PAPER I (COMPULSARY)

RESEARCH APPTITUDE

(It may be treated as the guide lines of preparation for the Entrance Test)

I. Application of Statistical Concepts/Procedures: Data: Diagrammatical Representation of data: Probability; Dispersion; Skewness and Kurtosis of Normal Distribution; Other natural distributions, Random Sampling.

II. Testing of Hypothesis Tests, X2 (Chi-square), and F-tests, Analysis of Variance, Covariance, Analysis of Variance, Parameters and variables.

III. Functional Units of a Computer; Operating Systems; Files and Folders, Word Editing and Formatting a Document; Excel sheets & Tables; Editing and Formatting Worksheets, Creating and Printing a Presentation; Producing a Slide Show and function keys; Performing Basic Calculations; Using the Internet and the World Wide Web.

IV. Learning Software Packages Specific to the Subject. Creation of Questionnaire Online, Analysis and Interpretation of Data, Construction of Charts, Diagrams, Sharing of Information Online with Respondents, etc. using the following Online Tools:(i) Google Docs (ii) Google Scholar (iii) Research gates (iv) Survey Moneys.

V. Research and funding Organizations and Important research awards (including awardees), Current areas of research

VI. Higher education, policies and commissions, Science and applications
PAPER II (ELECTIVE – AS PER DISCIPLINE)

MANAGEMENT (FINANCE / ACCOUNTING)

1. Managerial Economics: Demand analysis, production function, cost-output relations, market structures, pricing theories, advertising, macro-economics, national income concepts, infrastructure-management and policy, Business Environment, Capital Budgeting.


3. Accounting standard in India, inflation accounting, human resource accounting, responsibility accounting, social accounting, money and capital market, working of stock exchange in India, NSE, OTCEI, NASDAQ, derivatives and options, Regularity authorities: SEBI, rating agencies, new instruments, GDRs, ADRs, venture capital funds, mergers and acquisitions, mutual funds, lease financing, factoring, valuation of securities; pricing theories – capital asset pricing model and arbitrage pricing theory, understanding financial statements and analysis thereof, capital budgeting decisions; risk analysis in capital budgeting and long term sources of finance, capital structure – theories and factors, cost of capital, dividend policies – theories and determinants, working capital management- determinants and financing; cash management; inventory management, receivable management, elements of derivatives, corporate risk management, mergers and acquisitions, international financial management.

4. India’s foreign trade and policy; export promotion policies; trade agreements with other countries; policy and performance of export zones and export oriented units, export incentives, international marketing logistics, international logistical structures; export documentation framework; organization of shipping services; chartering practices; marine cargo insurance.

5. International financial environment; foreign exchange markets; determination of exchange rates; exchange risk measurement; international investment; international capital markets; international credit rating agencies and implications of their ratings.

6. WTO and multilateral trade agreements pertaining to trade in goods; trade I services and TRIPS ; multilateral environmental agreements (MEAs); international trade blocks – NAFTA, ASEAN, SAARC, EU, WTO and dispute settlement mechanism. Technology monitoring; emerging opportunities for global business.

7. Concepts – types, characteristics; motivation; competencies and its development; innovation and entrepreneurship; small business- concepts Government policy for promotion of small and
tiny enterprises; process of business opportunity identification; detailed business plan preparation; managing small enterprises; planning for growth; sickness in small enterprises; rehabilitation of sick enterprises; intrapreneurship (Organizational entrepreneurship).

8. Role and scope of production management; facility location; layout planning; and analysis; production planning and control – production process analysis; demand forecasting for operations; determinants of product mix; production scheduling; work measurement; time and motion study; statistical quality control, role and scope of operation research; linear programming; sensitivity analysis; duality; transportation model; inventory control, queueing theory; decision theory; markov analysis; PERT/CPM.

9. Marketing environment and environment scanning; marketing information system and marketing research; understanding consumer and industrial markets; demand measurement and forecasting; market segmentation- targeting and positioning; product decisions, product mix, product life cycle; new product development; branding and packaging; pricing methods and strategies. Promotions decisions- promotion mix; advertising; personal selling; channel management; vertical marketing systems; evaluation and control of marketing effort; marketing of services; customer relation management. Uses of internet as a marketing medium – other related issues like branding, market development, advertising and retailing on the net. New issues in marketing.


