਜੀ ਸਟੀਕ, ਭਾਈ ਵੀਰ ਸਿੰਘ ਸਦਨ, ਨਵੀਂ ਦਿੱਲੀ।

8. ਦਲੀਪ ਸਿੰਘ ਦੀਪ, ਜਪੁਜੀ:ਇਕ ਤੁਲਨਾਤਮਕ ਅਧਿਐਨ ,ਭਾਸ਼ਾ ਵਿਭਾਗ ਪੰਜਾਬ, ਪਟਿਆਲਾ।

9. ਪੰਜਾਬੀ ਦੁਨੀਆ,ਗੁਰੂ ਨਾਨਕ ਅੰਕ, ਦੋ ਭਾਗ, ਭਾਸ਼ਾ ਵਿਭਾਗ ਪੰਜਾਬ, ਪਟਿਆਲਾ।
10. ਮਹਿੰਦਰ ਕੌਰ ਗਿੱਲ, ਬਾਣੀ ਸਾਰ, ਨਵਯੁਗ ਪਬਲਿਸ਼ਰਜ਼, ਚਾਂਦਨੀ ਚੌਕ, ਦਿੱਲੀ।
11.ਦੀਵਾਨ ਸਿੰਘ,ਗੁਰਬਾਣੀ ਚਿੰਤਨ,ਵਾਰਿਸ ਸ਼ਾਹ ਫਾਊਂਡੇਸ਼ਨ,ਅੰਮ੍ਰਿਤਸਰ।
12.ਸ਼ੇਰ ਸਿੰਘ ਸ਼ੇਰ,ਗੁਰਮਤਿ ਦਰਸ਼ਨ,ਸ਼੍ਰੋਮਣੀ ਗੁਰਦੁਆਰਾ ਪ੍ਰਬੰਧਕ ਕਮੇਟੀ,ਸ੍ਰੀ ਅੰਮ੍ਰਿਤਸਰ।
13.ਤਾਰਨ ਸਿੰਘ,ਬਾਰਾਹਮਾਹ ਦਰਪਣ,ਨਿਊ ਬੁੱਕ ਕੰਪਨੀ,ਜਲੰਧਰ।
14.ਸਾਹਿਬ ਸਿੰਘ, ਆਸਾ ਕੀ ਵਾਰ ਸਟੀਕ, ਸਿੰਘ ਬ੍ਰਦਰਜ਼,ਅੰਮ੍ਰਿਤਸਰ।
15. ਪ੍ਰੋ.ਆਤਮਾ ਸਿੰਘ, ਆਸਾ ਕੀ ਵਾਰ:ਇਕ ਦਾਰਸ਼ਨਿਕ ਅਧਿਐਨ ,ਨਵੀਨ ਪ੍ਰਕਾਸ਼ਨ, ਅੰਮ੍ਰਿਤਸਰ।
16.ਪ੍ਰੋ.ਕਿਸ਼ਨ ਸਿੰਘ,ਗੁਰਬਾਣੀ ਦਾ ਸੱਚ,ਲੋਕਗੀਤ ਪ੍ਰਕਾਸ਼ਨ,ਚੰਡੀਗੜ੍ਹ।
17.ਹਰਨਾਮ ਸਿੰਘ ਸ਼ਾਨ,ਗੁਰੂ ਨਾਨਕ ਦਾ ਸ਼ਾਹਕਾਰ ਜਪੁਜੀ,ਪੰਜਾਬ ਯੂਨੀਵਰਸਿਟੀ,ਚੰਡੀਗੜ੍ਹ।
18.ਰਾਮ ਸਿੰਘ,ਜਪੁਜੀ ਦਾ ਵਿਸ਼ਾ ਤੇ ਰੂਪ,ਪੰਜਾਬੀ ਸਾਹਿਤ ਅਕਾਦਮੀ,ਲੁਧਿਆਣਾ।
19.ਡਾ.ਜਗਬੀਰ ਸਿੰਘ,ਮੱਧਕਾਲੀ ਸ਼ਬਦ ਸਭਿਆਚਾਰ,ਮਨੋਹਰ ਪਾਰਕ,ਨਵੀਂ ਦਿੱਲੀ।
20.ਡਾ.ਜਗਬੀਰ ਸਿੰਘ,ਗੁਰਬਾਣੀ:ਵਿਸ਼ਵ ਦ੍ਰਿਸ਼ਟੀ ਤੇ ਵਿਚਾਰਧਾਰਾ,ਵੈੱਲਵਿਸ਼ ਪਬਲਿਸ਼ਰਜ਼,ਦਿੱਲੀ।
21.ਡਾ.ਹਰਚਰਨ ਕੌਰ(ਸੰਪਾ.),ਮੱਧਕਾਲੀਨ ਪੰਜਾਬੀ ਸਾਹਿਤ,ਪੁਨਰ ਵਿਚਾਰ,ਪੰਜਾਬੀ ਅਕਾਦਮੀ,ਦਿੱਲੀ।
22.ਪ੍ਰੋ.ਪ੍ਰੀਤਮ ਸਿੰਘ(ਸੰਪਾ.),ਸਿੱਖ ਫ਼ਲਸਫ਼ੇ ਦੀ ਰੂਪ-ਰੇਖਾ,ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਯੂਨੀਵਰਸਿਟੀ,ਅੰਮ੍ਰਿਤਸਰ।
23.ਡਾ.ਮਹਿੰਦਰ ਕੌਰ ਗਿੱਲ,ਗੁਰਬਾਣੀ ਸਮੀਖਿਆ,ਪੰਜਾਬੀ ਅਕਾਦਮੀ ,ਦਿੱਲੀ।
24.ਸਰਬਜਿੰਦਰ ਸਿੰਘ(ਸੰਪਾ.)ਸਿੱਖ ਧਰਮ ਸਿਧਾਂਤਕ ਤੇ ਇਤਿਹਾਸਕ ਪਰਿਪੇਖ,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।
25.ਡਾ.ਗੁਰਪ੍ਰੀਤ ਕੌਰ(ਸੰਪਾ.),ਗੁਰਮਤਿ ਸਾਹਿਤ ਦਰਸ਼ਨ,ਲੋਕਗੀਤ ਪ੍ਰਕਾਸ਼ਨ,ਚੰਡੀਗੜ੍ਹ।

ਐਮ.ਏ. (ਪੰਜਾਬੀ), ਭਾਗ ਦੂਜਾ ,ਸਮੈਸਟਰ ਤੀਜਾ
ਇਲੈਕਟਿਵ ਕੋਰਸ ਚੌਥਾ-ਪੰਜਾਬੀ ਵਾਰਤਕ
ਪੇਪਰਕੋਡ:PUN-304,ਕ੍ਰੈਡਿਟ-05
2020-21,2021-22 ਸੈਸ਼ਨ ਲਈ

ਕੁੱਲ ਅੰਕ 80	ਪਾਸ ਅੰਕ : 28
ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ : 24	ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਵਿਚੋਂ ਪਾਸ ਅੰਕ : 08
ਬਾਹਰੀ ਪ੍ਰੀਖਿਆ : 56	ਬਾਹਰੀ ਪ੍ਰੀਖਿਆ ਵਿਚੋਂ ਪਾਸ ਅੰਕ : 20
ਪ੍ਰੀਖਿਆ ਦਾ ਸਮਾਂ : 3 ਘੰਟੇ	ਕੁੱਲ ਲੈਕਚਰ-75

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼ :

1. ਪੰਜਾਬੀ ਵਾਰਤਕ ਦੇ ਇਤਿਹਾਸਕ ਸਫ਼ਰ ਬਾਰੇ ਗਿਆਨ ਦੇਣਾ।
2. ਵਿਭਿੰਨ ਸਾਹਿਤਕਾਰਾਂ ਦਾ ਪੰਜਾਬੀ ਵਾਰਤਕ ਵਿੱਚ ਬਣਦੇ ਸਥਾਨ ਬਾਰੇ ਜਾਣਕਾਰੀ ਦੇਣਾ ।
3. ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਵਿਭਿੰਨ ਸਾਹਿਤਕਾਰਾਂ ਦੀਆਂ ਰਚਨਾਵਾਂ ਦੇ ਬਹੁਪੱਖਾਂ ਬਾਰੇ ਜਾਣਕਾਰੀ ਦੇਣਾ।
4. ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਸਾਹਿਤ ਸਿਰਜਨਾ ਲਈ ਪ੍ਰੇਰਿਤ ਕਰਨਾ ।
5. ਸਾਹਿਤ ਵਿਚ ਗੱਦ ਅਤੇ ਪਦ ਦੇ ਸਿਧਾਂਤਕ ਵਖਰੇਵੇਂ ਨੂੰ ਸਮਝਾਉਣਾ।

ਪੇਪਰ ਸੈੱਟਰ ਲਈ ਹਦਾਇਤਾਂ

1. ਸਾਰੇ ਸਿਲੇਬਸ ਵਿਚੋਂ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣ। ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਨੂੰ ਤਿੰਨ ਭਾਗਾਂ(ੳ,ਅ, ਅਤੇ ੲ) ਵਿਚ ਵੰਡਿਆ ਜਾਵੇ।ਭਾਗ ੳ ਅਤੇ ਅ ਦੇ ਹਰੇਕ ਉਪ-ਭਾਗ (ੳ-1,ੳ-2 ਅਤੇ ਅ-1,ਅ-2)ਵਿਚੋਂ ਦੋ-ਦੋ ਪ੍ਰਸ਼ਨ,ਕੁੱਲ ਅੱਠ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣ,ਜਿਨ੍ਹਾਂ ਵਿਚੋਂ ਵਿਦਿਆਰਥੀਆਂ ਨੇ ਹਰੇਕ ਉਪ-ਭਾਗ ਵਿਚੋਂ ਇਕ-ਇਕ ਪ੍ਰਸ਼ਨ ,ਭਾਵ ਕੁੱਲ ਚਾਰ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹੋਣਗੇ।ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 09 ਅੰਕ ਹੋਣਗੇ। ਇਸ ਤਰ੍ਹਾਂ ਭਾਗ ੳ ਅਤੇ ਅ ਦੇ ਉਪ-ਭਾਗਾਂ ਦੇ ਕੁੱਲ 36 ਅੰਕ ਹੋਣਗੇ।
2. ਤੀਜੇ ਭਾਗ (ਭਾਗ-ੲ) ਵਿਚ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ 10 ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ। ਪ੍ਰੀਖਿਆਰਥੀ ਨੇ ਸਾਰੇ ਪ੍ਰਸ਼ਨਾਂ ਦਾ ਉੱਤਰ ਦੇਣਾ ਹੋਵੇਗਾ। ਇਸ ਭਾਗ ਦੇ ਪ੍ਰਸ਼ਨਾਂ ਦਾ ਉੱਤਰ 5-6 ਸਤਰਾਂ ਵਿਚ ਦੇਣਾ ਹੋਵੇਗਾ। ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 2 ਅੰਕ ਹੋਣਗੇ। ਇਸ ਭਾਗ ਦੇ ਕੁੱਲ 20 ਅੰਕ ਹੋਣਗੇ।
3. ਸਾਰੇ ਭਾਗਾਂ ਵਿਚੋਂ ਪ੍ਰਸ਼ਨ ਇਸ ਢੰਗ ਨਾਲ ਪੁੱਛੇ ਜਾਣ ਕਿ ਸਿਲੇਬਸ ਦੇ ਸਾਰੇ ਪੱਖਾਂ ਸੰਬੰਧੀ ਪ੍ਰੀਖਿਆਰਥੀ ਵਲੋਂ ਕੀਤੇ ਅਧਿਐਨ ਨੂੰ ਪਰਖਿਆ ਜਾ ਸਕੇ ਅਤੇ ਇਹ ਵੀ ਪਰਖਿਆ ਜਾ ਸਕੇ ਕਿ ਉਸਨੇ ਸਮੁੱਚੇ ਸਿਲੇਬਸ ਦਾ ਅਧਿਐਨ ਕੀਤਾ ਹੈ। ਤੀਜੇ ਭਾਗ (ਭਾਗ-ੲ) ਦੇ ਲਾਜ਼ਮੀ ਪ੍ਰਸ਼ਨ ਦੇ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਸਾਰੇ 10 ਪ੍ਰਸ਼ਨ ਇਸ ਢੰਗ ਨਾਲ ਪੁੱਛੇ ਜਾਣ ਕਿ ਪੇਪਰ ਨਾਲ ਸੰਬੰਧਿਤ ਸਿਲੇਬਸ ਦੇ ਨਿਕਟ ਅਤੇ ਪਾਠ-ਮੂਲਕ ਅਧਿਐਨ ਨੂੰ ਪਰਖਿਆ ਜਾ ਸਕੇ।
4. ਪ੍ਰਸ਼ਨਾਂ ਦੀ ਭਾਸ਼ਾ ਸਰਲ, ਸਪੱਸ਼ਟ ਅਤੇ ਪ੍ਰੀਖਿਆਰਥੀ ਦੀ ਬੌਧਿਕ ਪੱਧਰ ਦੇ ਅਨੁਕੂਲ ਹੋਣੀ ਚਾਹੀਦੀ ਹੈ।
5. ਪ੍ਰਸ਼ਨ ਅਜਿਹੇ ਹੋਣ ਜਿਹੜੇ ਨਿਰਧਾਰਿਤ ਸਮੇਂ ਵਿਚ ਸਹਿਜੇ ਹੀ ਹੱਲ ਕੀਤੇ ਜਾ ਸਕਣ।

ਪ੍ਰੀਖਿਆਰਥੀਆਂ ਲਈ ਹਦਾਇਤਾਂ

1. ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਨੂੰ ਤਿੰਨ ਭਾਗਾਂ(ੳ,ਅ, ਅਤੇ ੲ) ਵਿਚ ਵੰਡਿਆ ਜਾਵੇਗਾ।ਭਾਗ ੳ ਅਤੇ ਅ ਦੇ ਹਰੇਕ ਉਪ-ਭਾਗ (ੳ-1,ੳ-2 ਅਤੇ ਅ-1,ਅ-2)ਵਿਚੋਂ ਦੋ-ਦੋ ਪ੍ਰਸ਼ਨ,ਕੁੱਲ ਅੱਠ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ,ਜਿਨ੍ਹਾਂ ਵਿਚੋਂ ਪ੍ਰੀਖਿਆਰਥੀ ਨੇ ਹਰੇਕ ਉਪ-ਭਾਗ ਵਿਚੋਂ ਇਕ-ਇਕ ਪ੍ਰਸ਼ਨ ,ਭਾਵ ਕੁੱਲ ਚਾਰ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹੋਣਗੇ।ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 09 ਅੰਕ ਹੋਣਗੇ। ਇਸ ਤਰ੍ਹਾਂ ਭਾਗ ੳ ਅਤੇ ਅ ਦੇ ਉਪ-ਭਾਗਾਂ ਦੇ ਕੁੱਲ 36 ਅੰਕ ਹੋਣਗੇ।ਹਰ ਉਪ-ਭਾਗ ਵਿੱਚੋਂ ਇੱਕ ਪ੍ਰਸ਼ਨ ਕਰਨਾ ਲਾਜ਼ਮੀ ਹੋਵੇਗਾ।
2. ਤੀਜੇ ਭਾਗ (ਭਾਗ-ੲ) ਦੇ ਸਾਰੇ 10 ਪ੍ਰਸ਼ਨ ਲਾਜ਼ਮੀ ਹਨ। ਸਾਰੇ ਪ੍ਰਸ਼ਨਾਂ ਦਾ ਸੰਖੇਪ ਉੱਤਰ ਦੇਣਾ ਹੈ।ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 2 ਅੰਕ ਹਨ।
3. ਉੱਤਰ ਪ੍ਰਸ਼ਨ ਨੂੰ ਧਿਆਨ ਵਿਚ ਰੱਖ ਕੇ ਪ੍ਰਸ਼ਨ ਦੀ ਸੀਮਾ ਵਿਚ ਰਹਿ ਕੇ ਦਿੱਤੇ ਜਾਣ।

ਪਾਠਕ੍ਰਮ ਅਤੇ ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਦੀ ਰੂਪ-ਰੇਖਾ:

ਭਾਗ-ੳ

ੳ-I. ਵਾਰਤਕ ਸਿਧਾਂਤ,ਮੁੱਖ ਸੰਪਾਦਕ:ਡਾ.ਜਸਵਿੰਦਰ ਸਿੰਘ ਸੈਣੀ,ਸੰਪਾਦਕ ਡਾ.ਗੁਰਨਾਇਬ ਸਿੰਘ , ਡਾ.ਚਰਨਜੀਤ ਕੌਰ ,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ,ਪੁਸਤਕ ਦੇ ਭਾਗ ਪਹਿਲਾ ਦੇ ਚਾਰ ਲੇਖ

1. ਵਾਰਤਕ: ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਤੱਤ - ਡਾ. ਮਨਮੋਹਨ ਕੇਸਰ
2. ਵਾਰਤਕ ਸ਼ੈਲੀ - ਡਾ.ਸਤਿੰਦਰ ਸਿੰਘ

3.ਜਨਮਸਾਖੀ ਸਾਹਿਤ ਰੂਪ : ਡਾ. ਸੁਰਜੀਤ ਹਾਂਸ
4.ਨਿਬੰਧ:ਸਰੂਪ ਤੇ ਸੰਰਚਨਾ:ਡਾ.ਆਸ਼ਾ ਨੰਦ ਵੋਹਰਾ

ੳ-II.ਪੁਰਾਤਨ ਜਨਮਸਾਖੀ : ਸੰਪਾਦਕ ਭਾਈ ਵੀਰ ਸਿੰਘ
1.ਪੁਰਾਤਨ ਜਨਮਸਾਖੀ ਪੁਸਤਕ ਦੇ ਪ੍ਰਮੁੱਖ ਸਰੋਕਾਰ
2..ਪੁਰਾਤਨ ਜਨਮਸਾਖੀ ਪੁਸਤਕ ਦੀਆਂ ਬਿਰਤਾਂਤਕ ਜੁਗਤਾਂ
3.ਪੁਰਾਤਨ ਜਨਮਸਾਖੀ ਪੁਸਤਕ ਵਿੱਚ ਪੇਸ਼ ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਜੀ ਦੀ ਸਖਸ਼ੀਅਤ
4.ਪੁਰਾਤਨ ਜਨਮਸਾਖੀ ਪੁਸਤਕ ਦਾ ਇਤਿਹਾਸਕ ਪਰਿਪੇਖ

ਭਾਗ-ਅ

ਅ-I.ਪੰਜਾਬੀ ਬਾਤਚੀਤ : ਸ਼ਰਧਾ ਰਾਮ ਫਿਲੌਰੀ
1.ਪੰਜਾਬੀ ਬਾਤਚੀਤ ਪੁਸਤਕ ਦੇ ਪ੍ਰਮੁੱਖ ਸਰੋਕਾਰ
2.ਪੰਜਾਬੀ ਬਾਤਚੀਤ ਪੁਸਤਕ ਦੀਆਂ ਬਿਰਤਾਂਤਕ ਜੁਗਤਾਂ
3.ਪੰਜਾਬੀ ਬਾਤਚੀਤ ਪੁਸਤਕ ਦਾ ਆਲੋਚਨਾਤਮਕ ਅਧਿਐਨ
4. ਪੰਜਾਬੀ ਬਾਤਚੀਤ ਪੁਸਤਕ ਦਾ ਇਤਿਹਾਸਕ ਪਰਿਪੇਖ

ਅ- II. ਗੁਰਬਖਸ਼ ਸਿੰਘ ਪ੍ਰੀਤਲੜੀ ਦੇ ਪ੍ਰਤੀਨਿਧ ਲੇਖ - ਭਾਗ ਪਹਿਲਾ(ਪਹਿਲੇ 10 ਲੇਖ),ਸੰਪਾ.ਰਤਨ ਸਿੰਘ ਜੱਗੀ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ
1.ਗੁਰਬਖਸ਼ ਸਿੰਘ ਪ੍ਰੀਤਲੜੀ ਦੇ ਪ੍ਰਤੀਨਿਧ ਲੇਖ ਪੁਸਤਕ ਦੇ ਪ੍ਰਮੁੱਖ ਸਰੋਕਾਰ
2.ਗੁਰਬਖਸ਼ ਸਿੰਘ ਪ੍ਰੀਤਲੜੀ ਦੇ ਪ੍ਰਤੀਨਿਧ ਲੇਖ ਪੁਸਤਕ ਦੀਆਂ ਬਿਰਤਾਂਤਕ ਜੁਗਤਾਂ
3. ਗੁਰਬਖਸ਼ ਸਿੰਘ ਪ੍ਰੀਤਲੜੀ ਦੇ ਪ੍ਰਤੀਨਿਧ ਲੇਖ ਪੁਸਤਕ ਵਿਚ ਪ੍ਰੀਤ ਦਾ ਸੰਕਲਪ
4. ਗੁਰਬਖਸ਼ ਸਿੰਘ ਪ੍ਰੀਤਲੜੀ ਦੇ ਪ੍ਰਤੀਨਿਧ ਲੇਖ ਪੁਸਤਕ ਦਾ ਆਲੋਚਨਾਤਮਕ ਅਧਿਐਨ

ਭਾਗ-ੲ

ਉਪਰੋਕਤ ਸਿਲੇਬਸ'ਤੇ ਆਧਾਰਿਤ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ 10 ਪ੍ਰਸ਼ਨ

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1. ਰਤਨ ਸਿੰਘ ਜੱਗੀ, ਪੁਰਾਤਨ ਪੰਜਾਬੀ ਵਾਰਤਕ, ਪੰਜਾਬ ਸਟੇਟ ਯੂਨੀਵਰਸਿਟੀ ਟੈਕਸਟ ਬੁੱਕ ਬੋਰਡ, ਚੰਡੀਗੜ੍ਹ।
2. ਰਤਨ ਸਿੰਘ ਜੱਗੀ, ਪੁਰਾਤਨ ਜਨਮਸਾਖੀ ਅਧਿਐਨ ਅਤੇ ਸੰਪਾਦਨਾ, ਗੁਰਮਤਿ ਪ੍ਰਕਾਸ਼ਨ, ਪਟਿਆਲਾ।
3. ਗੁਰਬਚਨ ਕੌਰ, ਸ਼ਰਧਾ ਰਾਮ ਫਿਲੌਰੀ,ਪੰਜਾਬੀ,ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।
4. ਸੁਰਿੰਦਰ ਸਿੰਘ ਕੋਹਲੀ, ਪੁਰਾਤਨ ਪੰਜਾਬੀ ਵਾਰਤਕ: ਸਰੂਪ, ਸਿਧਾਂਤ ਅਤੇ ਵਿਕਾਸ, ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ, ਪੰਜਾਬੀ,ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।
5. ਖੋਜ ਪੱਤ੍ਰਿਕਾ, ਪੁਰਾਤਨ ਵਾਰਤਕ ਵਿਸ਼ੇਸ਼ ਅੰਕ-21,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ, ਪੰਜਾਬੀ, ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ, ਮਾਰਚ-1983।
6. ਖੋਜ ਪੱਤ੍ਰਿਕਾ, ਨਿਬੰਧ ਅੰਕ-29,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ, ਪੰਜਾਬੀ,ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।
7. ਮਹਿੰਦਰ ਕੌਰ ਗਿੱਲ (ਸੰਪਾ.), ਪੰਜਾਬੀ ਵਾਰਤਕ: ਸੈਮੀਨਾਰ, ਪੰਜਾਬੀ ਅਕਾਦਮੀ, ਦਿੱਲੀ।

8. ਕਰਨਜੀਤ ਸਿੰਘ, ਪੁਰਾਤਨ ਪੰਜਾਬੀ ਵਾਰਤਕ ਦਾ ਇਤਿਹਾਸ, ਪੰਜਾਬੀ ਅਕਾਦਮੀ, ਦਿੱਲੀ।
9. ਖੋਜ ਪਤ੍ਰਿਕਾ,ਗੁਰਬਖਸ਼ ਸਿੰਘ ਪ੍ਰੀਤਲੜੀ ਸ਼ਤਾਬਦੀ ਅੰਕ-43 ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ,ਪੰਜਾਬੀ,ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।
10. ਗੁਰਚਰਨ ਸਿੰਘ ,ਗੁਰਬਖਸ਼ ਸਿੰਘ ਪ੍ਰੀਤਲੜੀ :ਜੀਵਨ ਤੇ ਰਚਨਾ ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ ਪੰਜਾਬੀ,ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।
11. ਬਲਵੀਰ ਸਿੰਘ ਦਿਲ, ਪੰਜਾਬੀ ਨਿਬੰਧ :ਸਰੂਪ, ਸਿਧਾਂਤ ਅਤੇ ਵਿਕਾਸ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ, ਪੰਜਾਬੀ,ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।
12. ਸਤਿੰਦਰ ਸਿੰਘ,ਆਧੁਨਿਕ ਪੰਜਾਬੀ ਵਾਰਤਕ ਦਾ ਇਤਿਹਾਸ,ਪੰਜਾਬੀ ਅਕਾਦਮੀ,ਦਿੱਲੀ।
13. ਡਾ.ਕ੍ਰਿਪਾਲ ਸਿੰਘ,ਜਨਮਸਾਖੀ ਪਰੰਪਰਾ, ਪੰਜਾਬੀ,ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।
14. ਗੁਰਮੁਖ ਸਿੰਘ(ਸੰਪਾ.),ਸ਼ਰਧਾ ਰਾਮ ਫਿਲੌਰੀ(ਪੰਜਾਬੀ ਬਾਤਚੀਤ),ਲੋਕਗੀਤ ਪ੍ਰਕਾਸ਼ਨ,ਚੰਡੀਗੜ੍ਹ।
15. ਹਰਬੰਸ ਕੌਰ ਗਿੱਲ,ਵਾਰਤਕਾਰ: ਸ਼ਰਧਾ ਰਾਮ ਫਿਲੌਰੀ(ਪੰਜਾਬੀ ਬਾਤਚੀਤ ਇਕ ਅਧਿਐਨ),ਪੈਪਸੂ ਬੁੱਕ ਡਿਪੂ,ਪਟਿਆਲਾ।
16. ਧਰਮਪਾਲ ਸਿੰਗਲ,ਵਾਰਤਕ ਸ਼ੈਲੀ,ਭਾਸ਼ਾ ਵਿਭਾਗ,ਪੰਜਾਬ,ਪਟਿਆਲਾ।
17. ਪ੍ਰੋ.ਪਿਆਰਾ ਸਿੰਘ,ਪੰਜਾਬੀ ਵਾਰਤਕ:ਸਿਧਾਂਤ ,ਇਤਿਹਾਸ ਅਤੇ ਪ੍ਰਵਿਰਤੀਆਂ,ਨਿਊ ਬੁੱਕ ਕੰਪਨੀ,ਲੁਧਿਆਣਾ।
18. ਹਰਨਾਮ ਸਿੰਘ ਸ਼ਾਨ,ਚੋਣਵੀਂ ਗੱਦ,ਪੰਜਾਬ ਯੂਨੀਵਰਸਿਟੀ,ਚੰਡੀਗੜ੍ਹ।
19. ਪ੍ਰੀਤਮ ਸਿੰਘ(ਸੰਪਾ.),ਗੱਦ ਪ੍ਰਵੇਸ਼, ਪੰਜਾਬ ਯੂਨੀਵਰਸਿਟੀ,ਚੰਡੀਗੜ੍ਹ।
20. ਰਤਨ ਸਿੰਘ ਜੱਗੀ,ਪੁਰਾਤਨ ਪੰਜਾਬੀ ਵਾਰਤਕ:ਵਿਕਾਸ ਅਤੇ ਵਿਸ਼ਲੇਸ਼ਣ,ਪੰਜਾਬ ਸਟੇਟ ਯੂਨੀਵਰਸਿਟੀ ਟੈਕਸਟ ਬੁੱਕ ਬੋਰਡ,ਚੰਡੀਗੜ੍ਹ।

ਐਮ.ਏ. (ਪੰਜਾਬੀ), ਭਾਗ ਦੂਜਾ ,ਸਮੈਸਟਰ ਤੀਜਾ
ਇਲੈਕਟਿਵ ਕੋਰਸ ਪੰਜਵਾਂ- ਸੂਫ਼ੀ ਅਤੇ ਬੀਰ ਕਾਵਿ
ਪੇਪਰ ਕੋਡ:PUN-305,ਕ੍ਰੈਡਿਟ-05
2020-21,2021-22 ਸੈਸ਼ਨ ਲਈ

ਕੁੱਲ ਅੰਕ 80 ਪਾਸ ਅੰਕ : 28
ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ : 24 ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਵਿਚੋਂ ਪਾਸ ਅੰਕ : 08
ਬਾਹਰੀ ਪ੍ਰੀਖਿਆ : 56 ਬਾਹਰੀ ਪ੍ਰੀਖਿਆ ਵਿਚੋਂ ਪਾਸ ਅੰਕ : 20
ਪ੍ਰੀਖਿਆ ਦਾ ਸਮਾਂ : 3 ਘੰਟੇ ਕੁੱਲ ਲੈਕਚਰ-75

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼

1. ਸੂਫ਼ੀ ਕਾਵਿ ਅਤੇ ਬੀਰ ਕਾਵਿ ਦੇ ਇਤਿਹਾਸਕ ਸਫ਼ਰ ਬਾਰੇ ਗਿਆਨ ਦੇਣਾ।
2. ਵਿਭਿੰਨ ਸਾਹਿਤਕਾਰਾਂ ਦਾ ਸੂਫ਼ੀ ਅਤੇ ਬੀਰ ਕਾਵਿ ਵਿੱਚ ਬਣਦੇ ਸਥਾਨ ਬਾਰੇ ਜਾਣਕਾਰੀ ਦੇਣਾ ।
3. ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਵਿਭਿੰਨ ਸਾਹਿਤਕਾਰਾਂ ਦੀਆਂ ਰਚਨਾਵਾਂ ਦੇ ਬਹੁਪੱਖਾਂ ਬਾਰੇ ਜਾਣਕਾਰੀ ਦੇਣਾ।

4.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਸਾਹਿਤ ਸਿਰਜਨਾ ਲਈ ਪ੍ਰੇਰਿਤ ਕਰਨਾ ।

ਪੇਪਰ ਸੈਂਟਰ ਲਈ ਹਦਾਇਤਾਂ

1. ਸਾਰੇ ਸਿਲੇਬਸ ਵਿਚੋਂ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣ। ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਨੂੰ ਤਿੰਨ ਭਾਗਾਂ(ੳ,ਅ, ਅਤੇ ੲ) ਵਿਚ ਵੰਡਿਆ ਜਾਵੇ।ਭਾਗ ੳ ਅਤੇ ਅ ਦੇ ਹਰੇਕ ਉਪ-ਭਾਗ (ੳ-1,ੳ-2 ਅਤੇ ਅ-1,ਅ-2)ਵਿਚੋਂ ਦੋ-ਦੋ ਪ੍ਰਸ਼ਨ,ਕੁੱਲ ਅੱਠ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣ,ਜਿਨ੍ਹਾਂ ਵਿਚੋਂ ਵਿਦਿਆਰਥੀਆਂ ਨੇ ਹਰੇਕ ਉਪ-ਭਾਗ ਵਿਚੋਂ ਇਕ-ਇਕ ਪ੍ਰਸ਼ਨ ,ਭਾਵ ਕੁੱਲ ਚਾਰ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹੋਣਗੇ।ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 09 ਅੰਕ ਹੋਣਗੇ। ਇਸ ਤਰ੍ਹਾਂ ਭਾਗ ੳ ਅਤੇ ਅ ਦੇ ਉਪ-ਭਾਗਾਂ ਦੇ ਕੁੱਲ 36 ਅੰਕ ਹੋਣਗੇ।
2. ਤੀਜੇ ਭਾਗ (ਭਾਗ-ੲ) ਵਿਚ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ 10 ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ। ਪ੍ਰੀਖਿਆਰਥੀ ਨੇ ਸਾਰੇ ਪ੍ਰਸ਼ਨਾਂ ਦਾ ਉੱਤਰ ਦੇਣਾ ਹੋਵੇਗਾ। ਇਸ ਭਾਗ ਦੇ ਪ੍ਰਸ਼ਨਾਂ ਦਾ ਉੱਤਰ 5-6 ਸਤਰਾਂ ਵਿਚ ਦੇਣਾ ਹੋਵੇਗਾ। ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 2 ਅੰਕ ਹੋਣਗੇ। ਇਸ ਭਾਗ ਦੇ ਕੁੱਲ 20 ਅੰਕ ਹੋਣਗੇ।
3. ਸਾਰੇ ਭਾਗਾਂ ਵਿਚੋਂ ਪ੍ਰਸ਼ਨ ਇਸ ਢੰਗ ਨਾਲ ਪੁੱਛੇ ਜਾਣ ਕਿ ਸਿਲੇਬਸ ਦੇ ਸਾਰੇ ਪੱਖਾਂ ਸੰਬੰਧੀ ਪ੍ਰੀਖਿਆਰਥੀ ਵਲੋਂ ਕੀਤੇ ਅਧਿਐਨ ਨੂੰ ਪਰਖਿਆ ਜਾ ਸਕੇ ਅਤੇ ਇਹ ਵੀ ਪਰਖਿਆ ਜਾ ਸਕੇ ਕਿ ਉਸਨੇ ਸਮੁੱਚੇ ਸਿਲੇਬਸ ਦਾ ਅਧਿਐਨ ਕੀਤਾ ਹੈ। ਤੀਜੇ ਭਾਗ (ਭਾਗ-ੲ) ਦੇ ਲਾਜ਼ਮੀ ਪ੍ਰਸ਼ਨ ਦੇ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਸਾਰੇ 10 ਪ੍ਰਸ਼ਨ ਇਸ ਢੰਗ ਨਾਲ ਪੁੱਛੇ ਜਾਣ ਕਿ ਪੇਪਰ ਨਾਲ ਸੰਬੰਧਿਤ ਸਿਲੇਬਸ ਦੇ ਨਿਕਟ ਅਤੇ ਪਾਠ-ਮੂਲਕ ਅਧਿਐਨ ਨੂੰ ਪਰਖਿਆ ਜਾ ਸਕੇ।

4.ਪ੍ਰਸ਼ਨਾਂ ਦੀ ਭਾਸ਼ਾ ਸਰਲ, ਸਪੱਸ਼ਟ ਅਤੇ ਪ੍ਰੀਖਿਆਰਥੀ ਦੀ ਬੌਧਿਕ ਪੱਧਰ ਦੇ ਅਨੁਕੂਲ ਹੋਣੀ ਚਾਹੀਦੀ ਹੈ।

5.ਪ੍ਰਸ਼ਨ ਅਜਿਹੇ ਹੋਣ ਜਿਹੜੇ ਨਿਰਧਾਰਿਤ ਸਮੇਂ ਵਿਚ ਸਹਿਜੇ ਹੀ ਹੱਲ ਕੀਤੇ ਜਾ ਸਕਣ।

ਪ੍ਰੀਖਿਆਰਥੀਆਂ ਲਈ ਹਦਾਇਤਾਂ

1. ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਨੂੰ ਤਿੰਨ ਭਾਗਾਂ(ੳ,ਅ, ਅਤੇ ੲ) ਵਿਚ ਵੰਡਿਆ ਜਾਵੇਗਾ।ਭਾਗ ੳ ਅਤੇ ਅ ਦੇ ਹਰੇਕ ਉਪ-ਭਾਗ (ੳ-1,ੳ-2 ਅਤੇ ਅ-1,ਅ-2)ਵਿਚੋਂ ਦੋ-ਦੋ ਪ੍ਰਸ਼ਨ,ਕੁੱਲ ਅੱਠ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ,ਜਿਨ੍ਹਾਂ ਵਿਚੋਂ ਪ੍ਰੀਖਿਆਰਥੀ ਨੇ ਹਰੇਕ ਉਪ-ਭਾਗ ਵਿਚੋਂ ਇਕ-ਇਕ ਪ੍ਰਸ਼ਨ ,ਭਾਵ ਕੁੱਲ ਚਾਰ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹੋਣਗੇ।ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 09 ਅੰਕ ਹੋਣਗੇ। ਇਸ ਤਰ੍ਹਾਂ ਭਾਗ ੳ ਅਤੇ ਅ ਦੇ ਉਪ-ਭਾਗਾਂ ਦੇ ਕੁੱਲ 36 ਅੰਕ ਹੋਣਗੇ।ਹਰ ਉਪ-ਭਾਗ ਵਿੱਚੋਂ ਇੱਕ ਪ੍ਰਸ਼ਨ ਕਰਨਾ ਲਾਜ਼ਮੀ ਹੋਵੇਗਾ।
2. ਤੀਜੇ ਭਾਗ (ਭਾਗ-ੲ) ਦੇ ਸਾਰੇ 10 ਪ੍ਰਸ਼ਨ ਲਾਜ਼ਮੀ ਹਨ। ਸਾਰੇ ਪ੍ਰਸ਼ਨਾਂ ਦਾ ਸੰਖੇਪ ਉੱਤਰ ਦੇਣਾ ਹੈ।ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 2 ਅੰਕ ਹਨ।
3. ਉੱਤਰ ਪ੍ਰਸ਼ਨ ਨੂੰ ਧਿਆਨ ਵਿਚ ਰੱਖ ਕੇ ਪ੍ਰਸ਼ਨ ਦੀ ਸੀਮਾ ਵਿਚ ਰਹਿ ਕੇ ਦਿੱਤੇ ਜਾਣ।

ਪਾਠਕ੍ਰਮ ਅਤੇ ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਦੀ ਰੂਪ-ਰੇਖਾ:

ਭਾਗ-ੳ

ੳ-I. ਮੱਧਕਾਲੀ ਕਾਵਿ ਸਿਧਾਂਤ,ਮੁੱਖ ਸੰਪਾਦਕ:ਡਾ.ਜਸਵਿੰਦਰ ਸੈਣੀ,ਸੰਪਾ.ਤਾਰਾ ਸਿੰਘ ,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ ,ਪਟਿਆਲਾ,ਪੁਸਤਕ ਦੇ ਚਾਰ ਆਲੇਖ

1.ਵਾਰ: ਡਾ.ਰਤਨ ਸਿੰਘ ਜੱਗੀ
2.ਜੰਗਨਾਮਾ-ਇੱਕ ਅਧਿਐਨ:ਡਾ.ਗੁਰਦੇਵ ਸਿੰਘ
3.ਸੂਫ਼ੀਮਤ ਦਾ ਮੂਲ ਤੇ ਵਿਕਾਸ: ਡਾ. ਦੀਵਾਨ ਸਿੰਘ
4.ਪੰਜਾਬੀ ਸੂਫੀ -ਕਾਵਿ : ਡਾ.ਹਰਿਭਜਨ ਸਿੰਘ

ੳ-II. ਚੰਡੀ ਦੀ ਵਾਰ: ਸ੍ਰੀ ਗੁਰੂ ਗੋਬਿੰਦ ਸਿੰਘ

1.ਚੰਡੀ ਦੀ ਵਾਰ ਦੇ ਪ੍ਰਮੁੱਖ ਸਰੋਕਾਰ
2.ਚੰਡੀ ਦੀ ਵਾਰ ਦਾ ਸੁਹਜ ਸ਼ਾਸ਼ਤਰ
3.ਚੰਡੀ ਦੀ ਵਾਰ ਦਾ ਇਤਿਹਾਸਕ ਪਰਿਪੇਖ
4. ਚੰਡੀ ਦੀ ਵਾਰ ਦੀ ਨਾਇਕਤਵ ਦੀ ਨਿਰਮਾਣਕਾਰੀ

ਭਾਗ–ਅ

ਅ–I. ਜੰਗਨਾਮਾ ਸਿੰਘਾਂ ਤੇ ਫਰੰਗੀਆਂ: ਸ਼ਾਹ ਮੁਹੰਮਦ

1. ਜੰਗਨਾਮਾ ਸਿੰਘਾਂ ਤੇ ਫਰੰਗੀਆਂ ਦੇ ਪ੍ਰਮੁੱਖ ਸਰੋਕਾਰ
2. ਜੰਗਨਾਮਾ ਸਿੰਘਾਂ ਤੇ ਫਰੰਗੀਆਂ ਦਾ ਸੁਹਜ ਸ਼ਾਸ਼ਤਰ
3.ਜੰਗਨਾਮਾ ਸਿੰਘਾਂ ਤੇ ਫਰੰਗੀਆਂ ਦਾ ਇਤਿਹਾਸਕ ਪਰਿਪੇਖ
4.ਜੰਗਨਾਮਾ ਸਿੰਘਾਂ ਤੇ ਫਰੰਗੀਆਂ ਵਿੱਚ ਪੇਸ਼ ਪੰਜਾਬੀਅਤ ਦਾ ਸੰਕਲਪ

ਅ –II. ਸ਼ਾਹ ਹੁਸੈਨ ਅਤੇ ਬੁਲ੍ਹੇ ਸ਼ਾਹ ਦੀਆਂ ਕਾਫ਼ੀਆਂ

1. ਸ਼ਾਹ ਹੁਸੈਨ ਦੀਆਂ ਕਾਫ਼ੀਆਂ ਦੇ ਪ੍ਰਮੁੱਖ ਸਰੋਕਾਰ
2. ਸ਼ਾਹ ਹੁਸੈਨ ਦੀਆਂ ਕਾਫ਼ੀਆਂ ਦਾ ਸੁਹਜ ਸ਼ਾਸ਼ਤਰ
3. ਬੁਲ੍ਹੇ ਸ਼ਾਹ ਦੀਆਂ ਕਾਫ਼ੀਆਂ ਦੇ ਪ੍ਰਮੁੱਖ ਸਰੋਕਾਰ
4. ਬੁਲ੍ਹੇ ਸ਼ਾਹ ਦੀਆਂ ਕਾਫ਼ੀਆਂ ਦਾ ਸੁਹਜ ਸ਼ਾਸ਼ਤਰ

ਭਾਗ–ੲ

ਉਪਰੋਕਤ ਸਿਲੇਬਸ'ਤੇ ਆਧਾਰਿਤ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ 10 ਪ੍ਰਸ਼ਨ

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1.ਅਤਰ ਸਿੰਘ,ਦ੍ਰਿਸ਼ਟੀਕੋਣ,ਲਾਹੌਰ ਬੁੱਕ ਸ਼ਾਪ,ਲੁਧਿਆਣਾ।
2.ਅਤਰ ਸਿੰਘ,ਸਮਦਰਸ਼ਨ,ਰਘਵੀਰ ਰਚਨਾ ਪ੍ਰਕਾਸ਼ਨ,ਚੰਡੀਗੜ੍ਹ।
3.ਸੰਤ ਸਿੰਘ ਸੇਖੋਂ,ਪੰਜਾਬੀ ਕਾਵਿ ਸ਼ਿਰੋਮਣੀ, ਲਾਹੌਰ ਬੁੱਕ ਸ਼ਾਪ,ਲੁਧਿਆਣਾ।
4.ਹਰਿਭਜਨ ਸਿੰਘ,ਅਧਿਅਨ ਅਤੇ ਅਧਿਆਪਨ,ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਯੂਨੀਵਰਸਿਟੀ, ਅੰਮ੍ਰਿਤਸਰ।
5.ਡਾ.ਜਗਜੀਤ ਸਿੰਘ,ਪੰਜਾਬੀ ਸੂਫ਼ੀ ਕਾਵਿ ਪ੍ਰਵਚਨ,ਬਲਵੰਤ ਪ੍ਰਕਾਸ਼ਨ,ਜਲੰਧਰ।
6.ਬਿਕਰਮ ਸਿੰਘ ਘੁੰਮਣ, ਸੂਫ਼ੀਮਤ ਅਤੇ ਪੰਜਾਬੀ ਸੂਫ਼ੀ ਕਾਵਿ, ਵਾਰਿਸ ਸ਼ਾਹ ਫਾਊਂਡੇਸ਼ਨ, ਅੰਮ੍ਰਿਤਸਰ।
7. ਬਿਕਰਮ ਸਿੰਘ ਘੁੰਮਣ, ਕਾਫ਼ੀਆਂ ਸ਼ਾਹ ਹੁਸੈਨ,ਵਾਰਿਸ ਸ਼ਾਹ ਫਾਊਂਡੇਸ਼ਨ, ਅੰਮ੍ਰਿਤਸਰ।
8.ਬਿਕਰਮ ਸਿੰਘ ਘੁੰਮਣ, ਕਾਫ਼ੀਆਂ ਬੁੱਲੇ ਸ਼ਾਹ,ਵਾਰਿਸ ਸ਼ਾਹ ਫਾਊਂਡੇਸ਼ਨ, ਅੰਮ੍ਰਿਤਸਰ।
9. ਹਰਜਿੰਦਰ ਸਿੰਘ ਢਿੱਲੋਂ, ਸੂਫ਼ੀ ਕਵੀ ਸ਼ਾਹ ਹੁਸੈਨ,ਵਾਰਿਸ ਸ਼ਾਹ ਫਾਊਂਡੇਸ਼ਨ, ਅੰਮਿਤਸਰ।
10. ਬਲਬੀਰ ਸਿੰਘ ਪੂਨੀ, ਜੰਗ ਸਿੰਘਾਂ ਤੇ ਅੰਗਰੇਜ਼ਾਂ(ਸ਼ਾਹ ਮੁਹੰਮਦ),ਵਾਰਿਸ ਸ਼ਾਹ ਫਾਊਂਡੇਸ਼ਨ, ਅੰਮ੍ਰਿਤਸਰ।
11. ਬਿਕਰਮ ਸਿੰਘ ਘੁੰਮਣ, ਚੰਡੀ ਦੀ ਵਾਰ: ਚਿੰਤਨ ਤੇ ਕਲਾ,ਵਾਰਿਸ ਸ਼ਾਹ ਫ਼ਾਊਂਡੇਸ਼ਨ, ਅੰਮ੍ਰਿਤਸਰ।
12.ਡਾ. ਨਰੇਸ਼, ਸੂਫ਼ੀਮਤ ਤੇ ਸੂਫ਼ੀ ਕਾਵਿ, ਲੋਕ ਸਾਹਿਤ ਪ੍ਰਕਾਸ਼ਨ, ਅੰਮ੍ਰਿਤਸਰ।

13. ਕਾਲਾ ਸਿੰਘ ਬੇਦੀ, ਚੰਡੀ ਦੀ ਵਾਰ: ਇਕ ਅਧਿਐਨ, ਪੰਜਾਬੀ ਬੁੱਕ ਸਟੋਰ, ਦਿੱਲੀ।
14.ਜੀਤ ਸਿੰਘ ਸੀਤਲ,ਸ਼ਾਹ ਹੁਸੈਨ:ਜੀਵਨ ਤੇ ਰਚਨਾ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ ।
15.ਜੀਤ ਸਿੰਘ ਸੀਤਲ,ਬੁਲ੍ਹੇ ਸ਼ਾਹ:ਜੀਵਨ ਤੇ ਰਚਨਾ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ ।
16. ਪੰਜਾਬੀ ਦੁਨੀਆ, ਬੀਰ ਕਾਵਿ ਅੰਕ, ਭਾਸ਼ਾ ਵਿਭਾਗ, ਪੰਜਾਬ, ਪਟਿਆਲਾ।
17.ਨਜ਼ਮ ਹੁਸੈਨ ਸੱਯਦ,ਸੇਧਾਂ ਸਾਰਾਂ ਤੇ ਹੋਰ ਲੇਖ,ਜਸਵੰਤ ਪ੍ਰਿੰਟਰਜ਼,ਲੁਧਿਆਣਾ।
18.ਡਾ.ਸੁਖਦੇਵ ਸਿੰਘ(ਸੰਪਾ.),ਭਾਰਤੀ ਸੂਫ਼ੀ ਪਰੰਪਰਾ ਤੇ ਸਾਹਿਤ,ਪੰਜਾਬੀ ਸਾਹਿਤ ਅਕਾਦਮੀ,ਲੁਧਿਆਣਾ।
19.ਡਾ.ਰਤਨ ਸਿੰਘ ਜੱਗੀ,ਵਿਚਾਰਧਾਰਾ,ਮਦਾਨ ਪਬਲਿਸ਼ਰਜ਼,ਪਟਿਆਲਾ।
20.ਡਾ.ਗੁਰਪ੍ਰੀਤ ਕੌਰ,ਮੱਧਕਾਲੀਨ ਕਾਵਿ ਅਵਲੋਕਨ,ਲੋਕਗੀਤ ਪ੍ਰਕਾਸ਼ਨ,ਚੰਡੀਗੜ੍ਹ,2015

ਸ੍ਰੀ ਗੁਰੂ ਤੇ.ਗ ਬਹਾਦਰ ਖ਼ਾਲਸਾ ਕਾਲਜ, ਸ੍ਰੀ ਅਨੰਦਪੁਰ ਸਾਹਿਬ

(ਆਟੋਨੌਮਸ ਕਾਲਜ)

ਪੋਸਟ ਗ੍ਰੈਜੂਏਟ ਪੰਜਾਬੀ ਵਿਭਾਗ

ਸਿਲੇਬਸ

ਐਮ.ਏ.ਪੰਜਾਬੀ, ਭਾਗ-ਦੂਜਾ ,ਸਮੈਸਟਰ ਚੌਥਾ

ਐਮ.ਏ.ਪੰਜਾਬੀ,ਭਾਗ-ਦੂਜਾ

ਸਮੈਸਟਰ-ਚੌਥਾ				
ਪੇਪਰ	ਵਿਸ਼ਾ	ਲਿਖਤੀ / ਪ੍ਰੈਕਟੀਕਲ ਪ੍ਰੀਖਿਆ ਦੇ ਅੰਕ	ਪੇਪਰ ਕੋਡ	ਕ੍ਰੈਡਿਟ
ਕੋਰ ਪੇਪਰ ਪਹਿਲਾ	ਭਾਸ਼ਾ ਵਿਗਿਆਨ ਅਤੇ ਪੰਜਾਬੀ ਭਾਸ਼ਾ	40L+16P	PUN-401	05(04L+01P)
ਕੋਰ ਪੇਪਰ ਦੂਜਾ	ਲੋਕਧਾਰਾ ਅਤੇ	56	PUN-402	05

	ਪੰਜਾਬੀ ਲੋਕਧਾਰਾ			
ਇਲੈਕਟਿਵ ਕੋਰਸ ਤੀਜਾ	ਗੁਰਮਤਿ ਕਾਵਿ (ਆਪਸ਼ਨ-1) ਗੁਰੂ ਅਰਜਨ ਦੇਵ ਜੀ ਵਿਸ਼ੇਸ਼ ਅਧਿਐਨ (ਆਪਸ਼ਨ-2)	40L+16P	PUN-403A PUN-403B	05(04L+01P)
ਇਲੈਕਟਿਵ ਕੋਰਸ ਚੌਥਾ	ਪੰਜਾਬੀ ਵਾਰਤਕ	56	PUN-404	05
ਇਲੈਕਟਿਵ ਕੋਰਸ ਪੰਜਵਾਂ	ਕਿੱਸਾ ਕਾਵਿ	56	PUN-405	05

ਨੋਟ: ਐਮ.ਏ. ਭਾਗ ਦੂਜਾ ਦੇ ਕੋਰਸ ਦਾ ਹਰੇਕ ਪੇਪਰ 80 ਅੰਕਾਂ ਦਾ ਹੋਵੇਗਾ ,ਪਾਸ ਅੰਕ 28 ਹੋਣਗੇ।ਹਰੇਕ ਪੇਪਰ ਵਿਚ 24 ਨੰਬਰਾਂ ਦਾ ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਹੋਵੇਗਾ।ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਦਾ ਵੇਰਵਾ ਹੇਠ ਲਿਖੇ ਅਨੁਸਾਰ ਹੋਵੇਗਾ:-

1.ਐਮ.ਐਸ.ਟੀ.(I&II)	-25%+25%=50%ਅੰਕ
2.ਅਸਾਈਨਮੈਂਟ / ਸੈਮੀਨਾਰ	-35% ਅੰਕ
3.ਕਲਾਸ ਵਿੱਚ ਹਾਜ਼ਰੀ	- 15% ਅੰਕ

ਐਮ.ਏ.ਪੰਜਾਬੀ ਕੋਰਸ ਦੇ ਉਦੇਸ਼:-

1. ਪੰਜਾਬੀ ਭਾਸ਼ਾ,ਸਾਹਿਤ ਅਤੇ ਸਭਿਆਚਾਰ ਬਾਰੇ ਸਰਬਪੱਖੀ ਗਿਆਨ ਪ੍ਰਦਾਨ ਕਰਨਾ।
2. ਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ ਉਚੇਰੀ ਖੋਜ ਲਈ ਸਿਰਜਣਾਤਮਕ ਅਤੇ ਆਲੋਚਨਾਤਮਕ ਨਜ਼ਰੀਆ ਪੈਦਾ ਕਰਨਾ।
3. ਰਾਸ਼ਟਰੀ ਪ੍ਰਤੀਯੋਗਤਾ ਵਾਲੇ ਇਮਤਿਹਾਨਾਂ ਜਿਵੇਂ ਯੂ. ਜੀ. ਸੀ. , ਆਈ. ਏ. ਐਸ, ਆਈ. ਪੀ.ਐਸ. , ਪੀ.ਸੀ.ਐਸ. ਆਦਿ 'ਚ ਸਫ਼ਲਤਾ ਨੂੰ ਆਸਾਨ ਬਣਾਉਣਾ।
4. ਅਧਿਆਪਕ ,ਅਨੁਵਾਦਕ ,ਪਰੂਫ਼ ਰੀਡਰ,ਪੱਤਰਕਾਰ,ਐਂਕਰ ਆਦਿ ਵਿਵਸਾਇਕ ਕਿੱਤਿਆਂ 'ਚ ਰੁਜ਼ਗਾਰ ਲਈ ਤਿਆਰ ਕਰਨਾ।

ਐਮ.ਏ. (ਪੰਜਾਬੀ), ਭਾਗ ਦੂਜਾ ,ਸਮੈਸਟਰ ਚੌਥਾ
ਕੋਰ ਕੋਰਸ -ਪਹਿਲਾ: ਭਾਸ਼ਾ ਵਿਗਿਆਨ ਅਤੇ ਪੰਜਾਬੀ ਭਾਸ਼ਾ
ਪੇਪਰ ਕੋਡ:PUN-401,ਕ੍ਰੈਡਿਟ-05(04L+01P)
2020-21,2021-22 ਸੈਸ਼ਨ ਲਈ

ਕੁੱਲ ਅੰਕ 80	ਪਾਸ ਅੰਕ : 28
ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ : 24	ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਵਿਚੋਂ ਪਾਸ ਅੰਕ : 08
ਬਾਹਰੀ ਪ੍ਰੀਖਿਆ : 40	ਬਾਹਰੀ ਪ੍ਰੀਖਿਆ ਵਿਚੋਂ ਪਾਸ ਅੰਕ : 14
ਪ੍ਰੀਖਿਆ ਦਾ ਸਮਾਂ : 3 ਘੰਟੇ	ਕੁੱਲ ਲੈਕਚਰ-60

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼

1. ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਭਾਸ਼ਾ ਵਿਗਿਆਨ ਅਤੇ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੇ ਇਤਿਹਾਸਕ ਸਫ਼ਰ ਬਾਰੇ ਗਿਆਨ ਦੇਣਾ।
2. ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਨੂੰ ਭਵਿੱਖ ਵਿੱਚ ਆਉਣ ਵਾਲੀਆਂ ਦਰਪੇਸ਼ ਚੁਣੌਤੀਆਂ ਬਾਰੇ ਜਾਗਰੂਕ ਕਰਨਾ ।
3. ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਭਾਸ਼ਾ ਵਿਗਿਆਨ ਅਤੇ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੇ ਬਹੁਪੱਖਾਂ ਬਾਰੇ ਜਾਣਕਾਰੀ ਦੇਣਾ।
4. ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਸਾਹਿਤ ਸਿਰਜਨਾ ਲਈ ਪ੍ਰੇਰਿਤ ਕਰਨਾ ।

ਪੇਪਰ ਸੈੱਟਰ ਲਈ ਹਦਾਇਤਾਂ

1. ਸਾਰੇ ਸਿਲੇਬਸ ਵਿਚੋਂ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣ। ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਨੂੰ ਤਿੰਨ ਭਾਗਾਂ(ੳ,ਅ, ਅਤੇ ੲ) ਵਿਚ ਵੰਡਿਆ ਜਾਵੇ।ਭਾਗ ੳ ਅਤੇ ਅ ਦੇ ਹਰੇਕ ਉਪ-ਭਾਗ (ੳ-1,ੳ-2 ਅਤੇ ਅ-1,ਅ-2)ਵਿਚੋਂ ਦੋ-ਦੋ ਪ੍ਰਸ਼ਨ,ਕੁੱਲ ਅੱਠ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣ,ਜਿਨ੍ਹਾਂ ਵਿਚੋਂ ਵਿਦਿਆਰਥੀਆਂ ਨੇ ਹਰੇਕ ਉਪ-ਭਾਗ ਵਿਚੋਂ ਇਕ-ਇਕ ਪ੍ਰਸ਼ਨ ,ਭਾਵ ਕੁੱਲ ਚਾਰ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹੋਣਗੇ।ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 06 ਅੰਕ ਹੋਣਗੇ। ਇਸ ਤਰ੍ਹਾਂ ਭਾਗ ੳ ਅਤੇ ਅ ਦੇ ਉਪ-ਭਾਗਾਂ ਦੇ ਕੁੱਲ 24 ਅੰਕ ਹੋਣਗੇ।
2. ਤੀਜੇ ਭਾਗ (ਭਾਗ-ੲ) ਵਿਚ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ 08 ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ। ਪ੍ਰੀਖਿਆਰਥੀ ਨੇ ਸਾਰੇ ਪ੍ਰਸ਼ਨਾਂ ਦਾ ਉੱਤਰ ਦੇਣਾ ਹੋਵੇਗਾ। ਇਸ ਭਾਗ ਦੇ ਪ੍ਰਸ਼ਨਾਂ ਦਾ ਉੱਤਰ 5-6 ਸਤਰਾਂ ਵਿਚ ਦੇਣਾ ਹੋਵੇਗਾ। ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 2 ਅੰਕ ਹੋਣਗੇ। ਇਸ ਭਾਗ ਦੇ ਕੁੱਲ 16 ਅੰਕ ਹੋਣਗੇ।
3. ਸਾਰੇ ਭਾਗਾਂ ਵਿਚੋਂ ਪ੍ਰਸ਼ਨ ਇਸ ਢੰਗ ਨਾਲ ਪੁੱਛੇ ਜਾਣ ਕਿ ਸਿਲੇਬਸ ਦੇ ਸਾਰੇ ਪੱਖਾਂ ਸੰਬੰਧੀ ਪ੍ਰੀਖਿਆਰਥੀ ਵਲੋਂ ਕੀਤੇ ਅਧਿਐਨ ਨੂੰ ਪਰਖਿਆ ਜਾ ਸਕੇ ਅਤੇ ਇਹ ਵੀ ਪਰਖਿਆ ਜਾ ਸਕੇ ਕਿ ਉਸਨੇ ਸਮੁੱਚੇ ਸਿਲੇਬਸ ਦਾ ਅਧਿਐਨ ਕੀਤਾ ਹੈ। ਤੀਜੇ ਭਾਗ (ਭਾਗ-ੲ) ਦੇ ਲਾਜ਼ਮੀ ਪ੍ਰਸ਼ਨ ਦੇ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਸਾਰੇ 08 ਪ੍ਰਸ਼ਨ ਇਸ ਢੰਗ ਨਾਲ ਪੁੱਛੇ ਜਾਣ ਕਿ ਪੇਪਰ ਨਾਲ ਸੰਬੰਧਿਤ ਸਿਲੇਬਸ ਦੇ ਨਿਕਟ ਅਤੇ ਪਾਠ-ਮੂਲਕ ਅਧਿਐਨ ਨੂੰ ਪਰਖਿਆ ਜਾ ਸਕੇ।
4. ਪ੍ਰਸ਼ਨਾਂ ਦੀ ਭਾਸ਼ਾ ਸਰਲ, ਸਪੱਸ਼ਟ ਅਤੇ ਪ੍ਰੀਖਿਆਰਥੀ ਦੀ ਬੌਧਿਕ ਪੱਧਰ ਦੇ ਅਨੁਕੂਲ ਹੋਣੀ ਚਾਹੀਦੀ ਹੈ।
5. ਪ੍ਰਸ਼ਨ ਅਜਿਹੇ ਹੋਣ ਜਿਹੜੇ ਨਿਰਧਾਰਿਤ ਸਮੇਂ ਵਿਚ ਸਹਿਜੇ ਹੀ ਹੱਲ ਕੀਤੇ ਜਾ ਸਕਣ।