11. Concepts of corporate strategy; components of strategy formulation; Ansoff’s growth vector; BCG models; porter’s generic strategies; competitor analysis; strategic dimensions and group mapping; industry analysis; strategies in industry evolution, fragmentation, maturity and decline; competitive strategy and corporate strategy; transnationalization of world economy; managing cultural diversity; global entry strategies; globalization of financial system and services; managing international business; competitive advantage of nations; RTP and WTO.

12. Income tax law and tax planning: Basic concepts, residential status and tax incidence, exempted incomes, computation of taxable income under various heads, computation of taxable income of individual and firms, deductions of tax, filing of returns, different types of assessment, defaults and penalties, tax planning: concept, significance and problems of tax planning, tax evasion and tax avoidance, method of tax planning, tax consideration in specific business decisions viz make or buy own or lease, retain or replace, export or domestic sales; shout down or closure, expand or contract, invest or disinvest. Computer application in income tax and tax planning.

CHEMISTRY
INORGANIC CHEMISTRY
1. Chemical periodicity
2. Structure and bonding in homo- and heteronuclear molecules, including shapes of Molecules (VSEPR Theory).
4. Main group elements and their compounds: Allotropy, synthesis, structure and Bonding, industrial importance of the compounds.
5. Transition elements and coordination compounds: structure, bonding theories, Spectral and magnetic properties, reaction mechanisms.
6. Inner transition elements: spectral and magnetic properties, redox chemistry, Analytical applications.
8. Cages and metal clusters.
10. Characterization of inorganic compounds by IR, Raman, NMR, EPR, Mossbauer, UV-vis, NQR, MS, electron spectroscopy and microscopic techniques.

PHYSICAL CHEMISTRY
1. Basic principles of quantum mechanics: Postulates; operator algebra; particle-in-a-box, harmonic oscillator and the hydrogen atom, including shapes of atomic orbitals; orbital and spin angular momenta; tunneling.
2. Approximate methods of quantum mechanics: Variational principle; perturbation theory up to second order in energy; applications.
3. Atomic structure and spectroscopy; term symbols; many-electron systems and antisymmetry principle.
4. Chemical applications of group theory; symmetry elements; point groups; character tables; selection rules.
5. Molecular spectroscopy: Rotational and vibrational spectra of diatomic molecules; electronic spectra; IR and Raman activities – selection rules; basic principles of magnetic resonance.
6. Chemical thermodynamics: Laws, state and path functions and their applications; thermodynamic description of various types of processes; Maxwell’s relations; spontaneity and equilibria; temperature and pressure dependence of thermodynamic quantities; Le Chatelier principle; elementary description of phase transitions; phase equilibria and phase rule; thermodynamics of ideal and non-ideal gases, and solutions.
7. Statistical thermodynamics: Boltzmann distribution; kinetic theory of gases; partition functions and their relation to thermodynamic quantities – calculations for model systems.
8. Electrochemistry: Nernst equation, redox systems, electrochemical cells; Debye- Huckel theory; electrolytic conductance – Kohlrausch’s law and its applications; ionic equilibria; conductometric and potentiometric titrations.
9. Chemical kinetics: Empirical rate laws and temperature dependence; complex reactions; steady state approximation; determination of reaction mechanisms; collision and transition state theories of rate constants; unimolecular reactions; enzyme kinetics; salt effects; homogeneous catalysis; photochemical reactions.
10. Colloids and surfaces: Stability and properties of colloids; isotherms and surface area; heterogeneous catalysis.
11. Solid state: Crystal structures; Bragg’s law and applications; band structure of solids.

ORGANIC CHEMISTRY
1. IUPAC nomenclature of organic molecules including regio- and stereoisomers.
2. Principles of stereochemistry: Configurational and conformational isomerism in acyclic and cyclic compounds; stereogenicity, stereoselectivity, enantioselectivity, diastereoselectivity and asymmetric induction.
3. Aromaticity: Benzenoid and non-benzenoid compounds – generation and reactions.
5. Organic reaction mechanisms involving addition, elimination and substitution reactions with electrophilic, nucleophilic or radical species. Determination of reaction pathways.
7. Organic transformations and reagents: Functional group interconversion including oxidations and reductions; common catalysts and reagents (organic, inorganic, Organometallic and enzymatic). Chemo, regio and stereoselective transformations.
10. Synthesis and reactivity of common heterocyclic compounds containing one or two heteroatoms (O, N, S).
11. Structure determination of organic compounds by IR, UV-Vis, $^1$H & $^{13}$C NMR and Mass spectroscopic techniques.
MATHEMATICS

Abstract Algebra-

Numerical Analysis-

Differential Equation-

Linear Algebra-
Statistics and Probability Theory-
PHYSICS

Mathematical Methods of Physics

Classical Mechanics

Electromagnetic Theory

Quantum Mechanics

Thermodynamic and Statistical Physics

Electronics and Experimental Methods
Data interpretation and analysis. Precision and accuracy. Error analysis, propagation of errors. Least squares fitting.

Atomic & Molecular Physics

Condensed Matter Physics

Nuclear and Particle Physics
1. Chaucer to Shakespeare
2. Jacobean to Restoration Periods
3. Augustan Age: 18th Century Literature
4. Romantic Period
5. Victorian Period
6. Modern Period
7. Contemporary Period
8. American and other non-British Literatures
9. Literary Theory and Criticism
10. Rhetoric and Prosody
SOCIOLOGY

Classical Sociological Theory
The socio-historical and intellectual background of Sociology; August Comte (Sociology—Positivism—social evolution); Karl Marx (historical and dialectical materialism—class conflict—capital—base and super structure); Emile Durkheim (social Fact—methodology—social solidarity—social change—religion and society); Max Weber (social Action—methodology—authority—class, status and power—religion and economy)

Modern Sociological Theory

Social Research Method
Meaning and nature (social phenomena—scientific enquiry—objectivity and subjectivity—fact and value); Quantitative methods (survey—research design—hypothesis—sampling, techniques of data collection: observation, questionnaire and interview); Qualitative methods (participant observation—case study—content analysis—oral history—life history); Statistical tools (measures of central tendency—measures of dispersion—correlation—test of significance—reliability and validity).

Sociology of India
Approaches to the Study of Indian Society (Indology—Civilizational—Functional—Marxist—Subaltern); People of India (groups and communities—unity and diversity—pluralism); Caste structure and change (Tribe and Caste—forms of caste—caste and social institutions—changes in caste system); Rural social structure (village community—change in village community); Family, kinship and marriage; Religion in India (ideology—organization—religious movement)

Social Stratification
Theories of social stratification (social class—class, status, and party—cultural stratification); Issues in stratification (difference—hierarchy—equality and inequality); Forms of stratification (caste—class—gender—ethnic); Stratification and social mobility in India.

Economy and Society
Theories on economic social relationship; Features of industrial society (factory system—division of labor—bureaucracy—rationality—production relations—surplus value—alienation); Relationships (labor—management—conciliation—adjudication—arbitration—collective bargaining—trade unions—Joint management councils—quality circles); Agriculture, Industry and service sectors; Industrialization and social change in India; Industrial planning.

Political Sociology
Approaches to the study of politics; Concepts (power and authority — consensus and conflict— elites and masses— state and stateless societies); Local, everyday power and wider political system; State and society under capitalism; Citizenship and the welfare state; sovereignty and institutional autonomy; state and society in India; Civil society and social mobilization.