ਪ੍ਰੀਖਿਆਰਥੀਆਂ ਲਈ ਹਦਾਇਤਾਂ

1. ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਨੂੰ ਤਿੰਨ ਭਾਗਾਂ(ੳ,ਅ, ਅਤੇ ੲ) ਵਿਚ ਵੰਡਿਆ ਜਾਵੇਗਾ।ਭਾਗ ੳ ਅਤੇ ਅ ਦੇ ਹਰੇਕ ਉਪ-ਭਾਗ (ੳ-1,ੳ-2 ਅਤੇ ਅ-1,ਅ-2)ਵਿਚੋਂ ਦੋ-ਦੋ ਪ੍ਰਸ਼ਨ,ਕੁੱਲ ਅੱਠ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ,ਜਿਨ੍ਹਾਂ ਵਿਚੋਂ ਪ੍ਰੀਖਿਆਰਥੀ ਨੇ ਹਰੇਕ ਉਪ-ਭਾਗ ਵਿਚੋਂ ਇਕ-ਇਕ ਪ੍ਰਸ਼ਨ ,ਭਾਵ ਕੁੱਲ ਚਾਰ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹੋਣਗੇ।ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 06 ਅੰਕ ਹੋਣਗੇ। ਇਸ ਤਰ੍ਹਾਂ ਭਾਗ ੳ ਅਤੇ ਅ ਦੇ ਉਪ-ਭਾਗਾਂ ਦੇ ਕੁੱਲ 24ਅੰਕ ਹੋਣਗੇ।ਹਰ ਉਪ-ਭਾਗ ਵਿੱਚੋਂ ਇੱਕ ਪ੍ਰਸ਼ਨ ਕਰਨਾ ਲਾਜ਼ਮੀ ਹੋਵੇਗਾ।
2. ਤੀਜੇ ਭਾਗ (ਭਾਗ-ੲ) ਦੇ ਸਾਰੇ 08 ਪ੍ਰਸ਼ਨ ਲਾਜ਼ਮੀ ਹਨ। ਸਾਰੇ ਪ੍ਰਸ਼ਨਾਂ ਦਾ ਸੰਖੇਪ ਉੱਤਰ ਦੇਣਾ ਹੈ।ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 2 ਅੰਕ ਹਨ।
3. ਉੱਤਰ ਪ੍ਰਸ਼ਨ ਨੂੰ ਧਿਆਨ ਵਿਚ ਰੱਖ ਕੇ ਪ੍ਰਸ਼ਨ ਦੀ ਸੀਮਾ ਵਿਚ ਰਹਿ ਕੇ ਦਿੱਤੇ ਜਾਣ।

ਪਾਠਕ੍ਰਮ ਅਤੇ ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਦੀ ਰੂਪ-ਰੇਖਾ

ਭਾਗ-ੳ

ੳ-I. ਭਾਸ਼ਾ ਦੀਆਂ ਵਿਆਕਰਨਕ ਇਕਾਈਆਂ

1.ਭਾਵੰਸ਼ : ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਪ੍ਰਕਾਰ
2.ਸ਼ਬਦ : ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਪ੍ਰਕਾਰ
3.ਉਪਵਾਕ : ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਪ੍ਰਕਾਰ

4.ਵਾਕ : ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਪ੍ਰਕਾਰ

ੳ-II. ਧੁਨੀ ਵਿਗਿਆਨ:-

1.ਧੁਨੀ ਵਿਗਿਆਨ ਦੀ ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਪ੍ਰਕਾਰ
2.ਉਚਾਰਨ ਅੰਗ
3.ਖੰਡੀ ਧੁਨੀਆਂ
4.ਅਖੰਡੀ ਧੁਨੀਆਂ

ਭਾਗ-ਅ

ਅ-I . ਅਰਥ ਵਿਗਿਆਨ

1.ਅਰਥ ਵਿਗਿਆਨ ਦੀ ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਇਤਿਹਾਸ
2.ਭਾਰਤੀ ਅਰਥ ਸਿਧਾਂਤ:ਅਪੋਹ,ਸਫੋਟ ਅਤੇ ਧੁਨੀ
3.ਅਰਥ ਵਿਕਾਸ ਦੀਆਂ ਦਿਸ਼ਾਵਾਂ
4.ਅਰਥ ਦੇ ਆਧਾਰ 'ਤੇ ਸ਼ਬਦਾਂ ਦਾ ਵਰਗੀਕਰਨ:ਸਮਾਨਾਰਥਕ ਸ਼ਬਦ,ਵਿਰੋਧਾਰਥਕ ਸ਼ਬਦ,ਬਹੁਅਰਥਕ ਸ਼ਬਦ ਅਤੇ ਸਮਧੁਨੀ ਸ਼ਬਦ

ਅ-II. ਗੁਰਮੁਖੀ ਲਿਪੀ

1.ਗੁਰਮੁਖੀ ਲਿਪੀ ਦਾ ਜਨਮ ਅਤੇ ਵਿਕਾਸ
2.ਗੁਰਮੁਖੀ ਲਿਪੀ ਦੀਆਂ ਵਿਸ਼ੇਸ਼ਤਾਵਾਂ
3.ਗੁਰਮੁਖੀ ਆਰਥੋਗ੍ਰਾਫੀ
4.ਪੰਜਾਬੀ ਧੁਨੀਆਂ ਅਤੇ ਗੁਰਮੁਖੀ ਲਿਪੀ

ਭਾਗ-ੲ

ਉਪਰੋਕਤ ਸਿਲੇਬਸ'ਤੇ ਆਧਾਰਿਤ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ 10 ਪ੍ਰਸ਼ਨ

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1.ਅਗਨੀਹੋਤਰੀ ਵੇਦ,ਪਰਿਚਾਇਕ ਭਾਸ਼ਾ ਵਿਗਿਆਨ,ਦੀਪਕ ਪਬਲਿਸ਼ਰਜ਼,ਜਲੰਧਰ
2.ਹਰਕੀਰਤ ਸਿੰਘ,ਭਾਸ਼ਾ ਵਿਗਿਆਨ ਅਤੇ ਪੰਜਾਬੀ ਭਾਸ਼ਾ,ਬਾਹਰੀ ਪਬਲਿਸ਼ਰਜ਼,ਦਿੱਲੀ।
3.ਹਰਕੀਰਤ ਸਿੰਘ,ਰੂਪਾਂਤਰੀ ਵਿਆਕਰਨ,ਪੰਜਾਬ ਸਟੇਟ ਟੈਕਸਟ ਬੁੱਕ ਬੋਰਡ,ਚੰਡੀਗੜ੍ਹ।
4.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ,ਭਾਸ਼ਾ ਵਿਗਿਆਨ :ਸੰਕਲਪ ਤੇ ਦਿਸ਼ਾਵਾਂ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ।
5.ਬਲਦੇਵ ਸਿੰਘ ਚੀਮਾ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਵਿਗਿਆਨ ਅਤੇ ਵਿਆਕਰਨ(ਤਕਨੀਕੀ ਸ਼ਬਦਾਵਲੀ ਦਾ ਵਿਸ਼ਾ ਕੋਸ਼) ,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।
6.ਬੂਟਾ ਸਿੰਘ ਬਰਾੜ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ:ਸ੍ਰੋਤ ਤੇ ਸਰੂਪ,ਵਾਰਿਸ ਸ਼ਾਹ ਫਾਊਂਡੇਸ਼ਨ,ਅੰਮ੍ਰਿਤਸਰ।
7.ਬੂਟਾ ਸਿੰਘ ਬਰਾੜ,ਪੰਜਾਬੀ ਵਿਆਕਰਨ:ਸਿਧਾਂਤ ਤੇ ਵਿਹਾਰ,ਚੇਤਨਾ ਪ੍ਰਕਾਸ਼ਨ,ਲੁਧਿਆਣਾ।

8.ਬੂਟਾ ਸਿੰਘ ਬਰਾੜ,ਗੁਰਮੁਖੀ ਲਿਪੀ ,ਇਤਿਹਾਸ ਤੇ ਇਤਿਹਾਸਕਾਰੀ,ਆਰਸੀ ਪਬਲਿਸ਼ਰਜ਼।
9.ਪ੍ਰੇਮ ਪ੍ਰਕਾਸ਼ ਸਿੰਘ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਸ੍ਰੋਤ ਤੇ ਬਣਤਰ,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।
10.ਦੁਨੀ ਚੰਦ੍ਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਕਾਸ,ਪੰਜਾਬ ਯੂਨੀਵਰਸਿਟੀ,ਚੰਡੀਗੜ੍ਹ।
11.ਸੁਖਵਿੰਦਰ ਸਿੰਘ ਸੰਘਾ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਵਿਗਿਆਨ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ।
12.ਜੀ.ਬੀ.ਸਿੰਘ,ਗੁਰਮੁਖੀ ਲਿਪੀ ਦਾ ਜਨਮ ਅਤੇ ਵਿਕਾਸ,ਪੰਜਾਬ ਯੂਨੀਵਰਸਿਟੀ,ਚੰਡੀਗੜ੍ਹ।
13.ਜੋਗਿੰਦਰ ਸਿੰਘ ਪੁਆਰ ਅਤੇ ਹੋਰ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਵਿਆਕਰਨ(I,II,III)ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਕਾਦਮੀ,ਜਲੰਧਰ।
14.ਹਰਕੀਰਤ ਸਿੰਘ,ਸਾਡੀ ਭਾਸ਼ਾ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।
15.ਭੁਪਿੰਦਰ ਸਿੰਘ ਖਹਿਰਾ,ਨਵੀਨ ਭਾਸ਼ਾ ਵਿਗਿਆਨ,ਪੈਪਸੂ ਬੁੱਕ ਡਿਪੂ,ਪਟਿਆਲਾ।
16.ਖੋਜ ਪਤ੍ਰਿਕਾ,ਭਾਸ਼ਾ ਤੇ ਵਿਆਕਰਨ–ਵਿਸ਼ੇਸ਼ ਅੰਕ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।
17. ਡਾ. ਜਗਜੀਤ ਸਿੰਘ,ਪੰਜਾਬੀ ਵਿਆਕਰਨ:ਸ਼੍ਰੇਣੀਆ ਅਤੇ ਇਕਾਈਆ,ਨਿਊ ਬੁੱਕ ਕੰਪਨੀ,ਚੰਡੀਗੜ੍ਹ।
18. ਗਿਆਨੀ ਲਾਲ ਸਿੰਘ ਤੇ ਹਰਕੀਰਤ ਸਿੰਘ ,ਕਾਲਜ ਪੰਜਾਬੀ ਵਿਆਕਰਣ ,ਪੰਜਾਬ ਸਟੇਟ ਯੂਨੀ.ਟੈਕਸਟ ਬੁੱਕ ਬੋਰਡ,ਚੰਡੀਗੜ੍ਹ।
19.ਆਲੋਚਨਾ,ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਵਿਸ਼ੇਸ਼ ਅੰਕ,ਸਾਹਿਤ ਅਕਾਦਮੀ ,ਲੁਧਿਆਣਾ।
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21.Tej Bhatia, Punjabi: A Coginitive-Descriptive Grammar, Rouledge, London – New York.

ਐਮ.ਏ. (ਪੰਜਾਬੀ), ਭਾਗ ਦੂਜਾ ,ਸਮੈਸਟਰ ਚੌਥਾ
ਕੋਰ ਕੋਰਸ ਪਹਿਲਾ– ਭਾਸ਼ਾ ਵਿਗਿਆਨ ਅਤੇ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਪ੍ਰੈਕਟੀਕਲ
ਪੇਪਰ ਕੋਡ:PUN-401,ਕ੍ਰੈਡਿਟ–01
2020–21,2021–22 ਸੈਸ਼ਨ ਲਈ

ਕੁੱਲ ਅੰਕ :16 ਪਾਸ ਅੰਕ : 06

ਨੋਟ:ਅੰਦਰੂਨੀ ਵਿਸ਼ੇਸ਼ਗ ਦੁਆਰਾ ਮੁਲਾਂਕਣ ਕੀਤਾ ਜਾਵੇਗਾ।

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼

1.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਆਧੁਨਿਕ ਯੁੱਗ ਦੇ ਹਾਣੀ ਬਣਾਉਣਾ।

2.ਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ ਬਾਕੀ ਭਾਸ਼ਾਵਾਂ ਅਤੇ ਲਿਪੀਆਂ ਨੂੰ ਜਾਣਨ ਲਈ ਰੁਚੀ ਪੈਦਾ ਕਰਨਾ।
3.ਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ ਤਕਨਾਲੋਜੀ ਦੀ ਵਰਤੋਂ ਕਰਨ ਦੀ ਦਿਲਚਸਪੀ ਪੈਦਾ ਕਰਨਾ।

ਪਾਠਕ੍ਰਮ

ਇੰਟਰਨੈਟ ਅਤੇ ਪੰਜਾਬੀ ਭਾਸ਼ਾ

1.ਗੂਗਲ ਅਨੁਵਾਦ:ਸੰਭਾਵਨਾ ਅਤੇ ਸਮੱਸਿਆਵਾਂ
2.ਇੰਟਰਨੈਟ'ਤੇ ਉਪਲੱਬਧ ਪੰਜਾਬੀ ਸ਼ਬਦ ਕੋਸ਼

ਐਮ.ਏ. (ਪੰਜਾਬੀ), ਭਾਗ ਦੂਜਾ ,ਸਮੈਸਟਰ ਚੌਥਾ

ਕੋਰ ਕੋਰਸ ਦੂਜਾ-ਲੋਕਧਾਰਾ ਅਤੇ ਪੰਜਾਬੀ ਲੋਕਧਾਰਾ

ਪੇਪਰ ਕੋਡ:PUN-303,ਕ੍ਰੈਡਿਟ-05
2020-21,2021-22 ਸੈਸ਼ਨ ਲਈ

ਕੁੱਲ ਅੰਕ 80 ਪਾਸ ਹੋਣ ਲਈ ਅੰਕ : 28
ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ : 24 ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਵਿਚੋਂ ਪਾਸ ਹੋਣ ਲਈ ਅੰਕ : 08
ਬਾਹਰੀ ਪ੍ਰੀਖਿਆ : 56 ਬਾਹਰੀ ਪ੍ਰੀਖਿਆ ਵਿਚੋਂ ਪਾਸ ਹੋਣ ਲਈ ਅੰਕ : 20
ਪ੍ਰੀਖਿਆ ਦਾ ਸਮਾਂ : 3 ਘੰਟੇ ਕੁੱਲ ਲੈਕਚਰ-75

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼

1. ਲੋਕਧਾਰਾ ਅਤੇ ਪੰਜਾਬੀ ਲੋਕਧਾਰਾ ਦੇ ਸਿਧਾਂਤਕ ਪੱਖ ਬਾਰੇ ਗਿਆਨ ਦੇਣਾ।
2. ਲੋਕਧਾਰਾ ਅਤੇ ਉਸ ਨਾਲ ਸੰਬੰਧਿਤ ਖੇਤਰਾਂ ਬਾਰੇ ਜਾਣਕਾਰੀ ਦੇਣਾ।
3. ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਲੋਕਧਾਰਾ ਅਤੇ ਪੰਜਾਬੀ ਲੋਕਧਾਰਾ ਦੇ ਬਹੁਪੱਖਾਂ ਬਾਰੇ ਜਾਣਕਾਰੀ ਦੇਣਾ।

ਪੇਪਰ ਸੈੱਟਰ ਲਈ ਹਦਾਇਤਾਂ

1. ਸਾਰੇ ਸਿਲੇਬਸ ਵਿਚੋਂ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣ। ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਨੂੰ ਤਿੰਨ ਭਾਗਾਂ(ੳ,ਅ, ਅਤੇ ੲ) ਵਿਚ ਵੰਡਿਆ ਜਾਵੇ।ਭਾਗ ੳ ਅਤੇ ਅ ਦੇ ਹਰੇਕ ਉਪ-ਭਾਗ (ੳ-1,ੳ-2 ਅਤੇ ਅ-1,ਅ-2)ਵਿਚੋਂ ਦੋ-ਦੋ ਪ੍ਰਸ਼ਨ,ਕੁੱਲ ਅੱਠ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣ,ਜਿਨ੍ਹਾਂ ਵਿਚੋਂ ਵਿਦਿਆਰਥੀਆਂ ਨੇ ਹਰੇਕ ਉਪ-ਭਾਗ ਵਿਚੋਂ ਇਕ-ਇਕ ਪ੍ਰਸ਼ਨ ,ਭਾਵ ਕੁੱਲ ਚਾਰ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹੋਣਗੇ।ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 09 ਅੰਕ ਹੋਣਗੇ। ਇਸ ਤਰ੍ਹਾਂ ਭਾਗ ੳ ਅਤੇ ਅ ਦੇ ਉਪ-ਭਾਗਾਂ ਦੇ ਕੁੱਲ 36 ਅੰਕ ਹੋਣਗੇ।
2. ਤੀਜੇ ਭਾਗ (ਭਾਗ-ੲ) ਵਿਚ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ 10 ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ। ਪ੍ਰੀਖਿਆਰਥੀ ਨੇ ਸਾਰੇ ਪ੍ਰਸ਼ਨਾਂ ਦਾ ਉੱਤਰ ਦੇਣਾ ਹੋਵੇਗਾ। ਇਸ ਭਾਗ ਦੇ ਪ੍ਰਸ਼ਨਾਂ ਦਾ ਉੱਤਰ 5-6 ਸਤਰਾਂ ਵਿਚ ਦੇਣਾ ਹੋਵੇਗਾ। ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 2 ਅੰਕ ਹੋਣਗੇ। ਇਸ ਭਾਗ ਦੇ ਕੁੱਲ 20 ਅੰਕ ਹੋਣਗੇ।
3. ਸਾਰੇ ਭਾਗਾਂ ਵਿਚੋਂ ਪ੍ਰਸ਼ਨ ਇਸ ਢੰਗ ਨਾਲ ਪੁੱਛੇ ਜਾਣ ਕਿ ਸਿਲੇਬਸ ਦੇ ਸਾਰੇ ਪੱਖਾਂ ਸੰਬੰਧੀ ਪ੍ਰੀਖਿਆਰਥੀ ਵਲੋਂ ਕੀਤੇ ਅਧਿਐਨ ਨੂੰ ਪਰਖਿਆ ਜਾ ਸਕੇ ਅਤੇ ਇਹ ਵੀ ਪਰਖਿਆ ਜਾ ਸਕੇ ਕਿ ਉਸਨੇ ਸਮੁੱਚੇ ਸਿਲੇਬਸ ਦਾ ਅਧਿਐਨ ਕੀਤਾ ਹੈ। ਤੀਜੇ ਭਾਗ (ਭਾਗ-ੲ) ਦੇ ਲਾਜ਼ਮੀ ਪ੍ਰਸ਼ਨ ਦੇ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਸਾਰੇ 10 ਪ੍ਰਸ਼ਨ ਇਸ ਢੰਗ ਨਾਲ ਪੁੱਛੇ ਜਾਣ ਕਿ ਪੇਪਰ ਨਾਲ ਸੰਬੰਧਿਤ ਸਿਲੇਬਸ ਦੇ ਨਿਕਟ ਅਤੇ ਪਾਠ-ਮੂਲਕ ਅਧਿਐਨ ਨੂੰ ਪਰਖਿਆ ਜਾ ਸਕੇ।
4. ਪ੍ਰਸ਼ਨਾਂ ਦੀ ਭਾਸ਼ਾ ਸਰਲ, ਸਪੱਸ਼ਟ ਅਤੇ ਪ੍ਰੀਖਿਆਰਥੀ ਦੀ ਬੌਧਿਕ ਪੱਧਰ ਦੇ ਅਨੁਕੂਲ ਹੋਣੀ ਚਾਹੀਦੀ ਹੈ।
5. ਪ੍ਰਸ਼ਨ ਅਜਿਹੇ ਹੋਣ ਜਿਹੜੇ ਨਿਰਧਾਰਿਤ ਸਮੇਂ ਵਿਚ ਸਹਿਜੇ ਹੀ ਹੱਲ ਕੀਤੇ ਜਾ ਸਕਣ।

ਪ੍ਰੀਖਿਆਰਥੀਆਂ ਲਈ ਹਦਾਇਤਾਂ

1. ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਨੂੰ ਤਿੰਨ ਭਾਗਾਂ(ੳ,ਅ, ਅਤੇ ੲ) ਵਿਚ ਵੰਡਿਆ ਜਾਵੇਗਾ।ਭਾਗ ੳ ਅਤੇ ਅ ਦੇ ਹਰੇਕ ਉਪ-ਭਾਗ (ੳ-1,ੳ-2 ਅਤੇ ਅ-1,ਅ-2)ਵਿਚੋਂ ਦੋ-ਦੋ ਪ੍ਰਸ਼ਨ,ਕੁੱਲ ਅੱਠ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ,ਜਿਨ੍ਹਾਂ ਵਿਚੋਂ ਪ੍ਰੀਖਿਆਰਥੀ ਨੇ ਹਰੇਕ ਉਪ-ਭਾਗ ਵਿਚੋਂ ਇਕ-ਇਕ ਪ੍ਰਸ਼ਨ ,ਭਾਵ ਕੁੱਲ ਚਾਰ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹੋਣਗੇ।ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 09 ਅੰਕ ਹੋਣਗੇ। ਇਸ ਤਰ੍ਹਾਂ ਭਾਗ ੳ ਅਤੇ ਅ ਦੇ ਉਪ-ਭਾਗਾਂ ਦੇ ਕੁੱਲ 36 ਅੰਕ ਹੋਣਗੇ।ਹਰ ਉਪ-ਭਾਗ ਵਿੱਚੋਂ ਇੱਕ ਪ੍ਰਸ਼ਨ ਕਰਨਾ ਲਾਜ਼ਮੀ ਹੋਵੇਗਾ।
2. ਤੀਜੇ ਭਾਗ (ਭਾਗ-ੲ) ਦੇ ਸਾਰੇ 10 ਪ੍ਰਸ਼ਨ ਲਾਜ਼ਮੀ ਹਨ। ਸਾਰੇ ਪ੍ਰਸ਼ਨਾਂ ਦਾ ਸੰਖੇਪ ਉੱਤਰ ਦੇਣਾ ਹੈ।ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 2 ਅੰਕ ਹਨ।
3. ਉੱਤਰ ਪ੍ਰਸ਼ਨ ਨੂੰ ਧਿਆਨ ਵਿਚ ਰੱਖ ਕੇ ਪ੍ਰਸ਼ਨ ਦੀ ਸੀਮਾ ਵਿਚ ਰਹਿ ਕੇ ਦਿੱਤੇ ਜਾਣ।

ਪਾਠਕ੍ਰਮ ਅਤੇ ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਦੀ ਰੂਪ-ਰੇਖਾ:

ਭਾਗ-ੳ

ੳ-I:ਲੋਕਧਾਰਾ:ਸਿਧਾਂਤਕ ਪੱਖ

1. ਲੋਕਧਾਰਾ ਦੀ ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਲੱਛਣ
2. ਲੋਕਧਾਰਾ-ਸ਼ਾਸਤਰ
3. ਲੋਕਧਾਰਾ ਦੀ ਸਮੱਗਰੀ ਦਾ ਵਰਗੀਕਰਨ(ਡਾ.ਵਣਜਾਰਾ ਬੇਦੀ ਅਤੇ ਡਾ.ਕਰਨੈਲ ਸਿੰਘ ਥਿੰਦ ਦੇ ਸੰਦਰਭ ਵਿਚ)
4. ਪੰਜਾਬੀ ਲੋਕਧਾਰਾ ਅਧਿਐਨ ਦਾ ਸਰਵੇਖਣ

ੳ-II:ਪੰਜਾਬੀ ਲੋਕਧਾਰਾ: ਲੋਕ ਸਾਹਿਤ

1.ਲੋਕਧਾਰਾ ਤੇ ਸਾਹਿਤ
2.ਲੋਕ-ਕਾਵਿ: (ਬਣਤਰ, ਸਮਾਜ-ਸਭਿਆਚਾਰਕ ਮਹੱਤਵ, ਪ੍ਰਮੁੱਖ ਵੰਨਗੀਆਂ)
3.ਲੋਕ-ਕਥਾਵਾਂ
4.ਬੁਝਾਰਤਾਂ ਅਤੇ ਅਖੌਤਾਂ

ਭਾਗ-ਅ

ਅ-I:ਪੰਜਾਬੀ ਲੋਕ ਕਲਾਵਾਂ
1.ਲੋਕ-ਨਾਚ: ਮੂਲ ਲੱਛਣ, ਸਮਾਜਿਕ ਤੇ ਸਭਿਆਚਾਰਕ ਮਹੱਤਵ, ਪ੍ਰਮੁੱਖ ਵੰਨਗੀਆਂ
2.ਲੋਕ-ਨਾਟ: ਸਮਾਜਿਕ ਤੇ ਸਭਿਆਚਾਰਕ ਮਹੱਤਵ, ਪ੍ਰਮੁੱਖ ਵੰਨਗੀਆਂ
3.ਪੰਜਾਬੀ ਸਿਨੇਮਾ ਤੇ ਲੋਕਧਾਰਾ

ਅ-II: ਲੋਕ-ਵਿਸ਼ਵਾਸ ਅਤੇ ਰੀਤੀ-ਰਿਵਾਜ
1.ਲੋਕ-ਵਿਸ਼ਵਾਸ: ਮੁੱਖ ਲੱਛਣ, ਸਮਾਜਿਕ ਅਤੇ ਸਭਿਆਚਾਰਕ ਸਾਰਥਕਤਾ, ਪ੍ਰਮੁੱਖ ਵੰਨਗੀਆਂ
2.ਰੀਤੀ-ਰਿਵਾਜ:ਜਨਮ, ਵਿਆਹ ਅਤੇ ਮੌਤ ਸੰਬੰਧੀ ਸਮਾਜਿਕ ਤੇ ਸਭਿਆਚਾਰਕ ਸਾਰਥਕਤਾ, ਪ੍ਰਮੁੱਖ ਵੰਨਗੀਆਂ
3.ਮੇਲੇ ਅਤੇ ਤਿਉਹਾਰ: ਸਮਾਜਿਕ-ਸਭਿਆਚਾਰਕ ਮਹੱਤਵ ਤੇ ਪ੍ਰਕਾਰਜ

ਭਾਗ-ੲ

ਉਪਰੋਕਤ ਸਿਲੇਬਸ'ਤੇ ਆਧਾਰਿਤ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ 10 ਪ੍ਰਸ਼ਨ

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1. ਡਾ.ਵਣਜਾਰਾ ਬੇਦੀ,ਲੋਕਧਾਰਾ ਵਿਸ਼ਵਕੋਸ਼(ਜਿਲਦ ਪਹਿਲੀ ਤੋਂ ਅੱਠਵੀਂ ਤੱਕ),ਨੈਸ਼ਨਲ ਬੁੱਕ ਸ਼ਾਪ,ਨਵੀਂ ਦਿੱਲੀ।
2. ਡਾ.ਵਣਜਾਰਾ ਬੇਦੀ,ਮੱਧਕਾਲੀਨ ਪੰਜਾਬੀ ਕਥਾ:ਰੂਪ ਤੇ ਪਰੰਪਰਾ,ਪਰੰਪਰਾ ਪ੍ਰਕਾਸ਼ਨ,ਨਵੀਂ ਦਿੱਲੀ।
3. ਡਾ.ਵਣਜਾਰਾ ਬੇਦੀ,ਬਾਤਾਂ ਮੁੱਢ ਕਦੀਮ ਦੀਆਂ,ਨਵਯੁਗ ਪ੍ਰੈਸ,ਨਵੀਂ ਦਿੱਲੀ।
4. ਡਾ.ਨਾਹਰ ਸਿੰਘ,ਲੋਕ ਕਾਵਿ ਦੀ ਸਿਰਜਨ ਪ੍ਰਕਿਰਿਆ, ਲੋਕਗੀਤ ਪ੍ਰਕਾਸ਼ਨ,ਚੰਡੀਗੜ੍ਹ।
5. ਡਾ.ਨਾਹਰ ਸਿੰਘ,ਮਾਂ ਸੁਹਾਗਣ ਸ਼ਗਨ ਕਰੇ,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।

6. ਡਾ.ਨਾਹਰ ਸਿੰਘ,ਬਾਗੀ ਚੰਬਾ ਖਿੜ ਰਿਹਾ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।
7. ਗਿਆਨੀ ਗੁਰਦਿੱਤ ਸਿੰਘ,ਮੇਰਾ ਪਿੰਡ,ਸਾਹਿਤ ਸਦਨ,ਚੰਡੀਗੜ੍ਹ।
8. ਟੀ.ਆਰ.ਵਿਨੋਦ,ਸੰਸਕ੍ਰਿਤੀ:ਸਿਧਾਂਤ ਤੇ ਵਿਹਾਰ, ਲੋਕਗੀਤ ਪ੍ਰਕਾਸ਼ਨ,ਚੰਡੀਗੜ੍ਹ।
9. ਜਸਵਿੰਦਰ ਸਿੰਘ, ਪੰਜਾਬੀ ਲੋਕ-ਸਾਹਿਤ ਸ਼ਾਸਤਰ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ।
10. ਨਾਹਰ ਸਿੰਘ, ਲੋਕ-ਕਾਵਿ ਦੀ ਸਿਰਜਨ ਪ੍ਰਕਿਰਿਆ, ਲੋਕਗੀਤ ਪ੍ਰਕਾਸ਼ਨ, ਚੰਡੀਗੜ੍ਹ।
11. ਜੋਗਿੰਦਰ ਸਿੰਘ ਕੈਰੋਂ, ਪੰਜਾਬੀ ਲੋਕ-ਕਹਾਣੀਆਂ ਦਾ ਸੰਰਚਨਾਤਮਕ ਅਧਿਐਨ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ।
12. ਨਵਰਤਨ ਕਪੂਰ, ਪੰਜਾਬ ਦੇ ਲੋਕ-ਤਿਉਹਾਰ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ।
13. ਕਰਨੈਲ ਸਿੰਘ ਥਿੰਦ (ਸੰਪਾ.), ਲੋਕਯਾਨ ਅਧਿਐਨ, ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਯੂਨੀਵਰਸਿਟੀ, ਅੰਮ੍ਰਿਤਸਰ।
14. ਭੁਪਿੰਦਰ ਸਿੰਘ ਖਹਿਰਾ, ਲੋਕਯਾਨ, ਭਾਸ਼ਾ ਤੇ ਸਭਿਆਚਾਰ, ਪੈਪਸੂ ਬੁੱਕ ਸ਼ਾਪ, ਪਟਿਆਲਾ।
15. ਦਵਿੰਦਰ ਸਤਿਆਰਥੀ, ਗਿੱਧਾ, ਨਵਯੁਗ ਪਬਲਿਸ਼ਰਜ਼, ਨਵੀਂ ਦਿੱਲੀ।
16. ਕਰਨੈਲ ਸਿੰਘ ਥਿੰਦ,ਲੋਕਯਾਨ ਅਤੇ ਮੱਧਕਾਲੀਨ ਪੰਜਾਬੀ ਸਾਹਿਤ,ਜੀਵਨ ਮੰਦਰਿ,ਅੰਮ੍ਰਿਤਸਰ।
17. ਕਰਨਜੀਤ ਸਿੰਘ, ਪੰਜਾਬੀ ਲੋਕਧਾਰਾ ਅਤੇ ਲੋਕ-ਜੀਵਨ, ਨਵਯੁੱਗ ਪਬਲਿਸ਼ਰਜ਼, ਦਿੱਲੀ।
18. ਜਗਦੀਸ਼ ਕੌਰ, ਪੰਜਾਬੀ ਲੋਕ-ਕਹਾਣੀ: ਵਿਹਾਰ ਤੇ ਸੰਕਲਪ, ਚੇਤਨਾ ਪ੍ਰਕਾਸ਼ਨ, ਲੁਧਿਆਣਾ।
19. ਗੁਰਦਿਆਲ ਸਿੰਘ, ਪੰਜਾਬ ਦੇ ਮੇਲੇ ਤੇ ਤਿਉਹਾਰ, ਪ੍ਰਕਾਸ਼ਨ ਵਿਭਾਗ, ਭਾਰਤ ਸਰਕਾਰ, ਦਿੱਲੀ।
20. ਜੀਤ ਸਿੰਘ ਜੋਸ਼ੀ, ਲੋਕਧਾਰਾ ਤੇ ਪੰਜਾਬੀ ਲੋਕਧਾਰਾ, ਵਾਰਿਸ ਸ਼ਾਹ ਫਾਊਂਡੇਸ਼ਨ, ਅੰਮ੍ਰਿਤਸਰ।
21. ਰਾਜਵੰਤ ਕੌਰ, ਵਿਆਹ ਦੇ ਲੋਕ-ਗੀਤ:ਵਿਭਿੰਨ ਪਰਿਪੇਖ, ਲੋਕਗੀਤ ਪ੍ਰਕਾਸ਼ਨ, ਚੰਡੀਗੜ੍ਹ, 2003.
22. ਖੋਜ-ਪੱਤ੍ਰਿਕਾ (ਪੰਜਾਬੀ ਸਭਿਆਚਾਰ ਵਿਸ਼ੇਸ਼ ਅੰਕ-42), ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ।
23. ਡਾ.ਗੁਰਪ੍ਰੀਤ ਕੌਰ,ਪੰਜਾਬੀ ਲੋਕਧਾਰਾ:ਸਿਧਾਂਤ ਤੇ ਵਿਹਾਰ,ਤਰਲੋਚਨ ਪਬਲਿਸ਼ਰਜ਼,ਚੰਡੀਗੜ੍ਹ।
24. **Allan Dundes, Essays in Folkloristics.**

ਐਮ.ਏ. (ਪੰਜਾਬੀ), ਭਾਗ ਦੂਜਾ ,ਸਮੈਸਟਰ ਚੌਥਾ
ਇਲੈਕਟਿਵ ਕੋਰਸ ਤੀਜਾ -ਗੁਰਮਤਿ ਕਾਵਿ(ਆਪਸ਼ਨ-1)
ਪੇਪਰ ਕੋਡ:**PUN-403A**,ਕ੍ਰੈਡਿਟ-05(**04L+01P**)
2020-21,2021-22 ਸੈਸ਼ਨ ਲਈ

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ਨੋਟ:ਕੁੱਲ 80 ਅੰਕਾਂ ਵਿਚ ਪ੍ਰੈਕਟੀਕਲ ਦੇ 16 ਅੰਕ ਵੀ ਸ਼ਾਮਿਲ ਹਨ।

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼

1. ਗੁਰਮਤਿ ਕਾਵਿ ਦੀ ਪੰਜਾਬੀ ਸਾਹਿਤ ਵਿਚ ਸ਼੍ਰੇਸ਼ਟਤਾਂ ਅਤੇ ਵਿਸ਼ੇਸ਼ਤਾ ਬਾਰੇ ਗਿਆਨ ਦੇਣਾ।
2. ਗੁਰਮਤਿ ਕਾਵਿ ਧਾਰਾ ਦੇ ਇਤਿਹਾਸਕ,ਸਿਧਾਂਤਕ,ਦਾਰਸ਼ਨਿਕ ਅਤੇ ਸਭਿਆਚਾਰਕ ਪੱਖਾਂ ਤੋਂ ਜਾਣੂ ਕਰਵਾਉਣਾ।
3. ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਗੁਰੂ ਗ੍ਰੰਥ ਸਾਹਿਬ ਵਿਚਲੀ ਬਾਣੀ ਦੇ ਬਹੁਪੱਖਾਂ ਬਾਰੇ ਜਾਣਕਾਰੀ ਦੇਣਾ।
4. ਵਿਦਿਆਰਥੀਆਂਨੂੰ ਗੁਰਬਾਣੀ ਦੇ ਵਿਲੱਖਣ ਕਾਵਿ-ਸ਼ਾਸਤਰ ਤੋਂ ਜਾਣੂ ਕਰਵਾਉਣਾ ।

ਪੇਪਰ ਸੈਂਟਰ ਲਈ ਹਦਾਇਤਾਂ

1. ਸਾਰੇ ਸਿਲੇਬਸ ਵਿਚੋਂ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣ। ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਨੂੰ ਤਿੰਨ ਭਾਗਾਂ(ੳ,ਅ, ਅਤੇ ੲ) ਵਿਚ ਵੰਡਿਆ ਜਾਵੇ।ਭਾਗ ੳ ਅਤੇ ਅ ਦੇ ਹਰੇਕ ਉਪ-ਭਾਗ (ੳ-1,ੳ-2 ਅਤੇ ਅ-1,ਅ-2)ਵਿਚੋਂ ਦੋ-ਦੋ ਪ੍ਰਸ਼ਨ,ਕੁੱਲ ਅੱਠ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣ,ਜਿਨ੍ਹਾਂ ਵਿਚੋਂ ਵਿਦਿਆਰਥੀਆਂ ਨੇ ਹਰੇਕ ਉਪ-ਭਾਗ ਵਿਚੋਂ ਇਕ-ਇਕ ਪ੍ਰਸ਼ਨ ,ਭਾਵ ਕੁੱਲ ਚਾਰ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹੋਣਗੇ।ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 06 ਅੰਕ ਹੋਣਗੇ। ਇਸ ਤਰ੍ਹਾਂ ਭਾਗ ੳ ਅਤੇ ਅ ਦੇ ਉਪ-ਭਾਗਾਂ ਦੇ ਕੁੱਲ 24 ਅੰਕ ਹੋਣਗੇ।
2. ਤੀਜੇ ਭਾਗ (ਭਾਗ-ੲ) ਵਿਚ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ 08 ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ। ਪ੍ਰੀਖਿਆਰਥੀ ਨੇ ਸਾਰੇ ਪ੍ਰਸ਼ਨਾਂ ਦਾ ਉੱਤਰ ਦੇਣਾ ਹੋਵੇਗਾ। ਇਸ ਭਾਗ ਦੇ ਪ੍ਰਸ਼ਨਾਂ ਦਾ ਉੱਤਰ 5-6 ਸਤਰਾਂ ਵਿਚ ਦੇਣਾ ਹੋਵੇਗਾ। ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 2 ਅੰਕ ਹੋਣਗੇ। ਇਸ ਭਾਗ ਦੇ ਕੁੱਲ 16 ਅੰਕ ਹੋਣਗੇ।
3. ਸਾਰੇ ਭਾਗਾਂ ਵਿਚੋਂ ਪ੍ਰਸ਼ਨ ਇਸ ਢੰਗ ਨਾਲ ਪੁੱਛੇ ਜਾਣ ਕਿ ਸਿਲੇਬਸ ਦੇ ਸਾਰੇ ਪੱਖਾਂ ਸੰਬੰਧੀ ਪ੍ਰੀਖਿਆਰਥੀ ਵਲੋਂ ਕੀਤੇ ਅਧਿਐਨ ਨੂੰ ਪਰਖਿਆ ਜਾ ਸਕੇ ਅਤੇ ਇਹ ਵੀ ਪਰਖਿਆ ਜਾ ਸਕੇ ਕਿ ਉਸਨੇ ਸਮੁੱਚੇ ਸਿਲੇਬਸ ਦਾ ਅਧਿਐਨ ਕੀਤਾ ਹੈ। ਤੀਜੇ ਭਾਗ (ਭਾਗ-ੲ) ਦੇ ਲਾਜ਼ਮੀ ਪ੍ਰਸ਼ਨ ਦੇ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਸਾਰੇ 08 ਪ੍ਰਸ਼ਨ ਇਸ ਢੰਗ ਨਾਲ ਪੁੱਛੇ ਜਾਣ ਕਿ ਪੇਪਰ ਨਾਲ ਸੰਬੰਧਿਤ ਸਿਲੇਬਸ ਦੇ ਨਿਕਟ ਅਤੇ ਪਾਠ-ਮੂਲਕ ਅਧਿਐਨ ਨੂੰ ਪਰਖਿਆ ਜਾ ਸਕੇ।
4. ਪ੍ਰਸ਼ਨਾਂ ਦੀ ਭਾਸ਼ਾ ਸਰਲ, ਸਪੱਸ਼ਟ ਅਤੇ ਪ੍ਰੀਖਿਆਰਥੀ ਦੀ ਬੌਧਿਕ ਪੱਧਰ ਦੇ ਅਨੁਕੂਲ ਹੋਣੀ ਚਾਹੀਦੀ ਹੈ।
5. ਪ੍ਰਸ਼ਨ ਅਜਿਹੇ ਹੋਣ ਜਿਹੜੇ ਨਿਰਧਾਰਿਤ ਸਮੇਂ ਵਿਚ ਸਹਿਜੇ ਹੀ ਹੱਲ ਕੀਤੇ ਜਾ ਸਕਣ।

ਪ੍ਰੀਖਿਆਰਥੀਆਂ ਲਈ ਹਦਾਇਤਾਂ

1. ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਨੂੰ ਤਿੰਨ ਭਾਗਾਂ(ੳ,ਅ, ਅਤੇ ੲ) ਵਿਚ ਵੰਡਿਆ ਜਾਵੇਗਾ।ਭਾਗ ੳ ਅਤੇ ਅ ਦੇ ਹਰੇਕ ਉਪ-ਭਾਗ (ੳ-1,ੳ-2 ਅਤੇ ਅ-1,ਅ-2)ਵਿਚੋਂ ਦੋ-ਦੋ ਪ੍ਰਸ਼ਨ,ਕੁੱਲ ਅੱਠ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ,ਜਿਨ੍ਹਾਂ ਵਿਚੋਂ ਪ੍ਰੀਖਿਆਰਥੀ ਨੇ ਹਰੇਕ ਉਪ-ਭਾਗ ਵਿਚੋਂ ਇਕ-ਇਕ ਪ੍ਰਸ਼ਨ ,ਭਾਵ ਕੁੱਲ ਚਾਰ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹੋਣਗੇ।ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 06 ਅੰਕ ਹੋਣਗੇ। ਇਸ ਤਰ੍ਹਾਂ ਭਾਗ ੳ ਅਤੇ ਅ ਦੇ ਉਪ-ਭਾਗਾਂ ਦੇ ਕੁੱਲ 24 ਅੰਕ ਹੋਣਗੇ।ਹਰ ਉਪ-ਭਾਗ ਵਿੱਚੋਂ ਇੱਕ ਪ੍ਰਸ਼ਨ ਕਰਨਾ ਲਾਜ਼ਮੀ ਹੋਵੇਗਾ।
2. ਤੀਜੇ ਭਾਗ (ਭਾਗ-ੲ) ਦੇ ਸਾਰੇ 08 ਪ੍ਰਸ਼ਨ ਲਾਜ਼ਮੀ ਹਨ। ਸਾਰੇ ਪ੍ਰਸ਼ਨਾਂ ਦਾ ਸੰਖੇਪ ਉੱਤਰ ਦੇਣਾ ਹੈ।ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 2 ਅੰਕ ਹਨ।
3. ਉੱਤਰ ਪ੍ਰਸ਼ਨ ਨੂੰ ਧਿਆਨ ਵਿਚ ਰੱਖ ਕੇ ਪ੍ਰਸ਼ਨ ਦੀ ਸੀਮਾ ਵਿਚ ਰਹਿ ਕੇ ਦਿੱਤੇ ਜਾਣ।

ਪਾਠਕ੍ਰਮ ਅਤੇ ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਦੀ ਰੂਪ-ਰੇਖਾ

ਭਾਗ-ੳ

ੳ-I. ਗੁਰਮਤਿ ਕਾਵਿ ਸਿਧਾਂਤ(ਭਾਗ ਪਹਿਲਾ), ਸੰਪਾਦਕ ਡਾ. ਅੰਮ੍ਰਿਤਪਾਲ ਕੌਰ ਅਤੇ ਸ.ਲਖਵੀਰ ਸਿੰਘ ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ।

1.ਗੁਰਮਤਿ ਕਾਵਿ ਧਾਰਾ:ਬਾਣੀਕਾਰ ਜੀਵਨ ਤੇ ਰਚਨਾ:ਡਾ.ਅੰਮ੍ਰਿਤਪਾਲ ਕੌਰ

2.ਸ੍ਰੀ ਗੁਰੂ ਗ੍ਰੰਥ ਸਾਹਿਬ ਦਾ ਲੋਕਯਾਨਿਕ ਅਧਿਐਨ:ਡਾ.ਕਰਨੈਲ ਸਿੰਘ ਥਿੰਦ
3.ਗੁਰੂ ਗ੍ਰੰਥ ਸਾਹਿਬ ਦਾ ਭਾਸ਼ਾਈ ਸਰੂਪ:ਡਾ.ਹਰਕੀਰਤ ਸਿੰਘ
4.ਭਗਤ ਬਾਣੀ:ਸਮਾਜ-ਸਭਿਆਚਾਰਕ ਪ੍ਰਸੰਗ:ਡਾ.ਸਿਕੰਦਰ ਸਿੰਘ

ੳ-II.ਬਾਣੀ ਭਗਤ ਕਬੀਰ ਜੀ (ਸਟੀਕ ਭਾਈ ਜੋਧ ਸਿੰਘ, ਪੰਨੇ 4-16,85-94,209-212)

1. ਭਗਤ ਕਬੀਰ ਜੀ ਦੀ ਬਾਣੀ ਦੇ ਪ੍ਰਮੁੱਖ ਸਰੋਕਾਰ
2. ਭਗਤ ਕਬੀਰ ਜੀ ਦੀ ਬਾਣੀ ਦਾ ਸੁਹਜ-ਸ਼ਾਸ਼ਤਰ
3. ਭਗਤ ਕਬੀਰ ਜੀ ਦੀ ਬਾਣੀ ਵਿਚ ਪ੍ਰਤੀਰੋਧ ਦੇ ਪ੍ਰਮੁੱਖ ਪੱਖ
4. ਭਗਤ ਕਬੀਰ ਜੀ ਦੀ ਬਾਣੀ ਦਾ ਦਾਰਸ਼ਨਿਕ ਅਧਿਐਨ

ਭਾਗ-ਅ

ਅ-I.ਸੁਖਮਨੀ ਸਾਹਿਬ: ਗੁਰੂ ਅਰਜਨ ਦੇਵ ਜੀ

1.ਸੁਖਮਨੀ ਸਾਹਿਬ ਦੇ ਪ੍ਰਮੁੱਖ ਸਰੋਕਾਰ
2.ਸੁਖਮਨੀ ਸਾਹਿਬ ਦਾ ਸੁਹਜ-ਸ਼ਾਸ਼ਤਰ
3.ਸੁਖਮਨੀ ਸਾਹਿਬ ਵਿਚ ਬ੍ਰਹਮ ਦਾ ਸੰਕਲਪ
4.ਸੁਖਮਨੀ ਸਾਹਿਬ ਵਿਚ ਸੁੱਖ ਦਾ ਸੰਕਲਪ

ਅ-II. ਸਲੋਕ: ਗੁਰੂ ਤੇਗ ਬਹਾਦਰ ਜੀ

1.ਗੁਰੂ ਤੇਗ ਬਹਾਦਰ ਜੀ ਦੇ ਸਲੋਕਾਂ ਦੇ ਪ੍ਰਮੁੱਖ ਸਰੋਕਾਰ
2.ਗੁਰੂ ਤੇਗ ਬਹਾਦਰ ਜੀ ਦੇ ਸਲੋਕਾਂ ਦਾ ਸੁਹਜ-ਸ਼ਾਸ਼ਤਰ
3.ਗੁਰੂ ਤੇਗ ਬਹਾਦਰ ਜੀ ਦੇ ਸਲੋਕਾਂ ਵਿਚ ਨਾਸ਼ਮਾਨਤਾ
4.ਗੁਰੂ ਤੇਗ ਬਹਾਦਰ ਜੀ ਦੇ ਸਲੋਕਾਂ ਵਿਚ ਵੈਰਾਗ

ਭਾਗ-ੲ

ਉਪਰੋਕਤ ਸਿਲੇਬਸ'ਤੇ ਆਧਾਰਿਤ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ 10 ਪ੍ਰਸ਼ਨ

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1. ਅਤਰ ਸਿੰਘ,ਦ੍ਰਿਸ਼ਟੀਕੋਣ,ਲਾਹੌਰ ਬੁੱਕ ਸ਼ਾਪ,ਲੁਧਿਆਣਾ।
2.ਅਤਰ ਸਿੰਘ,ਸਮਦਰਸ਼ਨ,ਰਘਵੀਰ ਰਚਨਾ ਪ੍ਰਕਾਸ਼ਨ,ਚੰਡੀਗੜ੍ਹ।
3.ਸੰਤ ਸਿੰਘ ਸੇਖੋਂ,ਪੰਜਾਬੀ ਕਾਵਿ ਸ਼ਿਰੋਮਣੀ, ਲਾਹੌਰ ਬੁੱਕ ਸ਼ਾਪ,ਲੁਧਿਆਣਾ।
4.ਹਰਿਭਜਨ ਸਿੰਘ,ਅਧਿਅਨ ਅਤੇ ਅਧਿਆਪਨ,ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਯੂਨੀਵਰਸਿਟੀ, ਅੰਮ੍ਰਿਤਸਰ।
5.ਡਾ.ਜਗਬੀਰ ਸਿੰਘ,ਮੱਧਕਾਲੀ ਸ਼ਬਦ ਸਭਿਆਚਾਰ,ਮਨੋਹਰ ਪਾਰਕ,ਨਵੀਂ ਦਿੱਲੀ।
6.ਡਾ.ਜਗਬੀਰ ਸਿੰਘ,ਗੁਰਬਾਣੀ:ਵਿਸ਼ਵ ਦ੍ਰਿਸ਼ਟੀ ਤੇ ਵਿਚਾਰਧਾਰਾ,ਵੈੱਲਵਿਸ਼ ਪਬਲਿਸ਼ਰਜ਼,ਦਿੱਲੀ।

7.ਡਾ.ਹਰਚਰਨ ਕੌਰ(ਸੰਪਾ.),ਮੱਧਕਾਲੀਨ ਪੰਜਾਬੀ ਸਾਹਿਤ,ਪੁਨਰ ਵਿਚਾਰ,ਪੰਜਾਬੀ ਅਕਾਦਮੀ,ਦਿੱਲੀ।
8.ਪ੍ਰੋ.ਪ੍ਰੀਤਮ ਸਿੰਘ(ਸੰਪਾ.),ਸਿੱਖ ਫ਼ਲਸਫ਼ੇ ਦੀ ਰੂਪ-ਰੇਖਾ,ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਯੂਨੀਵਰਸਿਟੀ,ਅੰਮ੍ਰਿਤਸਰ।
9.ਡਾ.ਮਹਿੰਦਰ ਕੌਰ ਗਿੱਲ,ਗੁਰਬਾਣੀ ਸਮੀਖਿਆ,ਪੰਜਾਬੀ ਅਕਾਦਮੀ ,ਦਿੱਲੀ।
10.ਬਿਕਰਮ ਸਿੰਘ ਘੁੰਮਣ, ਗੁਰਬਾਣੀ:ਚਿੰਤਨ ਤੇ ਕਲਾ, ਵਾਰਿਸ ਸ਼ਾਹ ਫਾਊਂਡੇਸ਼ਨ, ਅੰਮ੍ਰਿਤਸਰ।
11. ਗੁਲਵੰਤ ਸਿੰਘ, ਗੁਰਮਤਿ ਸਾਹਿਤ ਚਿੰਤਨ, ਸਿੰਘ ਬ੍ਰਦਰਜ਼, ਬਜ਼ਾਰ ਮਾਈ ਸੇਵਾ, ਅੰਮ੍ਰਿਤਸਰ।
12. ਮਹਿੰਦਰ ਕੌਰ ਗਿੱਲ,ਗੁਰੂ ਅਰਜਨ ਦੇਵ:ਜੀਵਨ ਤੇ ਬਾਣੀ,ਪੰਜਾਬੀ ਰਾਈਟਰਜ਼ ਕੋਆਪਰੇਟਿਵ,ਦਿੱਲੀ।
13.ਗੁਰਸ਼ਰਨ ਕੌਰ ਜੱਗੀ,ਗੁਰੂ ਅਰਜਨ ਦੇਵ:ਜੀਵਨ ਤੇ ਰਚਨਾ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।
14. ਭਾਈ ਵੀਰ ਸਿੰਘ,ਸੁਖਮਨੀ ਸਟੀਕ, ਭਾਈ ਵੀਰ ਸਿੰਘ ਸਦਨ,ਨਵੀਂ ਦਿੱਲੀ।
15.ਦੀਵਾਨ ਸਿੰਘ,ਗੁਰਬਾਣੀ ਚਿੰਤਨ,ਵਾਰਿਸ ਸ਼ਾਹ ਫਾਊਂਡੇਸ਼ਨ,ਅੰਮ੍ਰਿਤਸਰ।
16.ਸ਼ੇਰ ਸਿੰਘ ਸ਼ੇਰ,ਗੁਰਮਤਿ ਦਰਸ਼ਨ,ਸ਼੍ਰੋਮਣੀ ਗੁਰਦੁਆਰਾ ਪ੍ਰਬੰਧਕ ਕਮੇਟੀ,ਸ੍ਰੀ ਅੰਮ੍ਰਿਤਸਰ।
17.ਤਾਰਨ ਸਿੰਘ,ਬਾਰਾਹਮਾਹ ਦਰਪਣ,ਨਿਊ ਬੁੱਕ ਕੰਪਨੀ,ਜਲੰਧਰ।
18.ਵਜੀਰ ਸਿੰਘ,ਗੁਰੁ ਅਰਜਨ ਦੇਵ,ਨੈਸ਼ਨਲ ਬੁੱਕ ਟਰਸਟ,ਇੰਡੀਆ।
19. ਪੰਜਾਬੀ ਦੁਨੀਆ,ਗੁਰੂ ਨਾਨਕ ਅੰਕ, ਦੋ ਭਾਗ, ਭਾਸ਼ਾ ਵਿਭਾਗ ਪੰਜਾਬ, ਪਟਿਆਲਾ।
20. ਬਿਕਰਮ ਸਿੰਘ ਘੁੰਮਣ,ਗੁਰੂ ਤੇਗ ਬਹਾਦਰ :ਜੀਵਨ,ਚਿੰਤਨ ਤੇ ਬਾਣੀ, ਵਾਰਿਸ ਸ਼ਾਹ ਫਾਊਂਡੇਸ਼ਨ , ਅੰਮ੍ਰਿਤਸਰ।
21. ਮਹਿੰਦਰ ਕੌਰ ਗਿੱਲ, ਬਾਣੀ ਸਾਰ, ਨਵਯੁਗ ਪਬਲਿਸ਼ਰਜ਼, ਚਾਂਦਨੀ ਚੌਕ, ਦਿੱਲੀ।
22.ਸਰਬਜਿੰਦਰ ਸਿੰਘ(ਸੰਪਾ.)ਸਿੱਖ ਧਰਮ ਸਿਧਾਂਤਕ ਤੇ ਇਤਿਹਾਸਕ ਪਰਿਪੇਖ,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।
23.ਡਾ.ਗੁਰਪ੍ਰੀਤ ਕੌਰ(ਸੰਪਾ.),ਗੁਰਮਤਿ ਸਾਹਿਤ ਦਰਸ਼ਨ,ਲੋਕਗੀਤ ਪ੍ਰਕਾਸ਼ਨ,ਚੰਡੀਗੜ੍ਹ।

ਐਮ.ਏ. (ਪੰਜਾਬੀ), ਭਾਗ ਦੂਜਾ ,ਸਮੈਸਟਰ ਚੌਥਾ

ਇਲੈਕਟਿਵ ਕੋਰਸ ਤੀਜਾ -ਗੁਰਮਤਿ ਕਾਵਿ ਪ੍ਰੈਕਟੀਕਲ(ਆਪਸ਼ਨ-1 ਅਤੇ ਆਪਸ਼ਨ-2ਲਈ)

ਪੇਪਰ ਕੋਡ:PUN-403,ਕ੍ਰੈਡਿਟ-01
2020-21,2021-22 ਸੈਸ਼ਨ ਲਈ

ਕੁੱਲ ਅੰਕ :16 ਪਾਸ ਅੰਕ : 06

ਨੋਟ:ਅੰਦਰੂਨੀ ਵਿਸ਼ੇਸ਼ਗ ਦੁਆਰਾ ਮੁਲਾਂਕਣ ਕੀਤਾ ਜਾਵੇਗਾ।

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼:

1.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਆਧੁਨਿਕ ਯੁੱਗ ਦੇ ਹਾਣੀ ਬਣਾਉਣਾ।

2.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਗੁਰਬਾਣੀ ਦੀ ਵਿਸ਼ੇਸ਼ਤਾ ਦਾ ਗਿਆਨ ਕਰਵਾਉਣਾ।
3.ਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ ਤਕਨਾਲੋਜੀ ਦੀ ਵਰਤੋਂ ਕਰਨ ਦੀ ਦਿਲਚਸਪੀ ਪੈਦਾ ਕਰਨਾ।

ਪਾਠਕ੍ਰਮ:

ਗੁਰਬਾਣੀ ਨਾਲ ਸੰਬੰਧਿਤ ਸ੍ਰੋਤਾਂ ਬਾਰੇ ਉਪਲੱਬਧ ਸਾਫ਼ਟਵੇਅਰ:ਸਰਵੇਖਣ ਅਤੇ ਵਰਤੋਂ

ਐਮ.ਏ. (ਪੰਜਾਬੀ), ਭਾਗ ਦੂਜਾ ,ਸਮੈਸਟਰ ਚੌਥਾ

ਇਲੈਕਟਿਵ ਕੋਰਸ ਤੀਜਾ-ਗੁਰੂ ਅਰਜਨ ਦੇਵ ਜੀ ਵਿਸ਼ੇਸ਼ ਅਧਿਐਨ(ਆਪਸ਼ਨ-2)

ਪੇਪਰ ਕੋਡ:PUN-403B,ਕ੍ਰੈਡਿਟ-05(04L+01P)