**Sociology of Development**
Conceptual perspectives (economic— human — social — sustainable — ecological notions of development); Theories of underdevelopment (Max Weber — Gunnar Myrdal — Frank — Samir Amin — Wallerstein); Paths of development (modernization — globalization — Socialist — Mixed — Gandhian); Social structure and development; Culture and development

**Family, Kinship and Marriage**
Theories; family (types — characteristics) kinship (incest taboo — honor — descent, residence and inheritance); Marriage patterns (exchange — alliance — bride-wealth — dowry — social reproduction — monogamy — plural marriages); Culture, law and economy; Indian case.
AGRICULTURE

AGRONOMY

SOIL SCIENCE
Soil Chemistry, Soil Mineralogy, Genesis, Classification And Survey, Analytical techniques and instrumental methods in soil and plant analysis, Soil Fertility And Fertilizer Use, Soil biology and Biochemistry, Soil, water and air pollution, Fertilizer technology, Soil Physics, Management Of Problem Soils And Waters, Advances in soil fertility, Advances in soil physics, Physical chemistry of soils, Biochemistry of soil organic matter, Land Use Planning and Watershed Management and Soil genesis and micro pedology.

PLANT BREEDING
Principles of Genetics and Cell Biology, Principles of Plant Breeding, Molecular Genetics, Plant genetic resources & seed technology, Principles of Quantitative Genetics, Biotechnology for Crop Improvement, Principles of Cytogenetics, Mutagenesis and Mutation Breeding, Heterosis Breeding, Advanced Genetics, Advanced Biometrical and Quantitative Genetics, Genetic Engineering, Breeding Designer Crops.

FORESTRY
AGRICULTURE ENTOMOLOGY

- Insect Morphology
- Insect Ecology
- Principles of Integrated Pest Management
- Classification of Insects
- Insect Physiology and Nutrition
- Toxicology of Insecticides
- Pests of Field Crops
- Pests Of Horticultural and Plantation Crops
- Biological Control of Crop Pests and Weeds
- Beneficial Insects
COMPUTER APPLICATIONS

DISCRETE STRUCTURES


Computability: Models of computation—Finite Automata, Pushdown Automata, Non-determinism and NFA, DPDA and PDAs and Languages accepted by these structures. Grammars, Languages, Non-computability and Examples of non-computable problems.


Groups: Finite fields and Error correcting/detecting codes.

COMPUTER ARITHMETIC

Propositional (Boolean) Logic, Predicate Logic, Well-formed-formulae (WFF), Satisfiability and Tautology.


Representation of Integers: Octal, Hex, Decimal, and Binary. 2's complement and 1's complement arithmetic. Floating point representation.

PROGRAMMING IN C AND C++

Programming in C: Elements of C—Tokens, identifiers, data types in C. Control structures in C. Sequence, selection and iteration(s). Structured data types in C—arrays, struct, union, string, and pointers.


RELATION DATABASE DESIGN AND SQL

E-R diagrams and their transformation to relational design, normalization—1NF, 2NF, 3NF, BCNF and 4NF. Limitations of 4NF and BCNF.

SQL: Data Definition Language (DDL), Data Manipulation Language (DML), Data Control Language (DCL) commands. Database objects like—Views, indexes, sequences, synonyms, data dictionary.

DATA AND FILE STRUCTURES

Data, Information, Definition of data structure. Arrays, stacks, queues, linked lists, trees, graphs, priority queues and heaps.


COMPUTER NETWORKS

Network fundamentals: Local Area Networks (LAN), Metropolitan Area Networks (MAN), Wide Area Networks (WAN), Wireless Networks, Inter Networks.

Reference Models: The OSI model, TCP/IP model.


Internetworking: Switch/Hub, Bridge, Router, Gateways, Concatenated virtual circuits, Tunnelling, Fragmentation, Firewalls.


SYSTEM SOFTWARE AND COMPILERS


Loading, linking, relocation, program relocatability. Linkage editing.

Text editors. Programming Environments. Debuggers and program generators.

Compilation and Interpretation. Bootstrap compilers. Phases of compilation process. Lexical analysis. Lex package on Unix system.

Context free grammars. Parsing and parse trees. Representation of parse (derivation) trees as rightmost and leftmost derivations. Bottom up parsers—shift-reduce, operator precedence, and LR. YACC package on Unix system.


OPERATING SYSTEMS (WITH CASE STUDY OF UNIX)

Main functions of operating systems. Multiprogramming, multiprocessing, and multitasking.