2020-21,2021-22 ਸੈਸ਼ਨ ਲਈ

ਕੁੱਲ ਅੰਕ 80	ਪਾਸ ਅੰਕ : 28
ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ : 24	ਅੰਦਰੂਨੀ ਮੁਲਾਂਕਣ ਵਿਚੋਂ ਪਾਸ ਅੰਕ : 08
ਬਾਹਰੀ ਪ੍ਰੀਖਿਆ : 40	ਬਾਹਰੀ ਪ੍ਰੀਖਿਆ ਵਿਚੋਂ ਪਾਸ ਅੰਕ : 14
ਪ੍ਰੀਖਿਆ ਦਾ ਸਮਾਂ : 3 ਘੰਟੇ	ਕੁੱਲ ਲੈਕਚਰ:60

ਨੋਟ:ਕੁੱਲ 80 ਅੰਕਾਂ ਵਿਚ ਪ੍ਰੈਕਟੀਕਲ ਦੇ 16 ਅੰਕ ਵੀ ਸ਼ਾਮਿਲ ਹਨ।

ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼

1. ਗੁਰਮਤਿ ਸਾਹਿਤ ਵਿਚ ਗੁਰੂ ਅਰਜਨ ਦੇਵ ਜੀ ਦੀ ਵਿਸ਼ੇਸ਼ਤਾ ਬਾਰੇ ਗਿਆਨ ਦੇਣਾ।
2. ਗੁਰਮਤਿ ਕਾਵਿ ਧਾਰਾ ਦੇ ਇਤਿਹਾਸਕ,ਸਿਧਾਂਤਕ,ਦਾਰਸ਼ਨਿਕ ਅਤੇ ਸਭਿਆਚਾਰਕ ਪੱਖਾਂ ਤੋਂ ਜਾਣੂ ਕਰਵਾਉਣਾ।
3. ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਗੁਰੂ ਅਰਜਨ ਦੇਵ ਜੀ ਦੀ ਬਾਣੀ ਦੇ ਬਹੁਪੱਖਾਂ ਬਾਰੇ ਜਾਣਕਾਰੀ ਦੇਣਾ।
4. ਵਿਦਿਆਰਥੀਆਂਨੂੰ ਗੁਰੂ ਗ੍ਰੰਥ ਸਾਹਿਬ ਦੇ ਸੰਪਾਦਨ ਬਾਰੇ ਜਾਣਕਾਰੀ ਦੇਣਾ ।

ਪੇਪਰ ਸੈੱਟਰ ਲਈ ਹਦਾਇਤਾਂ

1. ਸਾਰੇ ਸਿਲੇਬਸ ਵਿਚੋਂ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣ। ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਨੂੰ ਤਿੰਨ ਭਾਗਾਂ(ੳ,ਅ, ਅਤੇ ੲ) ਵਿਚ ਵੰਡਿਆ ਜਾਵੇ।ਭਾਗ ੳ ਅਤੇ ਅ ਦੇ ਹਰੇਕ ਉਪ-ਭਾਗ (ੳ-1,ੳ-2 ਅਤੇ ਅ-1,ਅ-2)ਵਿਚੋਂ ਦੋ-ਦੋ ਪ੍ਰਸ਼ਨ,ਕੁੱਲ ਅੱਠ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣ,ਜਿਨ੍ਹਾਂ ਵਿਚੋਂ ਵਿਦਿਆਰਥੀਆਂ ਨੇ ਹਰੇਕ ਉਪ-ਭਾਗ ਵਿਚੋਂ ਇਕ-ਇਕ ਪ੍ਰਸ਼ਨ ,ਭਾਵ ਕੁੱਲ ਚਾਰ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹੋਣਗੇ।ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 06 ਅੰਕ ਹੋਣਗੇ। ਇਸ ਤਰ੍ਹਾਂ ਭਾਗ ੳ ਅਤੇ ਅ ਦੇ ਉਪ-ਭਾਗਾਂ ਦੇ ਕੁੱਲ 24 ਅੰਕ ਹੋਣਗੇ।
2. ਤੀਜੇ ਭਾਗ (ਭਾਗ-ੲ) ਵਿਚ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ 08 ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ। ਪ੍ਰੀਖਿਆਰਥੀ ਨੇ ਸਾਰੇ ਪ੍ਰਸ਼ਨਾਂ ਦਾ ਉੱਤਰ ਦੇਣਾ ਹੋਵੇਗਾ। ਇਸ ਭਾਗ ਦੇ ਪ੍ਰਸ਼ਨਾਂ ਦਾ ਉੱਤਰ 5-6 ਸਤਰਾਂ ਵਿਚ ਦੇਣਾ ਹੋਵੇਗਾ। ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 2 ਅੰਕ ਹੋਣਗੇ। ਇਸ ਭਾਗ ਦੇ ਕੁੱਲ 16 ਅੰਕ ਹੋਣਗੇ।
3. ਸਾਰੇ ਭਾਗਾਂ ਵਿਚੋਂ ਪ੍ਰਸ਼ਨ ਇਸ ਢੰਗ ਨਾਲ ਪੁੱਛੇ ਜਾਣ ਕਿ ਸਿਲੇਬਸ ਦੇ ਸਾਰੇ ਪੱਖਾਂ ਸੰਬੰਧੀ ਪ੍ਰੀਖਿਆਰਥੀ ਵਲੋਂ ਕੀਤੇ ਅਧਿਐਨ ਨੂੰ ਪਰਖਿਆ ਜਾ ਸਕੇ ਅਤੇ ਇਹ ਵੀ ਪਰਖਿਆ ਜਾ ਸਕੇ ਕਿ ਉਸਨੇ ਸਮੁੱਚੇ ਸਿਲੇਬਸ ਦਾ ਅਧਿਐਨ ਕੀਤਾ ਹੈ। ਤੀਜੇ ਭਾਗ (ਭਾਗ-ੲ) ਦੇ ਲਾਜ਼ਮੀ ਪ੍ਰਸ਼ਨ ਦੇ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਸਾਰੇ 08 ਪ੍ਰਸ਼ਨ ਇਸ ਢੰਗ ਨਾਲ ਪੁੱਛੇ ਜਾਣ ਕਿ ਪੇਪਰ ਨਾਲ ਸੰਬੰਧਿਤ ਸਿਲੇਬਸ ਦੇ ਨਿਕਟ ਅਤੇ ਪਾਠ-ਮੂਲਕ ਅਧਿਐਨ ਨੂੰ ਪਰਖਿਆ ਜਾ ਸਕੇ।
4. ਪ੍ਰਸ਼ਨਾਂ ਦੀ ਭਾਸ਼ਾ ਸਰਲ, ਸਪੱਸ਼ਟ ਅਤੇ ਪ੍ਰੀਖਿਆਰਥੀ ਦੀ ਬੌਧਿਕ ਪੱਧਰ ਦੇ ਅਨੁਕੂਲ ਹੋਣੀ ਚਾਹੀਦੀ ਹੈ।
5. ਪ੍ਰਸ਼ਨ ਅਜਿਹੇ ਹੋਣ ਜਿਹੜੇ ਨਿਰਧਾਰਿਤ ਸਮੇਂ ਵਿਚ ਸਹਿਜੇ ਹੀ ਹੱਲ ਕੀਤੇ ਜਾ ਸਕਣ।

ਪ੍ਰੀਖਿਆਰਥੀਆਂ ਲਈ ਹਦਾਇਤਾਂ

1. ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਨੂੰ ਤਿੰਨ ਭਾਗਾਂ(ੳ,ਅ, ਅਤੇ ੲ) ਵਿਚ ਵੰਡਿਆ ਜਾਵੇਗਾ।ਭਾਗ ੳ ਅਤੇ ਅ ਦੇ ਹਰੇਕ ਉਪ-ਭਾਗ (ੳ-1,ੳ-2 ਅਤੇ ਅ-1,ਅ-2)ਵਿਚੋਂ ਦੋ-ਦੋ ਪ੍ਰਸ਼ਨ,ਕੁੱਲ ਅੱਠ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ,ਜਿਨ੍ਹਾਂ ਵਿਚੋਂ ਪ੍ਰੀਖਿਆਰਥੀ ਨੇ ਹਰੇਕ ਉਪ-ਭਾਗ ਵਿਚੋਂ ਇਕ-ਇਕ ਪ੍ਰਸ਼ਨ ,ਭਾਵ ਕੁੱਲ ਚਾਰ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹੋਣਗੇ।ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 06 ਅੰਕ ਹੋਣਗੇ। ਇਸ ਤਰ੍ਹਾਂ ਭਾਗ ੳ ਅਤੇ ਅ ਦੇ ਉਪ-ਭਾਗਾਂ ਦੇ ਕੁੱਲ 24 ਅੰਕ ਹੋਣਗੇ।ਹਰ ਉਪ-ਭਾਗ ਵਿੱਚੋਂ ਇੱਕ ਪ੍ਰਸ਼ਨ ਕਰਨਾ ਲਾਜ਼ਮੀ ਹੋਵੇਗਾ।
2. ਤੀਜੇ ਭਾਗ (ਭਾਗ-ੲ) ਦੇ ਸਾਰੇ 08 ਪ੍ਰਸ਼ਨ ਲਾਜ਼ਮੀ ਹਨ। ਸਾਰੇ ਪ੍ਰਸ਼ਨਾਂ ਦਾ ਸੰਖੇਪ ਉੱਤਰ ਦੇਣਾ ਹੈ।ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 2 ਅੰਕ ਹਨ।
3. ਉੱਤਰ ਪ੍ਰਸ਼ਨ ਨੂੰ ਧਿਆਨ ਵਿਚ ਰੱਖ ਕੇ ਪ੍ਰਸ਼ਨ ਦੀ ਸੀਮਾ ਵਿਚ ਰਹਿ ਕੇ ਦਿੱਤੇ ਜਾਣ।

ਪਾਠਕ੍ਰਮ ਅਤੇ ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਦੀ ਰੂਪ-ਰੇਖਾ:

ਭਾਗ-ੳ

ੳ-I. ਗੁਰਮਤਿ ਕਾਵਿ ਸਿਧਾਂਤ(ਭਾਗ ਪਹਿਲਾ), ਸੰਪਾਦਕ ਡਾ. ਅੰਮ੍ਰਿਤਪਾਲ ਕੌਰ ਅਤੇ ਸ.ਲਖਵੀਰ ਸਿੰਘ ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ।

1.ਗੁਰਮਤਿ ਕਾਵਿ ਧਾਰਾ:ਬਾਣੀਕਾਰ ਜੀਵਨ ਤੇ ਰਚਨਾ:ਡਾ.ਅੰਮ੍ਰਿਤਪਾਲ ਕੌਰ
2.ਸ੍ਰੀ ਗੁਰੂ ਗ੍ਰੰਥ ਸਾਹਿਬ ਦਾ ਲੋਕਯਾਨਿਕ ਅਧਿਐਨ:ਡਾ.ਕਰਨੈਲ ਸਿੰਘ ਥਿੰਦ
3.ਗੁਰੂ ਗ੍ਰੰਥ ਸਾਹਿਬ ਦਾ ਭਾਸ਼ਾਈ ਸਰੂਪ:ਡਾ.ਹਰਕੀਰਤ ਸਿੰਘ
4.ਭਗਤ ਬਾਣੀ:ਸਮਾਜ-ਸਭਿਆਚਾਰਕ ਪ੍ਰਸੰਗ:ਡਾ.ਸਿਕੰਦਰ ਸਿੰਘ

ੳ-II.ਬਾਰਹਮਾਹ: ਗੁਰੂ ਅਰਜਨ ਦੇਵ ਜੀ

1. ਬਾਰਹਮਾਹ ਦੇ ਪ੍ਰਮੁੱਖ ਸਰੋਕਾਰ
2. ਬਾਰਹਮਾਹ ਦਾ ਸੁਹਜ ਸ਼ਾਸ਼ਤਰ
3. ਬਾਰਹਮਾਹ ਦਾ ਦਾਰਸ਼ਨਿਕ ਅਧਿਐਨ
4. ਬਾਰਹਮਾਹ ਦਾ ਆਲੋਚਨਾਤਮਕ ਅਧਿਐਨ

ਭਾਗ-ਅ

ਅ-I.ਸੁਖਮਨੀ ਸਾਹਿਬ: ਗੁਰੂ ਅਰਜਨ ਦੇਵ ਜੀ

1.ਸੁਖਮਨੀ ਸਾਹਿਬ ਦੇ ਪ੍ਰਮੁੱਖ ਸਰੋਕਾਰ
2.ਸੁਖਮਨੀ ਸਾਹਿਬ ਦਾ ਸੁਹਜ ਸ਼ਾਸ਼ਤਰ
3.ਸੁਖਮਨੀ ਸਾਹਿਬ ਵਿਚ ਬ੍ਰਹਮ ਦਾ ਸੰਕਲਪ
4.ਸੁਖਮਨੀ ਸਾਹਿਬ ਵਿਚ ਸੁੱਖ ਦਾ ਸੰਕਲਪ

ਅ- II.ਬਾਵਨ ਅੱਖਰੀ: ਗੁਰੂ ਅਰਜਨ ਦੇਵ ਜੀ

1.ਬਾਵਨ ਅੱਖਰੀ ਦੇ ਪ੍ਰਮੁੱਖ ਸਰੋਕਾਰ
2.ਬਾਵਨ ਅੱਖਰੀ ਦਾ ਸੁਹਜ ਸ਼ਾਸ਼ਤਰ
3.ਬਾਵਨ ਅੱਖਰੀ ਦਾ ਦਾਰਸ਼ਨਿਕ ਅਧਿਐਨ
4.ਬਾਵਨ ਅੱਖਰੀ ਦਾ ਆਲੋਚਨਾਤਮਕ ਅਧਿਐਨ

ਭਾਗ-ੲ

ਉਪਰੋਕਤ ਸਿਲੇਬਸ'ਤੇ ਆਧਾਰਿਤ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ 10 ਪ੍ਰਸ਼ਨ

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1. ਅਤਰ ਸਿੰਘ,ਦ੍ਰਿਸ਼ਟੀਕੋਣ,ਲਾਹੌਰ ਬੁੱਕ ਸ਼ਾਪ,ਲੁਧਿਆਣਾ।
2.ਅਤਰ ਸਿੰਘ,ਸਮਦਰਸ਼ਨ,ਰਘਵੀਰ ਰਚਨਾ ਪ੍ਰਕਾਸ਼ਨ,ਚੰਡੀਗੜ੍ਹ।
3.ਸੰਤ ਸਿੰਘ ਸੇਖੋਂ,ਪੰਜਾਬੀ ਕਾਵਿ ਸ਼ਿਰੋਮਣੀ, ਲਾਹੌਰ ਬੁੱਕ ਸ਼ਾਪ,ਲੁਧਿਆਣਾ।
4.ਹਰਿਭਜਨ ਸਿੰਘ,ਅਧਿਅਨ ਅਤੇ ਅਧਿਆਪਨ,ਗੁਰੁ ਨਾਨਕ ਦੇਵ ਯੂਨੀਵਰਸਿਟੀ, ਅੰਮ੍ਰਿਤਸਰ।
5.ਡਾ.ਜਗਬੀਰ ਸਿੰਘ,ਮੱਧਕਾਲੀ ਸ਼ਬਦ ਸਭਿਆਚਾਰ,ਮਨੋਹਰ ਪਾਰਕ,ਨਵੀਂ ਦਿੱਲੀ।

6.ਡਾ.ਜਗਬੀਰ ਸਿੰਘ,ਗੁਰਬਾਣੀ:ਵਿਸ਼ਵ ਦ੍ਰਿਸ਼ਟੀ ਤੇ ਵਿਚਾਰਧਾਰਾ,ਵੈੱਲਵਿਸ਼ ਪਬਲਿਸ਼ਰਜ਼,ਦਿੱਲੀ।
7.ਡਾ.ਹਰਚਰਨ ਕੌਰ(ਸੰਪਾ.),ਮੱਧਕਾਲੀਨ ਪੰਜਾਬੀ ਸਾਹਿਤ,ਪੁਨਰ ਵਿਚਾਰ,ਪੰਜਾਬੀ ਅਕਾਦਮੀ,ਦਿੱਲੀ।
8.ਪ੍ਰੋ.ਪ੍ਰੀਤਮ ਸਿੰਘ(ਸੰਪਾ.),ਸਿੱਖ ਫ਼ਲਸਫ਼ੇ ਦੀ ਰੂਪ-ਰੇਖਾ,ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਯੂਨੀਵਰਸਿਟੀ,ਅੰਮ੍ਰਿਤਸਰ।
9.ਡਾ.ਮਹਿੰਦਰ ਕੌਰ ਗਿੱਲ,ਗੁਰਬਾਣੀ ਸਮੀਖਿਆ,ਪੰਜਾਬੀ ਅਕਾਦਮੀ ,ਦਿੱਲੀ।
10.ਬਿਕਰਮ ਸਿੰਘ ਘੁੰਮਣ, ਗੁਰਬਾਣੀ:ਚਿੰਤਨ ਤੇ ਕਲਾ, ਵਾਰਿਸ ਸ਼ਾਹ ਫਾਊਂਡੇਸ਼ਨ, ਅੰਮ੍ਰਿਤਸਰ।
11. ਗੁਲਵੰਤ ਸਿੰਘ, ਗੁਰਮਤਿ ਸਾਹਿਤ ਚਿੰਤਨ, ਸਿੰਘ ਬ੍ਰਦਰਜ਼, ਬਜ਼ਾਰ ਮਾਈ ਸੇਵਾ, ਅੰਮ੍ਰਿਤਸਰ।
12. ਮਹਿੰਦਰ ਕੌਰ ਗਿੱਲ,ਗੁਰੂ ਅਰਜਨ ਦੇਵ:ਜੀਵਨ ਤੇ ਬਾਣੀ,ਪੰਜਾਬੀ ਰਾਈਟਰਜ਼ ਕੋਆਪਰੇਟਿਵ,ਦਿੱਲੀ।
13.ਗੁਰਸ਼ਰਨ ਕੌਰ ਜੱਗੀ,ਗੁਰੂ ਅਰਜਨ ਦੇਵ:ਜੀਵਨ ਤੇ ਰਚਨਾ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।
14. ਭਾਈ ਵੀਰ ਸਿੰਘ,ਸੁਖਮਨੀ ਸਟੀਕ, ਭਾਈ ਵੀਰ ਸਿੰਘ ਸਦਨ,ਨਵੀਂ ਦਿੱਲੀ।
15.ਦੀਵਾਨ ਸਿੰਘ,ਗੁਰਬਾਣੀ ਚਿੰਤਨ,ਵਾਰਿਸ ਸ਼ਾਹ ਫਾਊਂਡੇਸ਼ਨ,ਅੰਮ੍ਰਿਤਸਰ।
16.ਸ਼ੇਰ ਸਿੰਘ ਸ਼ੇਰ,ਗੁਰਮਤਿ ਦਰਸ਼ਨ,ਸ਼੍ਰੋਮਣੀ ਗੁਰਦੁਆਰਾ ਪ੍ਰਬੰਧਕ ਕਮੇਟੀ,ਸ੍ਰੀ ਅੰਮ੍ਰਿਤਸਰ।
17.ਤਾਰਨ ਸਿੰਘ,ਬਾਰਾਹਮਾਹ ਦਰਪਣ,ਨਿਊ ਬੁੱਕ ਕੰਪਨੀ,ਜਲੰਧਰ।
18.ਵਜੀਰ ਸਿੰਘ,ਗੁਰੁ ਅਰਜਨ ਦੇਵ,ਨੈਸ਼ਨਲ ਬੁੱਕ ਟਰਸਟ,ਇੰਡੀਆ।
19. ਪ੍ਰੋ.ਕਿਸ਼ਨ ਸਿੰਘ,ਗੁਰਬਾਣੀ ਦਾ ਸੱਚ,ਲੋਕਗੀਤ ਪ੍ਰਕਾਸ਼ਨ,ਚੰਡੀਗੜ੍ਹ।
20. ਡਾ.ਰਤਨ ਸਿੰਘ ਜੱਗੀ,ਵਿਚਾਰਧਾਰਾ,ਮਦਾਨ ਪਬਲਿਸ਼ਰਜ਼,ਪਟਿਆਲਾ।
21.ਸਰਬਜਿੰਦਰ ਸਿੰਘ(ਸੰਪਾ.)ਸਿੱਖ ਧਰਮ ਸਿਧਾਂਤਕ ਤੇ ਇਤਿਹਾਸਕ ਪਰਿਪੇਖ,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।
22.ਡਾ.ਗੁਰਪ੍ਰੀਤ ਕੌਰ(ਸੰਪਾ.),ਗੁਰਮਤਿ ਸਾਹਿਤ ਦਰਸ਼ਨ,ਲੋਕਗੀਤ ਪ੍ਰਕਾਸ਼ਨ,ਚੰਡੀਗੜ੍ਹ।

ਐਮ.ਏ. (ਪੰਜਾਬੀ), ਭਾਗ ਦੂਜਾ ,ਸਮੈਸਟਰ ਚੌਥਾ

ਇਲੈਕਟਿਵ ਕੋਰਸ -ਚੌਥਾ:ਪੰਜਾਬੀ ਵਾਰਤਕ

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ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼

1. ਪੰਜਾਬੀ ਵਾਰਤਕ ਦੇ ਇਤਿਹਾਸਕ ਸਫ਼ਰ ਬਾਰੇ ਗਿਆਨ ਦੇਣਾ।
2. ਵਿਭਿੰਨ ਸਾਹਿਤਕਾਰਾਂ ਦਾ ਪੰਜਾਬੀ ਵਾਰਤਕ ਵਿੱਚ ਬਣਦੇ ਸਥਾਨ ਬਾਰੇ ਜਾਣਕਾਰੀ ਦੇਣਾ ।
3. ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਵਿਭਿੰਨ ਸਾਹਿਤਕਾਰਾਂ ਦੀਆਂ ਰਚਨਾਵਾਂ ਦੇ ਬਹੁਪੱਖਾਂ ਬਾਰੇ ਜਾਣਕਾਰੀ ਦੇਣਾ।
4. ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਸਾਹਿਤ ਸਿਰਜਨਾ ਲਈ ਪ੍ਰੇਰਿਤ ਕਰਨਾ ।
5. ਸਾਹਿਤ ਵਿਚ ਗੱਦ ਅਤੇ ਪਦ ਦੇ ਸਿਧਾਂਤਕ ਵਖਰੇਵੇਂ ਨੂੰ ਸਮਝਾਉਣਾ।

ਪੇਪਰ ਸੈੱਟਰ ਲਈ ਹਦਾਇਤਾਂ

1. ਸਾਰੇ ਸਿਲੇਬਸ ਵਿਚੋਂ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣ। ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਨੂੰ ਤਿੰਨ ਭਾਗਾਂ(ੳ,ਅ, ਅਤੇ ੲ) ਵਿਚ ਵੰਡਿਆ ਜਾਵੇ।ਭਾਗ ੳ ਅਤੇ ਅ ਦੇ ਹਰੇਕ ਉਪ-ਭਾਗ (ੳ-1,ੳ-2 ਅਤੇ ਅ-1,ਅ-2)ਵਿਚੋਂ ਦੋ-ਦੋ ਪ੍ਰਸ਼ਨ,ਕੁੱਲ ਅੱਠ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣ,ਜਿਨ੍ਹਾਂ ਵਿਚੋਂ ਵਿਦਿਆਰਥੀਆਂ ਨੇ ਹਰੇਕ ਉਪ-ਭਾਗ ਵਿਚੋਂ ਇਕ-ਇਕ ਪ੍ਰਸ਼ਨ ,ਭਾਵ ਕੁੱਲ ਚਾਰ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹੋਣਗੇ।ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 09 ਅੰਕ ਹੋਣਗੇ। ਇਸ ਤਰ੍ਹਾਂ ਭਾਗ ੳ ਅਤੇ ਅ ਦੇ ਉਪ-ਭਾਗਾਂ ਦੇ ਕੁੱਲ 36 ਅੰਕ ਹੋਣਗੇ।
2. ਤੀਜੇ ਭਾਗ (ਭਾਗ-ੲ) ਵਿਚ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ 10 ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ। ਪ੍ਰੀਖਿਆਰਥੀ ਨੇ ਸਾਰੇ ਪ੍ਰਸ਼ਨਾਂ ਦਾ ਉੱਤਰ ਦੇਣਾ ਹੋਵੇਗਾ। ਇਸ ਭਾਗ ਦੇ ਪ੍ਰਸ਼ਨਾਂ ਦਾ ਉੱਤਰ 5-6 ਸਤਰਾਂ ਵਿਚ ਦੇਣਾ ਹੋਵੇਗਾ। ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 2 ਅੰਕ ਹੋਣਗੇ। ਇਸ ਭਾਗ ਦੇ ਕੁੱਲ 20 ਅੰਕ ਹੋਣਗੇ।
3. ਸਾਰੇ ਭਾਗਾਂ ਵਿਚੋਂ ਪ੍ਰਸ਼ਨ ਇਸ ਢੰਗ ਨਾਲ ਪੁੱਛੇ ਜਾਣ ਕਿ ਸਿਲੇਬਸ ਦੇ ਸਾਰੇ ਪੱਖਾਂ ਸੰਬੰਧੀ ਪ੍ਰੀਖਿਆਰਥੀ ਵਲੋਂ ਕੀਤੇ ਅਧਿਐਨ ਨੂੰ ਪਰਖਿਆ ਜਾ ਸਕੇ ਅਤੇ ਇਹ ਵੀ ਪਰਖਿਆ ਜਾ ਸਕੇ ਕਿ ਉਸਨੇ ਸਮੁੱਚੇ ਸਿਲੇਬਸ ਦਾ ਅਧਿਐਨ ਕੀਤਾ ਹੈ। ਤੀਜੇ ਭਾਗ (ਭਾਗ-ੲ) ਦੇ ਲਾਜ਼ਮੀ ਪ੍ਰਸ਼ਨ ਦੇ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਸਾਰੇ 10 ਪ੍ਰਸ਼ਨ ਇਸ ਢੰਗ ਨਾਲ ਪੁੱਛੇ ਜਾਣ ਕਿ ਪੇਪਰ ਨਾਲ ਸੰਬੰਧਿਤ ਸਿਲੇਬਸ ਦੇ ਨਿਕਟ ਅਤੇ ਪਾਠ-ਮੂਲਕ ਅਧਿਐਨ ਨੂੰ ਪਰਖਿਆ ਜਾ ਸਕੇ।
4. ਪ੍ਰਸ਼ਨਾਂ ਦੀ ਭਾਸ਼ਾ ਸਰਲ, ਸਪੱਸ਼ਟ ਅਤੇ ਪ੍ਰੀਖਿਆਰਥੀ ਦੀ ਬੌਧਿਕ ਪੱਧਰ ਦੇ ਅਨੁਕੂਲ ਹੋਣੀ ਚਾਹੀਦੀ ਹੈ।
5. ਪ੍ਰਸ਼ਨ ਅਜਿਹੇ ਹੋਣ ਜਿਹੜੇ ਨਿਰਧਾਰਿਤ ਸਮੇਂ ਵਿਚ ਸਹਿਜੇ ਹੀ ਹੱਲ ਕੀਤੇ ਜਾ ਸਕਣ।

ਪ੍ਰੀਖਿਆਰਥੀਆਂ ਲਈ ਹਦਾਇਤਾਂ

1. ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਨੂੰ ਤਿੰਨ ਭਾਗਾਂ(ੳ,ਅ, ਅਤੇ ੲ) ਵਿਚ ਵੰਡਿਆ ਜਾਵੇਗਾ।ਭਾਗ ੳ ਅਤੇ ਅ ਦੇ ਹਰੇਕ ਉਪ-ਭਾਗ (ੳ-1,ੳ-2 ਅਤੇ ਅ-1,ਅ-2)ਵਿਚੋਂ ਦੋ-ਦੋ ਪ੍ਰਸ਼ਨ,ਕੁੱਲ ਅੱਠ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ,ਜਿਨ੍ਹਾਂ ਵਿਚੋਂ ਪ੍ਰੀਖਿਆਰਥੀ ਨੇ ਹਰੇਕ ਉਪ-ਭਾਗ ਵਿਚੋਂ ਇਕ-ਇਕ ਪ੍ਰਸ਼ਨ ,ਭਾਵ ਕੁੱਲ ਚਾਰ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹੋਣਗੇ।ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 09 ਅੰਕ ਹੋਣਗੇ। ਇਸ ਤਰ੍ਹਾਂ ਭਾਗ ੳ ਅਤੇ ਅ ਦੇ ਉਪ-ਭਾਗਾਂ ਦੇ ਕੁੱਲ 36 ਅੰਕ ਹੋਣਗੇ।ਹਰ ਉਪ-ਭਾਗ ਵਿੱਚੋਂ ਇੱਕ ਪ੍ਰਸ਼ਨ ਕਰਨਾ ਲਾਜ਼ਮੀ ਹੋਵੇਗਾ।
2. ਤੀਜੇ ਭਾਗ (ਭਾਗ-ੲ) ਦੇ ਸਾਰੇ 10 ਪ੍ਰਸ਼ਨ ਲਾਜ਼ਮੀ ਹਨ। ਸਾਰੇ ਪ੍ਰਸ਼ਨਾਂ ਦਾ ਸੰਖੇਪ ਉੱਤਰ ਦੇਣਾ ਹੈ।ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 2 ਅੰਕ ਹਨ।
3. ਉੱਤਰ ਪ੍ਰਸ਼ਨ ਨੂੰ ਧਿਆਨ ਵਿਚ ਰੱਖ ਕੇ ਪ੍ਰਸ਼ਨ ਦੀ ਸੀਮਾ ਵਿਚ ਰਹਿ ਕੇ ਦਿੱਤੇ ਜਾਣ।

ਪਾਠਕ੍ਰਮ ਅਤੇ ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਦੀ ਰੂਪ-ਰੇਖਾ:

ਭਾਗ-ੳ

ੳ-I. ਵਾਰਤਕ ਸਿਧਾਂਤ,ਮੁੱਖ ਸੰਪਾਦਕ:ਡਾ.ਜਸਵਿੰਦਰ ਸਿੰਘ ਸੈਣੀ,ਸੰਪਾਦਕ ਡਾ.ਗੁਰਨਾਇਬ ਸਿੰਘ , ਡਾ.ਚਰਨਜੀਤ ਕੌਰ ,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ,ਪੁਸਤਕ ਦੇ ਭਾਗ ਦੂਜਾ ਦੇ ਚਾਰ ਲੇਖ

1.ਵਾਰਤਕ: ਬੁਨਿਆਦੀ ਨੁਕਤੇ – ਡਾ. ਸਵਰਾਜਬੀਰ
2.ਜੀਵਨ ਕਥਾ – ਡਾ. ਰਤਨ ਸਿੰਘ ਜੱਗੀ
3.ਪੰਜਾਬੀ ਸਫਰਨਾਮਾ ਸਾਹਿਤ ਦਾ ਸ਼ਾਸ਼ਤਰ – ਡਾ. ਜਸਪ੍ਰੀਤ ਕੌਰ
4.ਰੇਖਾ ਚਿੱਤਰ : ਨਾਮਕਰਨ, ਪਰਿਭਾਸ਼ਾ, ਸਰੂਪ ਅਤੇ ਲੱਛਣ : ਡਾ. ਕੰਵਲਜੀਤ ਕੌਰ

ੳ–II. ਆਪ–ਬੀਤੀ : ਮਹਿੰਦਰ ਸਿੰਘ ਰੰਧਾਵਾ
1.ਮਹਿੰਦਰ ਸਿੰਘ ਰੰਧਾਵਾ ਰਚਿਤ ਆਪ–ਬੀਤੀ ਦੇ ਪ੍ਰਮੁੱਖ ਸਰੋਕਾਰ
2.ਮਹਿੰਦਰ ਸਿੰਘ ਰੰਧਾਵਾ ਰਚਿਤ ਆਪ–ਬੀਤੀ ਦੀਆਂ ਬਿਰਤਾਂਤਕ ਜੁਗਤਾਂ
3.ਮਹਿੰਦਰ ਸਿੰਘ ਰੰਧਾਵਾ ਰਚਿਤ ਆਪ–ਬੀਤੀ ਦਾ ਆਲੋਚਨਾਤਮਕ ਅਧਿਐਨ
4.ਮਹਿੰਦਰ ਸਿੰਘ ਰੰਧਾਵਾ ਦੀ ਪੰਜਾਬੀ ਵਾਰਤਕ ਸਾਹਿਤ ਨੂੰ ਦੇਣ

ਭਾਗ–ਅ

ਅ–I. ਹੁਸੀਨ ਚਿਹਰੇ : ਬਲਵੰਤ ਗਾਰਗੀ
1. ਹੁਸੀਨ ਚਿਹਰੇ ਪੁਸਤਕ ਦੇ ਪ੍ਰਮੁੱਖ ਸਰੋਕਾਰ
2. ਹੁਸੀਨ ਚਿਹਰੇ ਪੁਸਤਕ ਦਾ ਆਲੋਚਨਾਤਮਕ ਅਧਿਐਨ
3. ਹੁਸੀਨ ਚਿਹਰੇ ਪੁਸਤਕ ਦੀਆਂ ਬਿਰਤਾਂਤਕ ਜੁਗਤਾਂ
4. ਬਲਵੰਤ ਗਾਰਗੀ ਦੀ ਪੰਜਾਬੀ ਵਾਰਤਕ ਸਾਹਿਤ ਨੂੰ ਦੇਣ

ਅ–II. ਏਨ੍ਹਾਂ ਮੁੰਡਿਆਂ ਜਲਦੀ ਮਰ ਜਾਣਾ:ਗੁਰਬਚਨ
1. ਏਨ੍ਹਾਂ ਮੁੰਡਿਆਂ ਜਲਦੀ ਮਰ ਜਾਣਾ ਪੁਸਤਕ ਵਿਚ ਪਰਵਾਸ ਦੀ ਪੇਸ਼ਕਾਰੀ / ਪ੍ਰਮੁੱਖ ਸਰੋਕਾਰ
2. ਏਨ੍ਹਾਂ ਮੁੰਡਿਆਂ ਜਲਦੀ ਮਰ ਜਾਣਾ ਪੁਸਤਕ ਦੀਆਂ ਬਿਰਤਾਂਤਕ ਜੁਗਤਾਂ
3. ਏਨ੍ਹਾਂ ਮੁੰਡਿਆਂ ਜਲਦੀ ਮਰ ਜਾਣਾ ਪੁਸਤਕ ਦਾ ਆਲੋਚਨਾਤਮਕ ਅਧਿਐਨ
4. ਗੁਰਬਚਨ ਦੀ ਪੰਜਾਬੀ ਵਾਰਤਕ ਸਾਹਿਤ ਨੂੰ ਦੇਣ

ਭਾਗ–ੲ

ਉਪਰੋਕਤ ਸਿਲੇਬਸ'ਤੇ ਆਧਾਰਿਤ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ 10 ਪ੍ਰਸ਼ਨ

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1.ਡਾ.ਰਛਪਾਲ ਕੌਰ, ਪੰਜਾਬੀ ਸਫ਼ਰਨਾਮਾ: ਸਰੂਪ, ਸਿਧਾਂਤ ਤੇ ਵਿਕਾਸ, ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ।
2.ਪ੍ਰੋ.ਪਿਆਰਾ ਸਿੰਘ , ਪੰਜਾਬੀ ਵਾਰਤਕ: ਸਿਧਾਂਤ, ਇਤਿਹਾਸ ਅਤੇ ਪ੍ਰਵਿਰਤੀਆਂ, ਨਿਊ ਬੁੱਕ ਕੰਪਨੀ, ਜਲੰਧਰ।
4.ਅਬਨਾਸ਼ ਕੌਰ,ਪੰਜਾਬੀ ਸਫ਼ਰਨਾਮਾ ਕੋਸ਼,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ।
5.ਧਰਮਪਾਲ ਸਿੰਗਲ,ਪੰਜਾਬੀ ਜੀਵਨੀ–ਸਰੂਪ,ਸਿਧਾਂਤ ਤੇ ਵਿਕਾਸ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ।

6.ਖੋਜ ਪਤ੍ਰਿਕਾ,ਨਿਬੰਧ ਅੰਕ,ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ।
7.ਮਨਮੋਹਨ ਕੇਸਰ,ਵਾਰਤਕ ਤੇ ਵਾਰਤਕਕਾਰ,ਪੈਪਸੂ ਬੁੱਕ ਡਿੱਪੂ,ਪਟਿਆਲਾ।
8.ਡਾ.ਗੁਰਪ੍ਰੀਤ ਕੌਰ(ਸੰਪਾ.),ਪੰਜਾਬੀਅਤ ਦਾ ਮੁੱਦਈ ਡਾ.ਮਹਿੰਦਰ ਸਿੰਘ ਰੰਧਾਵਾ,ਤਰਲੋਚਨ ਪਬਲਿਸ਼ਰਜ਼,ਚੰਡੀਗੜ੍ਹ।
9.ਸਤਿੰਦਰ ਸਿੰਘ,ਆਧੁਨਿਕ ਪੰਜਾਬੀ ਵਾਰਤਕ ਦਾ ਇਤਿਹਾਸ,ਪੰਜਾਬੀ ਅਕਾਦਮੀ,ਦਿੱਲੀ।
10.ਡਾ.ਕ੍ਰਿਪਾਲ ਸਿੰਘ,ਜਨਮਸਾਖੀ ਪਰੰਪਰਾ, ਪੰਜਾਬੀ,ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।
11.ਧਰਮਪਾਲ ਸਿੰਗਲ,ਵਾਰਤਕ ਸ਼ੈਲੀ,ਭਾਸ਼ਾ ਵਿਭਾਗ,ਪੰਜਾਬ,ਪਟਿਆਲਾ।
12.ਹਰਨਾਮ ਸਿੰਘ ਸ਼ਾਨ,ਚੋਣਵੀਂ ਗੱਦ,ਪੰਜਾਬ ਯੂਨੀਵਰਸਿਟੀ,ਚੰਡੀਗੜ੍ਹ।
13.ਪ੍ਰੀਤਮ ਸਿੰਘ(ਸੰਪਾ.),ਗੱਦ ਪ੍ਰਵੇਸ਼, ਪੰਜਾਬ ਯੂਨੀਵਰਸਿਟੀ,ਚੰਡੀਗੜ੍ਹ।
14.ਡਾ.ਭੁਪਿੰਦਰ ਸਿੰਘ ਖਹਿਰਾ,ਮਹਿੰਦਰ ਸਿੰਘ ਰੰਧਾਵਾ,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।
15.ਪ੍ਰੇਮ ਪ੍ਰਕਾਸ਼ ਸਿੰਘ,ਪਰਵਾਸੀ ਪੰਜਾਬੀ ਸਾਹਿਤ:ਮੁੱਲ ਤੇ ਮੁਲਾਂਕਣ,ਮਦਾਨ ਪਬਲਿਸ਼ਰਜ਼,ਪਟਿਆਲਾ।
16.ਅਬਨਾਸ਼ ਕੌਰ,ਪੰਜਾਬੀ ਰੇਖਾ-ਚਿੱਤਰ:ਸਰੂਪ ਤੇ ਸਾਰ,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।
17.ਰਛਪਾਲ ਕੌਰ,ਪੰਜਾਬੀ ਸਫ਼ਰਨਾਮਾ:ਸਰੂਪ ਤੇ ਸੰਭਾਵਨਾ,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।
18.ਖੋਜ ਪਤ੍ਰਿਕਾ,ਪਰਵਾਸੀ ਪੰਜਾਬੀ ਸਾਹਿਤ ਅੰਕ,ਅੰਕ-40,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।
19. ਖੋਜ ਪਤ੍ਰਿਕਾ,ਗੋਲਡਨ ਜੁਬਲੀ ਵਿਸ਼ੇਸ਼ ਅੰਕ,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ।
20. ਡਾ.ਰਤਨ ਸਿੰਘ ਜੱਗੀ,ਵਿਚਾਰਧਾਰਾ,ਮਦਾਨ ਪਬਲਿਸ਼ਰਜ਼,ਪਟਿਆਲਾ।
21.ਡਾ.ਰਤਨ ਸਿੰਘ ਜੱਗੀ,ਵਾਰਤਕ ਤੇ ਵਾਰਤਕ ਸ਼ੈਲੀ,ਪੰਜਾਬ ਸਟੇਟ ਯੂਨੀਵਰਸਿਟੀ ਟੈਕਸਟ ਬੁੱਕ ਬੋਰਡ,ਚੰਡੀਗੜ੍ਹ।

ਐਮ.ਏ. (ਪੰਜਾਬੀ), ਭਾਗ ਦੂਜਾ ,ਸਮੈਸਟਰ ਚੌਥਾ
ਇਲੈਕਟਿਵ ਕੋਰਸ ਪੰਜਵਾਂ- ਕਿੱਸਾ-ਕਾਵਿ

ਪੇਪਰ ਕੋਡ:PUN-405,ਕ੍ਰੈਡਿਟ-05
2020-21,2021-22 ਸੈਸ਼ਨ ਲਈ

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ਪਾਠਕ੍ਰਮ ਦਾ ਉਦੇਸ਼

1. ਕਿੱਸਾ- ਕਾਵਿ ਦੇ ਇਤਿਹਾਸਕ ਸਫ਼ਰ ਬਾਰੇ ਗਿਆਨ ਦੇਣਾ।
2. ਵਿਭਿੰਨ ਸਾਹਿਤਕਾਰਾਂ ਦੇ ਕਿੱਸਾ- ਕਾਵਿ ਵਿੱਚ ਬਣਦੇ ਸਥਾਨ ਬਾਰੇ ਜਾਣਕਾਰੀ ਦੇਣਾ ।

3. ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਵਿਭਿੰਨ ਸਾਹਿਤਕਾਰਾਂ ਦੀਆਂ ਰਚਨਾਵਾਂ ਦੇ ਬਹੁਪੱਖਾਂ ਬਾਰੇ ਜਾਣਕਾਰੀ ਦੇਣਾ।

4.ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਸਾਹਿਤ ਸਿਰਜਨਾ ਲਈ ਪ੍ਰੇਰਿਤ ਕਰਨਾ ।

ਪੇਪਰ ਸੈੱਟਰ ਲਈ ਹਦਾਇਤਾਂ

1. ਸਾਰੇ ਸਿਲੇਬਸ ਵਿਚੋਂ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣ। ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਨੂੰ ਤਿੰਨ ਭਾਗਾਂ(ੳ,ਅ, ਅਤੇ ੲ) ਵਿਚ ਵੰਡਿਆ ਜਾਵੇ।ਭਾਗ ੳ ਅਤੇ ਅ ਦੇ ਹਰੇਕ ਉਪ-ਭਾਗ (ੳ-1,ੳ-2 ਅਤੇ ਅ-1,ਅ-2)ਵਿਚੋਂ ਦੋ-ਦੋ ਪ੍ਰਸ਼ਨ,ਕੁੱਲ ਅੱਠ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣ,ਜਿਨ੍ਹਾਂ ਵਿਚੋਂ ਵਿਦਿਆਰਥੀਆਂ ਨੇ ਹਰੇਕ ਉਪ-ਭਾਗ ਵਿਚੋਂ ਇਕ-ਇਕ ਪ੍ਰਸ਼ਨ ,ਭਾਵ ਕੁੱਲ ਚਾਰ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹੋਣਗੇ।ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 09 ਅੰਕ ਹੋਣਗੇ। ਇਸ ਤਰ੍ਹਾਂ ਭਾਗ ੳ ਅਤੇ ਅ ਦੇ ਉਪ-ਭਾਗਾਂ ਦੇ ਕੁੱਲ 36 ਅੰਕ ਹੋਣਗੇ।
2. ਤੀਜੇ ਭਾਗ (ਭਾਗ-ੲ) ਵਿਚ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ 10 ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ। ਪ੍ਰੀਖਿਆਰਥੀ ਨੇ ਸਾਰੇ ਪ੍ਰਸ਼ਨਾਂ ਦਾ ਉੱਤਰ ਦੇਣਾ ਹੋਵੇਗਾ। ਇਸ ਭਾਗ ਦੇ ਪ੍ਰਸ਼ਨਾਂ ਦਾ ਉੱਤਰ 5-6 ਸਤਰਾਂ ਵਿਚ ਦੇਣਾ ਹੋਵੇਗਾ। ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 2 ਅੰਕ ਹੋਣਗੇ। ਇਸ ਭਾਗ ਦੇ ਕੁੱਲ 20 ਅੰਕ ਹੋਣਗੇ।
3. ਸਾਰੇ ਭਾਗਾਂ ਵਿਚੋਂ ਪ੍ਰਸ਼ਨ ਇਸ ਢੰਗ ਨਾਲ ਪੁੱਛੇ ਜਾਣ ਕਿ ਸਿਲੇਬਸ ਦੇ ਸਾਰੇ ਪੱਖਾਂ ਸੰਬੰਧੀ ਪ੍ਰੀਖਿਆਰਥੀ ਵਲੋਂ ਕੀਤੇ ਅਧਿਐਨ ਨੂੰ ਪਰਖਿਆ ਜਾ ਸਕੇ ਅਤੇ ਇਹ ਵੀ ਪਰਖਿਆ ਜਾ ਸਕੇ ਕਿ ਉਸਨੇ ਸਮੁੱਚੇ ਸਿਲੇਬਸ ਦਾ ਅਧਿਐਨ ਕੀਤਾ ਹੈ। ਤੀਜੇ ਭਾਗ (ਭਾਗ-ੲ) ਦੇ ਲਾਜ਼ਮੀ ਪ੍ਰਸ਼ਨ ਦੇ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਸਾਰੇ 10 ਪ੍ਰਸ਼ਨ ਇਸ ਢੰਗ ਨਾਲ ਪੁੱਛੇ ਜਾਣ ਕਿ ਪੇਪਰ ਨਾਲ ਸੰਬੰਧਿਤ ਸਿਲੇਬਸ ਦੇ ਨਿਕਟ ਅਤੇ ਪਾਠ-ਮੂਲਕ ਅਧਿਐਨ ਨੂੰ ਪਰਖਿਆ ਜਾ ਸਕੇ।

4.ਪ੍ਰਸ਼ਨਾਂ ਦੀ ਭਾਸ਼ਾ ਸਰਲ, ਸਪੱਸ਼ਟ ਅਤੇ ਪ੍ਰੀਖਿਆਰਥੀ ਦੀ ਬੌਧਿਕ ਪੱਧਰ ਦੇ ਅਨੁਕੂਲ ਹੋਣੀ ਚਾਹੀਦੀ ਹੈ।

5.ਪ੍ਰਸ਼ਨ ਅਜਿਹੇ ਹੋਣ ਜਿਹੜੇ ਨਿਰਧਾਰਿਤ ਸਮੇਂ ਵਿਚ ਸਹਿਜੇ ਹੀ ਹੱਲ ਕੀਤੇ ਜਾ ਸਕਣ।

ਪ੍ਰੀਖਿਆਰਥੀਆਂ ਲਈ ਹਦਾਇਤਾਂ

1. ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਨੂੰ ਤਿੰਨ ਭਾਗਾਂ(ੳ,ਅ, ਅਤੇ ੲ) ਵਿਚ ਵੰਡਿਆ ਜਾਵੇਗਾ।ਭਾਗ ੳ ਅਤੇ ਅ ਦੇ ਹਰੇਕ ਉਪ-ਭਾਗ (ੳ-1,ੳ-2 ਅਤੇ ਅ-1,ਅ-2)ਵਿਚੋਂ ਦੋ-ਦੋ ਪ੍ਰਸ਼ਨ,ਕੁੱਲ ਅੱਠ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ,ਜਿਨ੍ਹਾਂ ਵਿਚੋਂ ਪ੍ਰੀਖਿਆਰਥੀ ਨੇ ਹਰੇਕ ਉਪ-ਭਾਗ ਵਿਚੋਂ ਇਕ-ਇਕ ਪ੍ਰਸ਼ਨ ,ਭਾਵ ਕੁੱਲ ਚਾਰ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹੋਣਗੇ।ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 09 ਅੰਕ ਹੋਣਗੇ। ਇਸ ਤਰ੍ਹਾਂ ਭਾਗ ੳ ਅਤੇ ਅ ਦੇ ਉਪ-ਭਾਗਾਂ ਦੇ ਕੁੱਲ 36 ਅੰਕ ਹੋਣਗੇ।ਹਰ ਉਪ-ਭਾਗ ਵਿੱਚੋਂ ਇੱਕ ਪ੍ਰਸ਼ਨ ਕਰਨਾ ਲਾਜ਼ਮੀ ਹੋਵੇਗਾ।
2. ਤੀਜੇ ਭਾਗ (ਭਾਗ-ੲ) ਦੇ ਸਾਰੇ 10 ਪ੍ਰਸ਼ਨ ਲਾਜ਼ਮੀ ਹਨ। ਸਾਰੇ ਪ੍ਰਸ਼ਨਾਂ ਦਾ ਸੰਖੇਪ ਉੱਤਰ ਦੇਣਾ ਹੈ।ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 2 ਅੰਕ ਹਨ।
3. ਉੱਤਰ ਪ੍ਰਸ਼ਨ ਨੂੰ ਧਿਆਨ ਵਿਚ ਰੱਖ ਕੇ ਪ੍ਰਸ਼ਨ ਦੀ ਸੀਮਾ ਵਿਚ ਰਹਿ ਕੇ ਦਿੱਤੇ ਜਾਣ।

ਪਾਠਕ੍ਰਮ ਅਤੇ ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਦੀ ਰੂਪ-ਰੇਖਾ

ਭਾਗ-ੳ

ੳ- I.ਮੱਧਕਾਲੀ ਕਾਵਿ ਸਿਧਾਂਤ,ਮੁੱਖ ਸੰਪਾਦਕ:ਡਾ.ਜਸਵਿੰਦਰ ਸੈਣੀ,ਸੰਪਾ. ਤਾਰਾ ਸਿੰਘ,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ,ਪਟਿਆਲਾ,ਪੁਸਤਕ ਦੇ ਚਾਰ ਆਲੇਖ

1.ਵਾਰਿਸ ਦੀ ਨਕਲ: ਨਜ਼ਮ ਹੁਸੈਨ ਸੱਯਦ

2.ਪੰਜਾਬੀ ਕਿੱਸਾਕਾਰੀ :ਡਾ.ਬਿਕਰਮ ਸਿੰਘ ਘੁੰਮਣ

3.ਪੰਜਾਬੀ ਕਿੱਸਾ ਕਾਵਿ ਦੀਆਂ ਕਥਾਨਕ ਰੂੜ੍ਹੀਆਂ:ਡਾ. ਚਰਨਜੀਤ ਸਿੰਘ ਗੁਮਟਾਲਾ

4.ਕਿੱਸਾ ਕਾਵਿ ਦਾ ਕਾਵਿ ਸ਼ਾਸ਼ਤਰ: ਡਾ. ਜਗਜੀਤ ਸਿੰਘ

ੳ-II. ਪੀਲੂ:ਮਿਰਜ਼ਾ-ਸਾਹਿਬਾ

1.ਪੀਲੂ ਰਚਿਤ ਕਿੱਸਾ ਮਿਰਜ਼ਾ-ਸਾਹਿਬਾ ਦੇ ਪ੍ਰਮੁੱਖ ਸਰੋਕਾਰ
2.ਪੀਲੂ ਰਚਿਤ ਕਿੱਸਾ ਮਿਰਜ਼ਾ-ਸਾਹਿਬਾ ਦਾ ਸੁਹਜ ਸ਼ਾਸ਼ਤਰ
3.ਪੀਲੂ ਰਚਿਤ ਕਿੱਸਾ ਮਿਰਜ਼ਾ-ਸਾਹਿਬਾ ਵਿਚ ਪੇਸ਼ ਪ੍ਰੇਮ/ਪ੍ਰਤੀਰੋਧ
4.ਪੀਲੂ ਰਚਿਤ ਕਿੱਸਾ ਮਿਰਜ਼ਾ-ਸਾਹਿਬਾ ਵਿਚ ਨਾਇਕਤਵ ਦੀ ਨਿਰਮਾਣਕਾਰੀ

ਭਾਗ-ਅ

ਅ-I. ਹੀਰ: ਵਾਰਿਸ ਸ਼ਾਹ
1.ਹੀਰ ਵਾਰਿਸ ਸ਼ਾਹ ਦੇ ਪ੍ਰਮੁੱਖ ਸਰੋਕਾਰ
2.ਹੀਰ ਵਾਰਿਸ ਸ਼ਾਹ ਦਾ ਸੁਹਜ ਸ਼ਾਸ਼ਤਰ
3.ਹੀਰ ਵਾਰਿਸ ਸ਼ਾਹ ਵਿਚ ਪੇਸ਼ ਨਾਟਕੀ ਅੰਸ਼
4.ਹੀਰ ਕਾਵਿ ਵਿੱਚ ਹੀਰ ਵਾਰਿਸ ਦਾ ਯੋਗਦਾਨ

ਅ-II.ਕਾਦਰਯਾਰ:ਪੂਰਨ ਭਗਤ
1.ਕਾਦਰਯਾਰ ਰਚਿਤ ਕਿੱਸਾ ਪੂਰਨ ਭਗਤ ਦੇ ਪ੍ਰਮੁੱਖ ਸਰੋਕਾਰ
2.ਕਾਦਰਯਾਰ ਰਚਿਤ ਕਿੱਸਾ ਪੂਰਨ ਭਗਤ ਦਾ ਸੁਹਜ ਸ਼ਾਸ਼ਤਰ
3.ਕਾਦਰਯਾਰ ਰਚਿਤ ਕਿੱਸਾ ਪੂਰਨ ਭਗਤ ਵਿੱਚ ਨਾਇਕਤਵ ਦੀ ਨਿਰਮਾਣਕਾਰੀ
4. ਕਾਦਰਯਾਰ ਰਚਿਤ ਕਿੱਸਾ ਪੂਰਨ ਭਗਤ ਵਿਚ ਪੇਸ਼ ਨੈਤਿਕਤਾ

ਭਾਗ-ੲ

ਉਪਰੋਕਤ ਸਿਲੇਬਸ'ਤੇ ਆਧਾਰਿਤ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ 10 ਪ੍ਰਸ਼ਨ

ਸਹਾਇਕ ਪੁਸਤਕਾਂ

1. ਅਤਰ ਸਿੰਘ,ਦ੍ਰਿਸ਼ਟੀਕੋਣ,ਲਾਹੌਰ ਬੁੱਕ ਸ਼ਾਪ,ਲੁਧਿਆਣਾ।
2.ਅਤਰ ਸਿੰਘ,ਸਮਦਰਸ਼ਨ,ਰਘਵੀਰ ਰਚਨਾ ਪ੍ਰਕਾਸ਼ਨ,ਚੰਡੀਗੜ੍ਹ।
3.ਸੰਤ ਸਿੰਘ ਸੇਖੋਂ,ਪੰਜਾਬੀ ਕਾਵਿ ਸ਼ਿਰੋਮਣੀ, ਲਾਹੌਰ ਬੁੱਕ ਸ਼ਾਪ,ਲੁਧਿਆਣਾ।
4.ਹਰਿਭਜਨ ਸਿੰਘ,ਅਧਿਅਨ ਅਤੇ ਅਧਿਆਪਨ,ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਯੂਨੀਵਰਸਿਟੀ, ਅੰਮ੍ਰਿਤਸਰ।
5.ਬਿਕਰਮ ਸਿੰਘ ਘੁੰਮਣ, ਪੂਰਨ ਭਗਤ ਕਾਦਰਯਾਰ, ਵਾਰਿਸਸ਼ਾਹ ਫਾਊਂਡੇਸ਼ਨ, ਅੰਮ੍ਰਿਤਸਰ।
6.ਗੁਰਪ੍ਰੀਤ ਕੌਰ, ਮਿਰਜ਼ਾ ਸਾਹਿਬਾਂ ਦੇ ਕਿੱਸੇ,ਵਾਰਿਸ ਸ਼ਾਹ ਫਾਊਂਡੇਸ਼ਨ, ਅੰਮ੍ਰਿਤਸਰ।
7. ਹਰਪ੍ਰੀਤ ਕੌਰ, ਪੀਲੂ ਰਚਿਤ ਮਿਰਜ਼ਾ ਸਾਹਿਬਾਂ ,ਵਾਰਿਸ ਸ਼ਾਹ ਫਾਊਂਡੇਸ਼ਨ, ਅੰਮ੍ਰਿਤਸਰ।
8.ਸਵਰਨ ਸਿੰਘ,ਕਿੱਸਾ-ਕਾਵਿ ਵਿਚ ਸਮਾਜ ਤੇ ਸਭਿਆਚਾਰ,ਰਵੀ ਸਾਹਿਤ ਪ੍ਰਕਾਸ਼ਨ, ਅੰਮ੍ਰਿਤਸਰ।
9.ਅਮਰਜੀਤ ਸਿੰਘ ਕਾਂਗ(ਸੰਪਾ.),ਪੰਜਾਬੀ ਕਿੱਸਾ ਸਾਹਿਤ,ਸਾਹਿਤ ਅਕਾਦਮੀ,ਨਵੀਂ ਦਿੱਲੀ।
10.ਤਰਲੋਚਨ ਸਿੰਘ ਰੰਧਾਵਾ, ਪੰਜਾਬੀ ਸਭਿਆਚਾਰ ਅਤੇ ਹੀਰ ਕਾਵਿ ਪਰੰਪਰਾ,ਵਾਰਿਸ ਸ਼ਾਹ ਫਾਊਂਡੇਸ਼ਨ,ਅੰਮ੍ਰਿਤਸਰ।

11. ਖੋਜ ਪਤ੍ਰਿਕਾ, ਕਿੱਸਾ ਕਾਵਿ ਅੰਕ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ।
12. ਪੰਜਾਬੀ ਦੁਨੀਆ,ਕਿੱਸਾ ਕਾਵਿ ਅੰਕ,ਭਾਸ਼ਾ ਵਿਭਾਗ,ਪੰਜਾਬ, ਪਟਿਆਲਾ।
13.ਜੀਤ ਸਿੰਘ ਸੀਤਲ, ਵਾਰਿਸ ਸ਼ਾਹ:ਇਕ ਅਧਿਐਨ,ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ ।
14. ਜੀਤ ਸਿੰਘ ਸੀਤਲ,ਹੀਰ ਵਾਰਿਸ,ਨਵਯੁਗ ਪਬਲਿਸ਼ਰਜ਼,ਦਿੱਲੀ।
15. ਹਰਜੋਧ ਸਿੰਘ,ਪੀਲੂ: ਜੀਵਨ ਤੇ ਰਚਨਾ, ਪਬਲੀਕੇਸ਼ਨ ਬਿਊਰੋ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ ।
16. ਪੰਜਾਬੀ ਸਾਹਿਤ ਦਾ ਇਤਿਹਾਸ, ਭਾਗ ਪਹਿਲਾ, ਭਾਸ਼ਾ ਵਿਭਾਗ, ਪੰਜਾਬ।
17. ਖੋਜ ਦਰਪਣ,ਕਿੱਸਾ-ਕਾਵਿ ਅੰਕ, ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਯੂਨੀਵਰਸਿਟੀ, ਅੰਮ੍ਰਿਤਸਰ।
18. ਡਾ.ਗੁਰਪ੍ਰੀਤ ਕੌਰ,ਮੱਧਕਾਲੀਨ ਕਾਵਿ ਅਵਲੋਕਨ,ਲੋਕਗੀਤ ਪ੍ਰਕਾਸ਼ਨ,ਚੰਡੀਗੜ੍ਹ।
19.ਗੁਰਚਰਨ ਸਿੰਘ,ਕਾਦਰਯਾਰ,ਭਾਸ਼ਾ ਵਿਭਾਗ,ਪੰਜਾਬ,ਪਟਿਆਲਾ।
20.ਸਰ ਰਿਚਰਡ ਟੈਂਪਲ,ਪੰਜਾਬ ਦੀਆ ਲੋਕ ਗਾਥਾਵਾਂ, ਭਾਸ਼ਾ ਵਿਭਾਗ,ਪੰਜਾਬ,ਪਟਿਆਲਾ(ਜਿਲਦ1,2,3)

2020-21& 2021-22
B.B.A. SEM I
BBA 1.4 COMMUNICATION SKILLS IN ENGLISH -I
Credits 4

Time Allowed: 3 Hours	**Max. Marks: 100**
Periods per week: 5	**Written Examination: 70**
Pass Percentage: 35%	**Internal Assessment: 30**

COURSE CONTENT AND TESTING

Texts Prescribed (Literary):
Contemporary English Prose(OUP) edited by K.P.K MENON
The following STORIES/ESSAYS are not to be studied

(i) Uncle Podger Hangs a Picture
(ii) Sweets
(iii) Lectures
(iv) The Position of Women in Ancient India
(v) Self Portrait

Testing

Q1.

a) One essay type question with an internal alternative on summary,theme,incident or character in about 250 words.

b) Four short answer questions to be attempted out of the given six from the prescribed text in about 30 words each.

c) Comprehension of a prose passage of about 150 words from the prescribed texts in the following way:

(i) Three questions to test the comprehension of the passage.
(ii) Meaning of two words/phrases italicized in the passage and use thereof in illustrative sentences. (8+8+4=20 marks)

Q2. Business Letters

The students may be asked to write a letter of the following types with an internal alternative:

(a) Placing an order
(b) Cancelling an order
(c) Asking for quotations

10 marks

Q3. Preparing Advertisements Copies of the following types:
(a) Classified Advertisements
(b) Display/Advertisements for your products and services.
The students should be asked to attempt one of the given two advertisements. 8 Marks

Q4.Resume Writing

The nature of the job should be specified so as to enable the students to prepare their resume accordingly.

8 Marks

Q.5 Grammar And Vocabulary

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(a) Idioms and Phrases (Meanings and Phrases (Meaning and Usage)

(b) Synonyms and Antonyms

(c) Expanding abbreviations and acronyms pertaining to Commerce, Business, Economics.

8+8+8=24 Marks

The students should be asked to attempt four of the given six from part (a) and eight out of the given ten from part (b) and part(c) each.

2020-21, 2021-22 & 2022-23
B.Com Accounting and Finance (Semester-I)
Communication Skills in English
BCAF -1.4
Credits 4: 3 (L)+1 (P)

Max. Marks: 100
Written Examination: 70
Internal Assessment: 30

Time Allowed: 3 Hours
Periods per week: 5
Pass Percentage: 35%

Texts Prescribed
A Choice of Short Stories Shakti Batra. (First five stories to be studied).
Student's Companion by Wilfred D. Best

Unit – I

Q 1 One easy type question with internal alternative based on character,summary and title of the stories of the prescribed text. (10 Marks)

Q (2) Short answer questions to be attempted five out of the given eight in about 50-60 words each. (5X3=15)

Unit -II

1. Letter Writing. Formal and informal letters (10 Marks)
2. Report Writing (10 Marks)
3. Development of story on the basis of the hints provided. (10 Marks)
4. Resume Writing/CV/ Bionote . (15 Marks)

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Elective English syllabus for B.A.Course
Part – II (Semester-III)
Paper Code: BA(ENL)304 -Credits: 05(04L+01T)
(For Sessions 2020-21, 2021-22 and 2022-23)

Max. Marks: 100
External Examination: 75
Internal Assessment: 25
Time Allowed: 3 Hours

Pass Marks:35
Pass Marks In External:26
Pass Marks In Internal Assessment:09
Total Lectures:60

Course Objective:
The objective of the paper is to introduce the students to literary terms, prominent texts and characteristic features of different eras; to enrich their background of literature and awareness of the creative experience.

Instructions for the Paper Setter:

- The question paper will carry 75 marks and will be of 3hours duration.
- The Paper will consist of three Units -Unit I, II & III
- In unit 1 short notes pertaining to concepts of drama, essay type questions on Important Trends and Movements and short notes on important texts of the period will be set.
- One essay type question with internal alternative each from prescribed texts (The Tempest and She Stoops to Conquer) will be set in Unit II.
- Eight Short answer type questions from the prescribed texts, four short questions on terms pertaining to drama and three short questions on history and major movements of the given period will be set in Unit III.

Instructions for the Candidates:
In Unit-I the candidates are required to attempt two short notes pertaining to Drama, One essay type question on Trends and Movements in Literature. In addition to this, the candidates are required to attempt short notes on two important texts of the period. In Unit II students are required to attempt one question each from the prescribed texts and in Unit III they are required to attempt all questions.

ENGLISH LITERATURE FROM CHAUCER TO THE EIGHTEENTH CENTURY

SECTION-A: Important Concepts pertaining to Drama

The following items will be studied:

1. Definition and Essence of Drama
2. Tragedy, Comedy & Problem Play
3. Plot
4. Characterization
5. Stage Directions
6. Dramatic Conventions
7. Important terms pertaining to drama and stage:
    - Comic Relief
    - Pathos

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- Aside
- Soliloquy

SECTION-B: History of English Literature from Chaucer to the Eighteenth Century

(a) **Important Trends and Movements in above said period:**

- Renaissance and Reformation
- Origin and Rise of Drama in English
- Chief Characteristics of the Neo-Classical Literature.
- Rise of the Novel

(b) **Important Texts:**

- *The School for Scandal*
- *Merchant of Venice*
- *Dr. Faustus*
- *Pamela*

PRESCRIBED TEXTS

SECTION C:
William Shakespeare : *The Tempest*

SECTION D:
Oliver Goldsmith : *She Stoops to Conquer*

TESTING

UNIT-I

Q.No. 1. Short notes of about 250 words each on any two items out of given four from the important concepts pertaining to drama given in section-A of the Syllabus.
5x2=10 marks

Q.No. 2(a): One essay-type question with internal choice on the Trends and Movements in English Literature from Chaucer to the Eighteenth century as given in part (a) of Section B.
07 marks

Q.No. 2(b): Short notes of about 150 words each on any two texts listed in part (b) of Section B. The paper-setter shall set four texts and candidates shall attempt any two.
2x3=6 marks

UNIT-II

Q. No. 3: One essay-type critical question with internal choice on Shakespeare's The *Tempest*
11 marks

Q. No. 4: One essay-type critical question with internal choice on Goldsmith's *She Stoops to Conquer.*
11 marks

Eight short answer type questions on the prescribed plays (The *Tempest* and *She Stoops to Conquer)*) and four questions to be set on the Important Concepts pertaining to Drama. Similarly three questions will be set on History of English Literature from Chaucer to the Eighteenth Century. Each question will carry 2 marks.30 marks

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English Syllabus for B.A. Course
Part – II (Semester-III)
Paper Code: BA(ENG)302 Credits: 05(04L+01T)
(For Sessions 2020-21, 2021-22 and 2022-23)

Max. Marks: 100
External Examination: 75
Internal Assessment: 25
Time Allowed: 3 Hours

Pass Marks: 35
Pass Marks External Examination: 26
Pass Marks Internal Assessment: 09
Total Lectures: 60

Course Objective

The prescribed text helps the students to increase their proficiency in English by enhancing their resources to deal with communicative needs of everyday life. The prescribed grammar book provides rules, explanations and examples in easy, accessible language supported by pictorial representations (wherever possible) with practical exercises.

INSTRUCTIONS FOR THE PAPER SETTER

- The question paper will carry 75 marks and will be of 3hours duration.
- The Paper will consist of three Units -Unit I, II & III.
- Two essay type questions with internal alternative will be set from the prescribed text in unit I.
- Seven short questions from the prescribed text and letter writing will be set in unit II
- Grammatical Exercises will be set in Unit III.

INSTRUCTIONS FOR THE CANDIDATES

The candidates are required to attempt two questions in Unit I. They are required to attempt five short questions from the prescribed texts and letter writing in Unit II. In Unit III candidates shall be required to attempt 15 out of 20 sentences based on Grammar.

(A) Text Prescribed:
Let's Go Home and Other Stories
The following stories from this book are to be studied:

1. *The Meeting Pool* by Ruskin Bond
2. *A Shadow* by R.K .Narayan
3. *The Portrait of a Lady* by Khushwant Singh
4. *Let's Go Home* by KewlianSio
5. *The Terrorist* By Mulk Raj Anand
6. *Distant Drums* by Jai Ratan
7. *The White Dove* by IndrayaniSowkar
8. *Glory at Twilight* by Bhabani Bhattacharya

(B) Text Prescribed for Grammar:
Oxford Practice Grammar by John Eastwood, OUP, 2014.
Exercises: 44-75

(c) Composition
Letter-writing: Formal and Informal letters

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Question I Two passages for Reference to the Context from 'The Loom of Time' and 'SudrakaMricchakatika' shall be set. Out of these two passages the candidate will attempt one. (1x5=5)

Question II will have one long answer type question which shall be set from Unit I with internal choice. (11 marks)

Question III will have one long answer type question which shall be set from Unit I with internal choice. (11 marks)

UNIT II

Question IV will have one long answer type question which shall be set from Unit II with internal choice. (11 marks)

Question V will have one long answer type question which shall be set from Unit II with internal choice. (11 marks)

Question VI Seven short answer type questions shall be set from the entire syllabus. The candidate will attempt all the 7 questions in 40 to 50 words. (7x3=21)

Suggested Topics and Background Prose Readings for Class Presentations

- The Indian Epic Tradition: Themes and Recensions
- Classical Indian Drama: Theory and Practice
- Alankara and Rasa
- Dharma and the Heroic

Suggested Readings

1. Bharata: Natyashastra. 2nd edition tr. ManomohanGhosh, vol. I, Calcutta: Granthalaya, 1967 chap. 6: 'Sentiments', pp. 100–18.
2. IravatiKarve: 'Draupadi', in Yuganta: The End of an Epoch, Hyderabad: Disha, 1991 pp. 79–105.
3. J.A.B. Van Buitenen: 'Dharma and Moksa', in Roy W. Perrett, ed., Indian Philosophy, vol. V,Theory of Value: A Collection of Readings, New York: Garland, 2000 pp. 33–40.
4. VinayDharwadkar: 'Orientalism and the Study of Indian Literature', in Orientalism and the Postcolonial Predicament: Perspectives on South Asia, ed. Carol A. Breckenridge and Peter vander Veer, New Delhi: OUP, 1994 pp. 158–95.

SESSION: 2018-19 & 2019-203

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BHE 305: GE-III
Gender and Human Rights

Credits: 5+1(tutorial) =6

(For Sessions 2020-21, 2021-22 and 2022-23)

Max. Marks: 100	**Pass Marks: 40%**
External Examination: 70	**Pass Marks External: 28**
Internal Assessments: 30	**Pass Marks Internal: 12**
Time Allowed: 3 Hours	**Total Lectures: 75**

Objective of Syllabus

To develop a basic understanding of human rights and creates awareness regarding civic and social rights.

INSTRUCTIONS FOR THE PAPER-SETTER

UNIT-I shall have two questions with internal alternative from the prescribed Topics. These questions shall carry 10+10=20 marks.

UNIT-II shall have two questions with internal alternative from the prescribed topics. These questions shall carry 10+10=20 marks.

UNIT-III shall cover the entire syllabus and shall be of 30 marks. This unit shall comprise ten short- answer questions of about 100-120 words each. Each question shall carry 3 marks

INSTRUCTIONS FOR THE CANDIDATES

The candidates are required to attempt two questions each from the Unit I & II. Unit III is compulsory.

Unit – I

Introduction to Gender and Basic Concepts, Gender and Culture: Theoretical Perspectives, Sex and Gender, intersection of caste, class and gender: Patriarchy, Matriarchy, Patrilineal & Matrilineal society, Gender as a Social Construct: Femininity, Masculinity

Unit – II

Human Rights, Definition and Meaning of Human Rights ,UN Declarations and Covenants: Articles - I, II, III, IV, V, X, XII, XIII, XIV, XV, XVIII, XIX, XXIII,XXIV, XXVI. Fundamentals of Human Rights: Civic, Political, Economic, Social and Cultural Rights , Human Rights and the Indian Constitution: Definition, Right to Equality, Right to Freedom,Right against Exploitation, Right to Freedom of Religion, Cultural and Educational Rights, Right toConstitutional Remedies

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Suggested Readings:

Baxi, Upendra. The Future of Human Rights. Delhi: Oxford University Press, 2002.

Beauvoir, Simone de.The Second Sex.Random House, 2015.

Butler, Judith. Undoing Gender. U.K.: Routledge, 2004.

Geetha, V. Gender. Kolkata: Stree Publications, 2002.

Giddens, Anthony, and Simon Griffiths.Sociology.Polity Press, 2006.

Haralambos, Michael, and Martin Holborn. Sociology: Themes and Perspectives. HarperCollins,2013.

Menon, Nivedita, ed. Gender and Politics in India. Delhi: Oxford University Press, 2000.

Orr, Catherine and Ann Braithwaite.Rethinking Women's and Gender Studies.Routledge, 2012.

Patel, Sujata et al, eds. Gender and Caste: Issues In Contemporary Indian Feminism. Delhi: Kali ForWomen, 2003.

Warner, Michael. The Trouble with Normal: Sex, Politics and The Ethics of Queer Life. Cambridge: Harvard University Press, 2000.

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BHE 303: CORE-VII
WOMEN'S WRITINGS
Credits: 5+1(tutorial) =6
(For Sessions 2020-21, 2021-22 and 2022-23)

Pass Marks: 40%
Pass Marks External:28
Pass Marks Internal: 12
Total Lectures: 75

Max. Marks: 100
External Examination: 70
Internal Assessments: 30
Time Allowed: 3 Hours

Objective of Syllabus

- To acquaint the students with the complex and multifaceted literature by women of the world.
- To understand different forms of literature:poetry,fiction and short fiction

INSTRUCTIONS FOR THE PAPER SETTER

•The question paper will carry 70 marks and will be of 3 hours duration.
•The Paper will consist of two Units -**Unit I & II.**
•Reference to the Context passages out of the prescribed texts in **Unit I .**
•Short answer type questions covering all the texts mentioned in **Unit I and Unit II**; history and major movements of the concerned period.

INSTRUCTIONS FOR THE CANDIDATES

The candidates are required to attempt one passage for reference to the context and two essay type questions in Unit I. In Unit II, they are required to attempt one question each from the prescribed texts in unit II .They are also required to attempt seven short questions in the same unit.

UNIT-I

Mary Wollstonecraft:	*A Vindication of the Rights Of Women (Chapters 1 & 2 only)*
Emily Dickinson:	*I'm ceded- I've stopped being Theirs-* *Sweet Mountains- Ye tell Me no Lie-* *She Rose to His Requirement*

UNIT-II

Charlotte Bronte:	*Jane Eyre*
Katherine Mansfield:	*Bliss, A Cup of Tea*

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TESTING

Question I Two passages for Reference to the Context shall be set from the prescribed text in Unit 1 Emily Dickinson: I'm ceded- I've stopped being Theirs-, Sweet Mountains-Ye tell Me no Lie-,She Rose to His Requirement)Out of these two passages the candidate will attempt one. (1x5=5)

Question II will have one long answer type question which shall be set from Unit I (Marry Wollstonecraft: A Vindication of the Rights of Women) with internal choice. (11 marks)

Question III will have one long answer type question which shall be set from Unit I (Poetry of Emily Dickinson) with internal choice. (11 marks)

Question IV will have one long answer type question which shall be set from Unit II (Charlotte Bronte : Jane Eyre) with internal choice. (11 marks)

Question V will have one long answer type question which shall be set from Unit II (Katherine Mansfield: Bliss, A Cup of Tea) with internal choice (11 marks)

Question VI Seven short answer type questions shall be set covering the entire paper, history and major movements of the concerned period mentioned in suggested readings .The candidate will attempt all the 7 questions in 40 to 50 words. (7X3=21)

Suggested Readings

1. Virginia Woolf, A Room of One's Own (New York: Harcourt, 1957) chaps. 1 and 6.
2. Brontë, Charlotte. Jane Eyre: An Authoritative Text, Backgrounds, Criticism. Richard J. Dunn, Ed. New York: W. W. Norton & Co., 2nd Edition 1987.
3. Berg, Maggie. Jane Eyre: Portrait Of A Life. Boston: Twayne Publishers, 1987.
4. Wolff, Cynthia Griffin. *Emily Dickinson*. Perseus Books: New York, 1986. A good critical biography and exploration of the intersection between her life and works.
5. Johnson, Thomas H., ed. The Complete Poems of Emily Dickinson. Boston: Little, Brown and Company, 1960.
6. Todd, Janet. Mary Wollstonecraft: A Revolutionary Life. London: Weidenfeld & Nicolson, 2000, 516 p.

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(Sem-III)

BCAF3.5: Workshop on Personality Development and Soft Skills
4 CREDITS:2H(L)+ 2H(P)
Session: 2020-21, 2021-22, 2022-23

Internal Assessment: 50 marks

Topics to be covered:

- Introduction to types of Personality
- Verbal and Non-Verbal Communication
- Introduction to Soft Skills
- Mock Conversation
- Introducing yourself and others
- Dress Code
- Body language
- Time management
- Mental Blocks and How to overcome them
- Concentration
- Problem Solving
- Comparing an event
- Extempore
- Group Discussion-Social and Current Issues
- Invitations -formal, informal
- Elocution
- Role Play

NOTE: The students will be evaluated on the basis of above given topics.

Suggested Readings

1. Development and Soft Skills by Prof.Achhru Singh
2. Business Communication by Vandana Khetarpal and M.K. Sehgal
3. Business Communication by AshuKaul

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SEMESTER IV

BHE 302: CORE-VIII
BRITISH LITERATURE:THE EARLY 20^{TH} CENTURY
Credits: 5+1(tutorial) =6
(For Sessions 2020-21, 2021-22 and 2022-23)

Max. Marks: 100
External Examination: 70
Internal Assessments: 30
Time Allowed: 3 Hours

Pass Marks: 40%
Pass Marks External:28
Pass Marks Internal: 12
Total Lectures: 75

Objective of Syllabus
- To familiarize the students with the new literature of Britain in the early decades of 20th century.
- To understand innovative techniques introduced by the writers of the 20th century.

INSTRUCTIONS FOR THE PAPER SETTER
- The question paper will carry 70 marks and will be of 3 hours duration.
- The Paper will consist of two Units -**Unit I & II.**
- Reference to the Context passages out of the prescribed texts in **Unit I** .
- Short answer type questions covering all the texts mentioned in **Unit I and Unit II**; history and major movements of the concerned period.

INSTRUCTIONS FOR THE CANDIDATES
The candidates are required to attempt one passage for reference to the context and two essay type questions in Unit I. In Unit II, they are required to attempt one question each from the prescribed texts in unit II .They are also required to attempt seven short questions in the same unit.

UNIT-I

John Galsworthy: *Justice*

T.S. Eliot:
Morning at the Window,
Journey of the Magi,
The Love Song of J. Alfred Prufrock

UNIT-II

W.B. Yeats :
A Prayer for My Daughter
The Second Coming
No Second Troy
Sailing to Byzantium

Virginia Woolf : *Mrs. Dalloway*

TESTING

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ssages for Reference to the Context shall be set from the prescribed
hn Galsworthy : Justice and T.S. Eliot : The Love Song Of J. Alfred
at the Window, Journey of the Magi,). Out of these two passages the
(1x5=5)
mpt one.
ave one long answer type question which shall be set from Unit I
(11 marks)
: Justice) with internal choice.
have one long answer type question which shall be set from Unit I (T.S.
ong Of J. Alfred Prufrock, Morning at the Window, Journey of the Magi)
(11 marks)
ce.
have one long answer type question which shall be set from Unit II (W.B.
for My Daughter, The Second Coming, No Second Troy and Sailing to
(11 marks)
internal choice.
have one long answer type question which shall be set from Unit II
(11 marks)
: Mrs. Dalloway) with internal choice.
Seven short answer type questions shall be set covering the entire paper,
r movements of the concerned period mentioned in suggested readings .The
(7x3=21)
tempt all the 7 questions in 40 to 50 words.

READINGS

d Prose,Norton Critical Editions 2001
History of Western Literature
Short History of English Literature
. A Glossary of Literary Terms

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(Even)

2020-21& 2021-22
B.COM (HONOURS) SEM II
BCH 2.1 BUSINESS COMMUNICATION

Max. Marks: 100
Pass Percentage: 35%
No. of Lectures:60

Time Allowed: 3 Hours
Written Examination: 70
Internal Assessment: 30
Credist: 04

TESTING

The paper shall have two sections. Section-A shall comprise testing from "Communication & Writing Skills" while Section-B shall test student's skills in Grammar.

Section A: (42 Marks)

1. Two long questions with internal choice from PART 1, and each question will carry 16 marks.
2. One question with an internal choice from Part 2, carrying 10 Marks.

Section A
Part 1
Communication: Meaning, Importance, Process, and Objectives of Communication, Effective Communication, Means/Media and Types of Communication, Channels of Communication, Barriers to Communication, Importance of Feedback.

Part 2
Interview skills, Meeting Skills, Report Writing, Speech and Presentation, Documentation, & Group Discussion

Suggested Readings:
1. *English for Effective Communication* by Navjot S.Deol, Fortune Publishers
2. *Communication Skills &Technical Writing* by Dr.Gurpreet Kaur, Acme Publishers

SECTION - B (28 Marks)
Grammar:
A) Tenses
B) Phrasal Verbs

Testing:
10 sentences to be given from each A & B and 7 to be attempted in each. (14+14=28 Marks)

Prescribed Text:
Oxford Practice Grammar by John Eastwood (Oxford University Press), 2006.

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2020-21, 2021-22 & 2022-23
B.COM(GENERAL) SEM II
BC 2.4 COMMUNICATION SKILLS IN ENGLISH -II

Time Allowed: 3 Hours
Written Examination: 70
Internal Assessment: 30
Credit: 06

Max. Marks: 100
Pass Percentage: 35%
No. of Lectures:60

TESTING

The paper shall have two sections Section-A shall comprise testing from "Communication & Writing Skills" while Section-B shall test his/her skills in "Grammar".

The question paper will consist of two sections A and B.

Section A: (42 Marks)

1. Two long questions with internal choice from PART 1, and each question will carry 16 marks.
2. One question with an internal choice from Part 2, carrying 10 Marks.

Section A
Part 1
Communication: Meaning, Importance, and Process, Objectives of Communication, Effective Communication, Means/ Media and Types of Communication, Channels of Communication, Barriers to Communication, Importance of Feedback.
Part 2
Interview,Meeting Skills, Report Writing, Speeches and Presentations, Documentation, Group Discussion

Suggested Readings:
1. *English for Effective Communication* by NavjotS.Deol, Fortune Publishers
2. *Communication Skills &Technical Writing* by Dr.Gurpreet Kaur, Acme Publishers

SECTION - B (28 Marks)
Grammar:
A) Tenses
B) Phrasal Verbs

Testing:
10 sentences to be given from each A & B and 7 to be attempted in each. (14+14=28 Marks)

Books Prescribed for Grammar:
Oxford Practice Grammar by John Eastwood (Oxford University Press), 2006.

Note: Internal Assessment of 30 marks will be given on the basis of project reports in collaboration with the concerned department.

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B.SC (HONOURS) AGRICULTURE SEM II
Eng-122Communication Skills& Personality Development
Credit: 02(1+1)
Session: 2020-21& 2021-22

Max. Marks: 100	**Pass Marks: 50%**
External Examination: 50	**External Examination: 25**
Mid Term: 15	**Internal Assessment: 08**
Assignment: 5*	**Practical: 30**
Time Allowed: 3 Hours	**Total Lectures: 30**

* The marks of assignment are to include in internal exam.

Objective of the Syllabus:

To introduce the students to the theory, fundamentals and tools of communications and to develop in them vital communication skills which should be integral to personal, social and professional interactions.

INSTRUCTIONS FOR PAPER SETTER

The question paper will consist of three sections A, B and C.
Section A will have two long questions with internal choice from UNIT I, and each question will carry 7.5 marks.
Section B will consist oftwo long questions with internal choice from UNIT II, and each question will carry 7.5 marks.
Section C will consist of 5 short answer questions from both UNIT I &II. All questions shall be compulsory. Each question will carry 4 marks.

INSTRUCTIONS FOR THE CANDIDATES

In Section A candidates are required to attempt two long questions from UNIT I .
In Section B they are required to attempt two long questionsfrom UNIT II.
In Section C they are required to attempt all questions.

UNIT I

Communication: Meaning, Importance, and Process, Objectives of Communication, Effective Communication, Means/ Media and Types of Communication, Channels of ✓ Communication, Barriers to Communication, Importance of Feedback.

UNIT II

Personality Development: Meaning and definitionsof personality, personality types, personality traits, attitude formation, interpersonal skills, decision making.

TESTING

The question paper will consist of two sections A, B& C.

Section A: (15 Marks)
Two long questions with internal choice from UNIT I, and each question will carry7.5 marks.

Section B: (16 Marks)
Two long questions with internal choice from UNIT II, and each question will carry7.5 marks.

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Section C: (20Marks)
It will consist of 5 short answer questions from bothUNIT I &II . All questions shall be compulsory. Each question will carry 3 marks.

Suggested Readings:
1. *English for Effective Communication* by NavjotS.Deol, Fortune Publishers.
2. *Communication Skills and PersonalityDevelopment* by T. Singh, Fortune Publishers.
3. *Business Communication Skills*, Parampreetsingh and Harleen Kaur, Fount Publishers LPP, India.

Practical:
Practical Work: To impart skills of Personal interview and public speaking like (Debate , Declamation)
There will be viva-voce examination of 30 marks which will include Debate , Declamation and personnel interview.

बी. ए. कोर्स के लिए हिंदी ऐच्छिक (हिंदी साहित्य) का पाठ्यक्रम

बी. ए. भाग – दूसरा (सेमेस्टर तीसरा)

BA (HIL) – 305, क्रेडिट – 05 (4L+1T)

2020-21, 2021-22, 2022-23 सेशन के लिए

कुल अंक : 100	पास अंक : 35
लिखित परीक्षा : 75 अंक	पास अंक : 26
आंतरिक मूल्यांकन : 25 अंक	पास अंक : 09
समय : 03 घंटे	कुल लेक्चर : 60

पाठ्यक्रम का उद्देश्य

- विधार्थियों में हिंदी भाषा एवं साहित्य के अध्ययन के प्रति रूचि विकसित करना।
- विद्यार्थियों को हिंदी के प्रसिद्ध कवियों, कहानीकारों एवं उनकी रचनाओं से परिचित करवाकर उनके बौद्धिक एवं सामाजिक ज्ञान को बढ़ाना।
- रीतिकालीन कवियों की रचनाओं की विभिन्न विशेषताओं से विद्यार्थियों को अवगत करवाकर कवियों के साहित्यिक अवदान को स्पष्ट करना।
- हिंदी भाषा के व्यापक क्षेत्र एवं हिंदी क्षेत्र की संभावनाओं से विद्यार्थी को अवगत करवाना।

निर्धारित पाठ्यक्रम

(खंड-क)

1. हिंदी साहित्य का इतिहास – केवल रीतिकाल (नामकरण, परिस्थितियाँ, प्रवृत्तियाँ) प्रमुख कवि- रसखान, बिहारी तथा गुरु गोबिंद सिंह के काव्य की विशेषताएँ।
2. हिंदी भाषा : उद्भव और विकास, हिंदी के विभिन्न रूप- राजभाषा, राष्ट्रभाषा, सम्पर्क भाषा, शब्द भण्डार और मानकीकरण।

(खंड-ख)

बी. ए. कोर्स के लिए हिंदी ऐच्छिक (हिंदी साहित्य) का पाठ्यक्रम

1. रीति सौरभ (संपादक) डॉ. रामसजन पाण्डेय, पंजाबी विश्वविद्यालय, प्रकाशन , पटियाला (केवल रसखान, बिहारी एवं गुरु गोबिन्द सिंह)
2. प्रतिनिधि कहानियां : जयशंकर प्रसाद, राजकमल प्रकाशन, दिल्ली
   केवल पाँच कहानियाँ- (ग्राम, आकाशदीप, आंधी, मधुवा, पुरस्कार)

खंड ग

उपर्युक्त समूचे पाठ्यक्रम में से संक्षिप्त उत्तरों वाले 15 प्रश्न पूछे जाएंगे।

छात्रों और परीक्षकों के लिए आवश्यक निर्देश

1. पाठ्यक्रम के सभी खण्डों में से प्रश्न पूछे जाएंगे।
2. प्रश्न पत्र को तीन खण्डों क,ख,ग में विभक्त किया जाएगा।

खंड क

1. हिन्दी साहित्य का रीतिकाल - (दो में से एक प्रश्न, अंक - 09)
2. हिन्दी भाषा, निर्धारित पाठ्यक्रम - (दो में से एक प्रश्न, अंक - 08)

खण्ड ख

1. रीति सौरभ : आलोचनात्मक प्रश्न (कवि/लेखक-परिचय/रचना का सार/ रचना समीक्षा, उद्देश्य, चरित्र-चित्रण आदि) (दो में से एक प्रश्न, अंक - 09)
2. सप्रसंग व्याख्या (दो में से एक प्रश्न, अंक - 05)
3. प्रतिनिधि कहानियां : आलोचनात्मक प्रश्न (कवि/ लेखक-परिचय/ रचना का सार/ रचना समीक्षा, उद्देश्य, चरित्र-चित्रण आदि) (दो में से एक प्रश्न, अंक - 09)
4. सप्रसंग व्याख्या (दो में से एक प्रश्न, अंक - 05)

खण्ड-ग

इस खण्ड के अन्तर्गत समूचे पाठ्यक्रम से संबंधित 15 संक्षिप्त उत्तरों वाले प्रश्न बिना विकल्प के पूछे जाएंगे। सभी का उत्तर देना अनिवार्य होगा। 15*2=30

बी. ए. कोर्स के लिए हिंदी ऐच्छिक (हिंदी साहित्य) का पाठ्यक्रम

अध्ययन क लिए सहायक पुस्तक सूची

1. डॉ. नगेन्द्र : हिंदी साहित्य का इतिहास

2. आचार्य रामचंद्र शुक्ल : हिंदी साहित्य का इतिहास, लोकभारती प्रकाशन, दिल्ली

3. परशुराम चतुर्वेदी : उत्तरी भारत की संत परम्परा, लोकभारती प्र. दिल्ली

4. जयशंकर प्रसाद :प्रतिनिधि कहानियां, राजकमल प्रकाशन, दिल्ली

5. प्रोफेसर नरेश मिश्र : भाषा और हिंदी भाषा का इतिहास, हरियाणा ग्रन्थ अकादमी, पंचकूला

आन्तरिक मूल्यांकन के कुल 25 अंकों का विभाजन निम्न प्रकार से है :

Attendance : 05 Marks
Assignment/Project : 10 Marks
Two Mid Sem. Exam : 10 Marks
Average of both Mid-Sem./Internal Exams

बी. ए. कोर्स के लिए हिंदी ऐच्छिक (हिंदी साहित्य) का पाठ्यक्रम

बी. ए. भाग – दूसरा (सेमेस्टर चौथा)

BA (HIL) – 405, क्रेडिट - 05 (4L+1T)

2020-21, 2021-22, 2022-23 सेशन के लिए

कुल अंक : 100	पास अंक : 35
लिखित परीक्षा : 75 अंक	पास अंक : 26
आंतरिक मूल्यांकन : 25 अंक	पास अंक : 09
समय : 03 घंटे	कुल लेक्चर : 60

पाठ्यक्रम का उद्देश्य

- विधार्थियों में हिंदी भाषा एवं साहित्य के अध्ययन के प्रति रूचि विकसित करना।
- विद्यार्थियों को हिंदी के प्रसिद्ध कवियों, उपन्यासकारों एवं उनकी रचनाओं से परिचित करवाकर उनके बौद्धिक एवं सामाजिक ज्ञान को बढ़ाना।
- आधुनिक काल के कवियों की रचनाओं की विभिन्न विशेषताओं से विद्यार्थियों को अवगत करवाकर कवियों के साहित्यिक अवदान को स्पष्ट करना।
- हिंदी साहित्य के प्रमुख उपन्यास एवं एकांकी साहित्य एवं उनके विभिन्न पक्षों से विद्यार्थी वर्ग को अवगत करवाना।

निर्धारित पाठ्यक्रम

(खंड-क)

3. हिंदी साहित्य का इतिहास- आधुनिक काल (केवल नामकरण, परिस्थितियाँ, प्रवृत्तियाँ), प्रमुख वाद (छायावाद, प्रगतिवाद, प्रयोगवाद एवं नई कविता की प्रवृतियाँ) प्रमुख कवि- जयशंकर प्रसाद, सूर्यकांत त्रिपाठी निराला, स. ही. व. अज्ञेय के काव्य की विशेषताएँ।
4. अलंकार (लक्षण, उदाहरण) अनुप्रास, उपमा, रूपक, यमक, उत्प्रेक्षा, अतिश्योक्ति, श्लेष, विभावना, दृष्टांत, अन्योक्ति (केवल दस अलंकार)

बी. ए. कोर्स के लिए हिंदी ऐच्छिक (हिंदी साहित्य) का पाठ्यक्रम

(खंड-ख)

3. पचपन खम्बे लाल दीवारें (उपन्यास) - उषा प्रियंवदा, राजकमल प्रकाशन, दिल्ली (विद्यार्थी संस्करण)
4. पाँच एकांकी- पूरन चंद टंडन (संपादक), राजपाल एंड संस, दिल्ली

खंड ग

उपर्युक्त समूचे पाठ्यक्रम में से संक्षिप्त उत्तरों वाले 15 प्रश्न पूछे जाएंगे।

छात्रों और परीक्षकों के लिए आवश्यक निर्देश

3. पाठ्यक्रम के सभी खण्डों में से प्रश्न पूछे जाएंगे।
4. प्रश्न पत्र को तीन खण्डों क,ख,ग में विभक्त किया जाएगा।

खंड क

3. हिन्दी साहित्य का आधुनिक काल - (दो में से एक प्रश्न, अंक - 09)
4. अलंकार, निर्धारित पाठ्यक्रम - (दो में से एक प्रश्न, अंक - 08)

खण्ड ख

5. पचपन खम्बे लाल दीवारें : आलोचनात्मक प्रश्न (कवि/लेखक- परिचय/रचना का सार/ रचना समीक्षा, उद्देश्य, चरित्र-चित्रण आदि) (दो में से एक प्रश्न, अंक - 09)
6. सप्रसंग व्याख्या (दो में से एक प्रश्न, अंक - 05)
7. पाँच एकांकी : आलोचनात्मक प्रश्न (कवि/ लेखक-परिचय/ रचना का सार/ रचना समीक्षा, उद्देश्य, चरित्र-चित्रण आदि) (दो में से एक प्रश्न, अंक - 09)
8. सप्रसंग व्याख्या (दो में से एक प्रश्न, अंक - 05)

खण्ड-ग

इस खण्ड के अन्तर्गत समूचे पाठ्यक्रम से संबंधित 15 संक्षिप्त उत्तरों वाले प्रश्न बिना विकल्प के पूछे जाएंगे। सभी का उत्तर देना अनिवार्य होगा। 15*2=30

बी. ए. कोर्स के लिए हिंदी ऐच्छिक (हिंदी साहित्य) का पाठ्यक्रम

अध्ययन कं लिए सहायक पुस्तक सूची

1. डॉ. नगेन्द्र : हिंदी साहित्य का इतिहास, मयूर बुक्स, नयी दिल्ली

2. आचार्य रामचंद्र शुक्ल : हिंदी साहित्य का इतिहास, लोकभारती प्रकाशन, दिल्ली

3. बच्चन सिंह : हिंदी साहित्य का दूसरा इतिहास, राधाकृष्ण प्र. दिल्ली

4. मधुरेश : हिंदी उपन्यास का विकास, लोकभारती प्रकाशन, दिल्ली

आन्तरिक मूल्यांकन के कुल 25 अंकों का विभाजन निम्न प्रकार से है :

Attendance : 05 Marks
Assignment/Project : 10 Marks
Two Mid Sem. Exam : 10 Marks
Average of both Mid-Sem./Internal Exams

B.A. Par- II (Semester- III) Session 2020-21, 2021-22, 2022-23
Sri Guru TegBahadur Khalsa College
Sri Anandpur Sahib
(An Autonomous College)

B.A. (MUS) - 317: MUSIC VOCAL

Maximum Marks: 65	**Time: 3 Hours**
External Examination: 40	**Pass Marks: 35%**
Internal Assessment: 25	**Teaching Hour : 30**
Credit:2	**1 Credit-1 Hour**

Course objectives:

- To introduce various definitions in the context of Indian Classical Music.
- To impart knowledge about Historical development of Indian Classical Music. To aware the students about brief knowledge of different musicians,Raag and Taals.

INSTRUCTION FOR THE PAPER-SETTER

The question paper will consist of three Units: I, II & III. Unit I and II will have 4 questions from the respecting units of the syllabus and will carry six marks each and the candidates will attempt two questions from each units. Unit III will consist of 8 short answer type questions which will cover the entire syllabus uniformly and will carry 16 marks in all. Each question carries 2 marks. There will be no choice in this compulsory question.

INSTRUCTION FOR THE CANDIDATE

Candidates are required to attempt two questions each from the unit I and unit II of the question paper and entire Unit- III.

UNIT-I

1. Historical development of India Music in Mughal Period.
2. Definition and explanation of the following technical terms:
   Kan, Murki, Andolan, Nyas, Meend.
3. Biographical sketches and contributions of the following musicians:
   a) Pandit Omkar Nath Thakur b) Ustad Rashid Khan
4. Origin and development of the Dharupad and Dhamar Gayen Shailies.

UNIT-II

1. Define the Following Musical terms in the context of Gurmut Sangeet.
   Raag, Kirtan Chounki, Shabad Kirtan , Rababi, Dhuni.
2. Contribution of the Guru Nanak Dev Ji and Guru Angad Dev Ji in the development of Gurmat Sangeet.
3. Discription and notation of the following Ragas:
   a) Bageshwari b) Vrindavani Sarang
4. Discription and notation of the following Taals
   a) Sooltaal b) Ada Chartaal
5. Elemantary knowledge of the following non-detailed Ragas:
   a) Rageshwari b)Des

UNIT-III

This unit will consist of the short answer type questions from Unit-I and Unit-II as mentioned in instructions.

Course leaning outcomes:

- The student will be learning about the historical background, musical terms, role of music in human life and contribution of different musicologist in the field of music.
- The students will also know about the different Raags and Taals, and how Instruments are used.

Baljit Singh

(Dr. Jagmohan Sharma)

Shamshad Ali

B.A. Par- II (Semester- III) Session 2020-21, 2021-22, 2022-23
B.A. (MUS) – 317P: MUSIC VOCAL PRACTICAL

Maximum Marks: 35	**Time: 20 Minutes**
Pass Marks: 35%	**Teaching Hour: 90**
Credit:3	**1 Credit=1 Hour**

Distribution of the marks will be as under;

I. Performance Viva - 20 Marks
II. Playing of Harmonium - 10 Marks
III. Playing of Tabla - 05 Marks

INSTRUCTIONS FOR THE PRACTICAL EXAMINER

- **There should not be more than 12 students in a batch for practical examination.**
- **Student should sing with Tanpura and Harmonium is not allowed as accompaniment in the Music Vocal.**

1. One vilambit khayal in prescribed Raagas with Alap and Taan.
2. One drut khayal in each of the following Raagas with simple Alap and Taan:
   Bageshwari and Vrindavani Sarang
3. Singing of One Shabad or Bhajan with Harmonium.
4. Ability to play Roopak Taal on TabIa.
5. Ability to demonstrate the following Taals by hand with Ekgun and Dugun Layakaries:
   Sooltaal , Adachartaal

Practical file with Notation/ Project works with proper presentation.

Text Books

1. Harish Chandra Srivastva: Raag Parichaya, Part I, II.
2. V.N. Patwardhan: Raag Vigyan, Part I, II.
3. V.S. Nigam: Sangeet Kaumudi, Part II & III (Punjabi) published by Punjabi University, Patiala
4. Prof. Harish Chandra Srivastva: swarlipi sangreh Part I, II.
5. Dr. Yashpal Sharma ,Gayen kala ,Published by Punjabi University Patiala.
6. Dr. Davinder Kaur , Sangeet Roop , I,II,III
7. Prof.jagpinderpal singh,Bharti Sangeet de Sangeetachariya, Publication Bureau ,Sri Guru Teg bahadar Khalsa College Sri Anandpur Sahib

Reference Books

1. Sangeet Shastra Darpan, Part I Punjabi University Patiala, Karyalya
2. Sangeet Vishard, Published by Sangeet Katyalya, Hathras.
3. Veena Mankaran: Sangeet Sar, Part-I
4. Shanti Givardhan: Sangeet Shastra Darpan.
5. Dr. Jagmohan Sharma: Tabla Vadan, Part-I Published by Punjabi University, Patiala.
6. Hamare Sangeet Ratan Published by Sangeet Karyalya, Hathras.
7. Dr. Gurnam Singh: Punjabi Sangeetkar, Published by Punjabi University, Patiala.
8. Dr. Devinder Kaur: Sangeet Roop Part-I
9. Sharatchndra Sharidhar Pranjpe: Sangeet Bodh
10. Prof. Tara Singh: Vadam Kala, Published by Punjabi University, Patiala.
11. Prof. Harish Chandra Srivastva: Raag Prichey Part I, II, III.
12. Pt. Tejpal singh(Singh bandhu) Vidhivat sangeet sikshan Part I, II.
13. Pt. Vishnu Narayan Bhatkhandey:Karamik pustak maalika Part 1,2,3,4,5,6
14. Vasant: sangeet visharid
15. Prof. Jagpinderpal Singh: Raag Taal Shastar, published by Zohra Publication Patiala.
16. Prof. Jagpinderpal Singh: Gurmat Sangeet Prbandh, Published by Shaheed-E-Azam Patiala

Baljit Singh M Singh P Singh (Dr. Jagmohan Sharma) Shamshad Ali

B.A. Par- II (Semester- III) Session 2020-21, 2021-22, 2022-23
Sri Guru TegBahadur Khalsa College
Sri Anandpur Sahib
(An Autonomous College)

B.A. (MUS) - 417: MUSIC VOCAL

Maximum Marks: 65	**Time: 3 Hours**
External Examination: 40	**Pass Marks: 35%**
Internal Assessment: 25	**Teaching Hour : 30**
Credit:2	**1 Credit-1 Hour**

Course objectives:

- To introduce various definitions in the context of Indian Classical Music.
- To impart knowledge about Historical development of Indian Classical Music.
- To aware the students about brief knowledge of different musicians,Raag and Taals.

INSTRUCTION FOR THE PAPER-SETTER

The question paper will consist of three Units: I, II & III. Unit I and II will have 4 questions from the respecting units of the syllabus and will carry six marks each and the candidates will attempt two questions from each units. Unit III will consist of 8 short answer type questions which will cover the entire syllabus uniformly and will carry 16 marks in all. Each question carries 2 marks. There will be no choice in this compulsory question.

INSTRUCTION FOR THE CANDIDATE

Candidates are required to attempt two questions each from the unit I and unit II of the question paper and entire Unit- III.

UNIT-I

1. Historical development of Indian Music during the period of Sharangdev.
2. Origin and development of the Khayal Gayan Shailly .
3. Definition and example of the following technical terms:
   Nibadh -Anibadh Gayan ,Gram-Moorchhna , Avirbhaav-Treubhaav,Mukhra, Avartan
4. Role of the computer and Internet in music.
5. Bigoraphical scketch and contribution of the following Great Musicians:
   a) Pt. Bhimsen Joshi   b) Ustad Sohan Singh   c) Vidushi Kishori Amonkar

UNIT-II

1. Biographical sketch and contribution of Guru Amardas Ji and Guru Ramdas Ji in the development of Gurmat Sangeet.
2. Importance of music in Sri Guru Granth Sahib.
3. Discription and notation of following Raags: Malkauns, Jounpuri.
4. Discritption of following Taals with Ekgun and Dugun layakaries: Jhaptaal, Dhamar Taal.
5. Elemantary knowledge of the following Raags: Durga and Kedar.

UNIT-III

This unit will consist of the short answer type questions from Unit-I and Unit-II as mentioned in instructions.

Course leaning outcomes:

- The student will be learning about the historical background, musical terms, role of music in human life and contribution of different musicologist in the field of music.
- The students will also know about the different Raags and Taals, and how Instruments are used.

Baljit Singh   (Dr. Jagmohan Sharma)   Shamshad Ali

B.A. Par- II (Semester- III) Session 2020-21, 2021-22, 2022-23

B.A. (MUS) – 417P: MUSIC VOCAL PRACTICAL

Maximum Marks: 35 **Time: 20 Minutes**
Pass Marks: 35% **Teaching Hour: 90**
Credit:3 **1 Credit=2 Hour**

Distribution of the marks will be as under;

I. Performance Viva - 20 Marks
II. Playing of Harmonium - 10 Marks
III. Playing of Tabla - 05 Marks

INSTRUCTIONS FOR THE PRACTICAL EXAMINER

- **There should not be more than 12 students in a batch for practical examination.**
- **Student should sing with Tanpura and Harmonium is not allowed as accompaniment in the Music Vocal.**

1. One vilambit khayal in prescribed Raagas with Alap and Taan.
2. One drut khayal in each of the following Raagas with simple Alap and Taan:
   Asawari and Jounpuri.
3. One Tarana in any of the prescribes Raags.
4. Ability to play Deepchandi Taal on TabIa.
5. Ability to demonstrate the following Taals by hand with Dugun Layakaries: Jhaptaal and Dhamar .

Practical file with Notation/ Project works with proper presentation.

Text Books

1. Harish Chandra Srivastva: Raag Parichaya, Part I, II.
2. V.N. Patwardhan: Raag Vigyan, Part I, II.
3. V.S. Nigam: Sangeet Kaumudi, Part II & III (Punjabi) published by Punjabi University, Patiala
4. Prof. Harish Chandra Srivastva: swarlipi sangreh Part I, II.
5. Dr. Yashpal Sharma ,Gayen kala ,Published by Punjabi University Patiala.
6. Dr. Davinder Kaur , Sangeet Roop , I,II,III
7. Prof.jagpinderpal singh,Bharti Sangeet de Sangeetachariya, Publication Bureau ,Sri Guru Teg bahadar Khalsa College Sri Anandpur Sahib

Reference Books

1. Sangeet Shastra Darpan, Part I Punjabi University Patiala, Karyalya
2. Sangeet Vishard, Published by Sangeet Katyalya, Hathras.
3. Veena Mankaran: Sangeet Sar, Part-I
4. Shanti Givardhan: Sangeet Shastra Darpan.
5. Dr. Jagmohan Sharma: Tabla Vadan, Part-I Published by Punjabi University, Patiala.
6. Hamare Sangeet Ratan Published by Sangeet Karyalya, Hathras.
7. Dr. Gurnam Singh: Punjabi Sangeetkar, Published by Punjabi University, Patiala.
8. Dr. Devinder Kaur: Sangeet Roop Part-I
9. Sharatchndra Sharidhar Pranjpe: Sangeet Bodh
10. Prof. Tara Singh: Vadam Kala, Published by Punjabi University, Patiala.
11. Prof. Harish Chandra Srivastva: Raag Prichey Part I, II, III.
12. Pt. Tejpal singh(Singh bandhu) Vidhivat sangeet sikshan Part I, II.
13. Pt. Vishnu Narayan Bhatkhandey:Karamik pustak maalika Part 1,2,3,4,5,6
14. Vasant: sangeet visharid
15. Prof. Jagpinderpal Singh: Raag Taal Shastar, published by Zohra Publication Patiala.
16. Prof. Jagpinderpal Singh: Gurmat Sangeet Prbandh, Published by Shaheed-E-Azam Patiala

Baljit Singh (Dr. Jagmohan Sharma) Shamshad Ali

B.A. Par- II (Semester- III) Session 2020-21, 2021-22, 2022-23

Sri Guru Teg Bahadur Khalsa College
Sri Anandpur Sahib
(An Autonomous College)

B.A. (GUR) - 316: GURMAT SANGEET

Maximum Marks: 65 **Time: 3 Hours**
External Examination: 40 **Pass Marks: 35%**
Internal Assessment: 25 **Teaching Hour: 30 Hour**
Credit: 2 **1 Credit= 1 Hour**

Course objectives:

- To introduce various definitions in the context of Gurmat Sangeet and Indian Classical Music.
- To impart knowledge about historical development of Gurmat Sangeet to aware the students about brief biographical sketches of different Sikh Guru Sahibaan.
- To increase the knowledge about different raags of Sri Guru Granth sahib and different taals.

INSTRUCTION FOR THE PAPER -SETTER

The question paper will consist of three Units: I, II & III. Unit I and II will have 4 questions from the respecting units of the syllabus and will carry six marks each and the candidates will attempt two questions from each units. Unit III will consist of 8 short answer type questions which will cover the entire syllabus uniformly and will carry 16marks in all. Each question carries 2 marks. There will be no choice in this compulsory question.

INSTRUCTION FOR THE CANDIDATE

Candidates are required to attempt two questions each from the unit I and unit II of the question paper and entire Unit- III.

Unit-I

1. Definition and explanation of the following musical terms in the context of Indian Classical Music:
   Shruti. Nayas, Kan, Murki, Khatka, Laya, Vibhag , Awartan.
2. Description of the following in the context of Gurmat Sangeet:
   Raagi , Rababi, Vaar, Dhuni, Pade, Dupade, Chaupade, Astpadi.
3. Biographical Sketch and Contribution of Guru Ramdas Ji in the development of Gurmat Sangeet Tradition.
4. Importance of Shri Guru Granth Sahib in Indian Music.

Unit-II

1. Description and Notation of the following Raags: Sarang,Tilang.
2. Description and Notation of the following Taals: Jhaptaal, Chaartaal and Teentaal.
3. Elementary knowledge of Tanpura.
4. Brief study of the following style of singing: Dhrupad and Khayal.

Course leaning outcomes:

- The student will be learning about the historical background, musical terms, role of music in human life and contribution of different musicologist in the field of music.
- The students will also know about the different Raags and Taals, and how Instruments are used.

Baljeet Singh M Singh (Dr. Jagmohan Sharma) Shamshad Ali

B.A. Part- III (Semester- III) Session 2020-21, 2021-22, 2022-23

B.A. (GUR) – 316P: GURMAT SANGEET PRACTICAL

Maximum Marks: 35 **Time: 20 Minutes**

Pass Marks: 35% **Teaching Hour: 90**

Credit: 3 **1 credit= 2 Hour**

Distribution of the marks will be as under; I.

Performance Viva - 20 Marks

II. Playing of Harmonium - 05 Marks

III. Playing of Tabla - 05 Marks

INSTRUCTIONS FOR THE PRACTICAL EXAMINER

- **There should not be more than 12 students in a batch for practical examination.**
- **Student should sing with Tanpura and Harmonium may also be allowed as accompaniment.**

1. One Shabad in each of the prescribed Raags: Sarang and Tilang with alaps and tanas .
2. Ability to sing first Chhant of Asa Di Vaar.
3. Ability to Demonstrate Jhaptaal, Chaartaal and Teentaal on hands.
4. Ability to play Teentaal on TabIa.

Practical file with Notation/ Project works with proper presentation.

Text Books:

1. Gurmat Sangeet Parbandh te Pasaar: Dr. Gurnam Singh, Publication Bureau Punjabi University, Patiala.
2. TablaVadan Part-I: Dr. Jagmohan Sharma, Publication Bureau Punjabi University, Patiala.
3. Gurmat Sangeet Parbandh: Prof. Jagpinder pal singh, Shaheed - E -Azam Publication.
4. SamajikVigyan Patar Gurmat Sangeet Vishesh Ank: Dr. Jasbir Kaur, Publication Bureau Punjabi University, Patiala.
5. Sangeet Roop: Dr. Davinder Kaur, Sangeetanjali Publications Patiala.
6. Gurmat Sangeet Di Itehasik Vilakhanta: Dr. Jasbir Kaur, Patiala

Reference Books:

1. Sri Guru Granth Sahib Raag Ratnavali : Prof. Tara Singh.
2. Gurmat Sangeet Wich Paryukt Lok Sangeetak Tat : Dr. Gurpartap Singh Gill , Publication Bureau Punjabi University, Patiala.
3. Sangeet (Gurmat Sangeet Vishesh Ank): Sangeet Karayalaya , Hathras.
4. Amrit Kirtan , (Gurmat Sangeet Vishesh Ank): Amrit kirtan Trust, Chandigarh.
5. Sri Guru Granth Sahib Raag Ratan : Prof. Jagpinder pal singh, Shaheed - E -Azam Publication.
6. RaagTaal Sahaster Shabad Bandishan : Prof. Jagpinder pal singh, Shaheed - E -Azam Publication.
7. Punjab Da Sangeet Virsa Te Vikas : Dr. D.S. Narula, Punjabi Writers Cooperative Society, New Delhi.
8. Sangeet Sidhant Te Sohaj Shaster : Dr. D.S. Narula, Publication Bureau Punjabi University, Patiala.
9. Sri Guru Granth Sahib Raag Ratankar : Dr. Gurnam Singh, Publication, SGPC, Sri Amritsar Sahib
10. Gyan ShailiyanVishesh Ank Samajik Vigyan Patrika Dr. Jasbir Kaur, Publication Bureau Punjabi University, Patiala.

(Dr. Jagmohan Sharma) Shamshad Ali Shamshad Ali

B.A. Par- II (Semester- IV) Session 2020-21, 2021-22, 2022-23

Sri Guru Teg Bahadur Khalsa College
Sri Anandpur Sahib
(An Autonomous College)

B.A. (GUR) - 416: GURMAT SANGEET

Maximum Marks: 65 **Time: 3 Hours**
External Examination: 40 **Pass Marks: 35%**
Internal Assessment: 25 **Teaching Hour: 30 Hour**
Credit: 2 **1 Credit= 1 Hour**

Note: Along with Gurmat Sangeet the candidate can also take Music Vocal Subject.

Course objectives:

- To introduce various definitions in the context of Gurmat Sangeet such as: Raag, Rahao, Ank, Dhuni etc.
- To impart knowledge about various gayan shaillies of Gurmat Sangeet.
- To increase the knowledge about Notation system of Gurmat Sangeet.

INSTRUCTION FOR THE PAPER -SETTER

The question paper will consist of three Units: I, II & III. Unit I and II will have 4 questions from the respecting units of the syllabus and will carry six marks each and the candidates will attempt two questions from each units. Unit III will consist of 8 short answer type questions which will cover the entire syllabus uniformly and will carry 16 marks in all. Each question carries 2 marks. There will be no choice in this compulsory question.

INSTRUCTION FOR THE CANDIDATE

Candidates are required to attempt two questions each from the unit I and unit II of the question paper and entire Unit- III.

Unit-I

1. Definition and explanation of the following musical terms:
   Gamak, Meend, Andolan, Bol Alaap, Bol Taan.
2. Description of the following in the context of Gurmat Sangeet:
   Shaan, Manglacharan, Dhurpad Ang Da Shabad, Paudi Gayan and Jati.
3. Biographical sketch and Contribution of Guru Arjun Dev Ji in the development of Gurmat Sangeet Tradition.
4. Differebce between Gurmat Sangeet and Hindusatani Sangeet. **Unit-II**
5. Description and Notation of the following Raags: Dhanasri and Ramkali.
6. Description and Notation of the following Taals: Deepchandi, Sooltaal and Ektaal.
7. Elementary knowledge of Saranda Instrument in Gurmat Sangeet.
8. Different Singing style of Gurmat Sangeet. **Course leaning outcomes:**

- The student will be learning about the historical background, musical terms, role of music in human life and contribution of different musicologist in the field of music.
- The students will also know about the different Raags and Taals, and how Instruments are used.

Baljeet Singh (Dr. Jagmohan Sharma) (Dr. Jagmohan Sharma) Shamshad Ali

B.A. Part- II (Semester- IV) Session 2020-21, 2021-22, 2022-23 B.A. (GUR) – 416P: GURMAT SANGEET PRACTICAL

Maximum Marks: 35 **Time: 20 Minutes**

Pass Marks: 35% **Teaching Hour: 90**

Credit: 3 **1 credit= 1 Hour**

Distribution of the marks will be as under; I.

Performance Viva - 20 Marks

II. Playing of Harmonium - 05 Marks

III. Playing of Tabla - 05 Marks

INSTRUCTIONS FOR THE PRACTICAL EXAMINER

- **There should not be more than 12 students in a batch for practical examination.**
- **Student should sing with Tanpura and Harmonium may also be allowed as accompaniment.**

1. One Shabad in each of the prescribed Raags: Dhanasri and Ramkali with alaps and tanas
.
2. One Dhrupad Ang Shabad in the prescribed Raags .
3. Ability to Demonstrate Deepchandi, Sooltaal and Ektaal on hands.
4. Ability to play Ektaal on TabIa.

Practical file with Notation/ Project works with proper presentation.

Text Books:

1. Gurmat Sangeet Parbandh te Pasaar: Dr. Gurnam Singh, Publication Bureau Punjabi University, Patiala.
2. TablaVadan Part-I: Dr. Jagmohan Sharma, Publication Bureau Punjabi University, Patiala.
3. Gurmat Sangeet Parbandh: Prof. Jagpinder pal singh, Shaheed - E -Azam Publication.
4. SamajikVigyan Patar Gurmat Sangeet Vishesh Ank: Dr. Jasbir Kaur, Publication Bureau Punjabi University, Patiala.
5. Sangeet Roop: Dr. Davinder Kaur, Sangeetanjali Publications Patiala.
6. Gurmat Sangeet Di Itehasik Vilakhanta: Dr. Jasbir Kaur, Patiala

Reference Books:

1. Sri Guru Granth Sahib Raag Ratnavali : Prof. Tara Singh.
2. Gurmat Sangeet Wich Paryukt Lok Sangeetak Tat : Dr. Gurpartap Singh Gill , Publication Bureau Punjabi University, Patiala.
3. Sangeet (Gurmat Sangeet Vishesh Ank): Sangeet Karayalaya , Hathras.
4. Amrit Kirtan , (Gurmat Sangeet Vishesh Ank): Amrit kirtan Trust, Chandigarh.
5. Sri Guru Granth Sahib Raag Ratan : Prof. Jagpinder pal singh, Shaheed - E -Azam Publication.
6. RaagTaal Sahaster Shabad Bandishan : Prof. Jagpinder pal singh, Shaheed - E -Azam Publication.
7. Punjab Da Sangeet Virsa Te Vikas : Dr. D.S. Narula, Punjabi Writers Cooperative Society, New Delhi.
8. Sangeet Sidhant Te Sohaj Shaster : Dr. D.S. Narula, Publication Bureau Punjabi University, Patiala.
9. Sri Guru Granth Sahib Raag Ratankar : Dr. Gurnam Singh, Publication, SGPC, Sri Amritsar Sahib
10. Gyan ShailiyanVishesh Ank Samajik Vigyan Patrika Dr. Jasbir Kaur, Publication Bureau Punjabi University, Patiala.

CM Singh

PP Singh

PP Singh

Shamshad Ali

Shamshad Ali