Memory Management : Virtual memory, paging, fragmentation.

Concurrent Processing : Mutual exclusion. Critical regions, lock and unlock.


UNIX

The Unix System : File system, process management, bourne shell, shell variables, command line programming.

Filters and Commands : Pr, head, tail, cut, paste, sort, uniq, tr, join, etc., grep, egrep, fgrep, etc., sed, awk, etc.

System Calls (like) : Creat, open, close, read, write, isseek, link, unlink, stat, fstat, umask, chmod, exec, fork, wait, system.
SOFTWARE ENGINEERING

*System Development Life Cycle (SDLC)*: Steps, Water fall model, Prototypes, Spiral model.

*Software Metrics*: Software Project Management.

*Software Design*: System design, detailed design, function oriented design, object oriented design, user interface design. Design level metrics.

*Coding and Testing*: Testing level metrics. Software quality and reliability. Clean room approach, software reengineering.
PHARMACY

1. bsorptiometric assay of Organic Compounds, Structural Analysis. Theory and instrumentation, of the following: IR, NMR and Mass Spectrometry, Optical Rotatory Dispersion, H.P.L.C, HPTLC, GC and hyphenated techniques (LC-MS), TGA, DTA, DSC and XRD.

2. Structure Activity relationships, mechanism of action and synthesis for following class of drugs: Antimicrobial and Antiviral agents, Antimalarial, Anticancer, Analgesics and Antiinflammatory agents, Antidiabetics, Cardiovascular and Antifertility agents. Basic concepts of drug design with reference to physicochemical parameters related to ligand and receptor design, QSAR basics like Hansch approach.


5. Neurohumoral transmission in CNS and ANS. Autacoid Pharmacology.

6. Fundamentals involved in Physical, Chemical and Biological evaluation of crude drugs. Monograph preparation of herbal drugs and standard tests involved thereof.


हिन्दी भाषा और उसका विकास

अप्रभाश ( अवहदूत सहित ) और पुराती हिन्दी का सम्बन्ध, काव्यभाषा के रूप में अवधी का उदय और विकास, काव्यभाषा के रूप में ब्रजभाषा का उदय और विकास, साहित्यिक हिन्दी के रूप में खड़ी बोली का उदय और विकास, मानक हिन्दी का भाषा वैज्ञानिक विकास ( रुपगत ), हिन्दी की बोलियाँ — वर्गीकरण तथा क्षेत्र, नामग्री लिपि का विकास और उसका मानकीकरण ।

हिन्दी प्रसार के आन्दोलन, प्रमुख व्यक्तियों तथा संस्थाओं का योगदान, राजभाषा के रूप में हिन्दी ।

हिन्दी भाषा-प्रयोग के विविध रूप — बोली, मानकभाषा, सम्पर्कभाषा, राजभाषा और राष्ट्रभाषा, संचार माध्यम और हिन्दी ।

हिन्दी साहित्य का इतिहास

हिन्दी साहित्य का इतिहास-दर्शन, हिन्दी साहित्य के इतिहास-लेखन की पद्धतियाँ ।

हिन्दी साहित्य के प्रमुख इतिहास प्रद्यु, हिन्दी के प्रमुख साहित्यिक केंद्र, संस्थाएं एवं पत्र-पत्रिकाएं, हिन्दी साहित्य के इतिहास का काल-विभाजन और नामकरण ।

आदिकाल : हिन्दी साहित्य का आरम्भ कब और कैसे ? रासो-साहित्य, आदिकालीन हिन्दी का जैन साहित्य, सिद्ध और नाथ साहित्य, अभी खुसरो की हिन्दी कविता, विद्वान पर उनकी पदावली, आरम्भिक गध तथा लोकिक साहित्य ।

मध्यकाल : भक्ति-आन्दोलन के उदय के सामाजिक-सांस्कृतिक कारण, प्रमुख निर्माण एवं सम्पर्क सम्प्रदाय, वैष्णव भक्ति की सामाजिक-सांस्कृतिक पृष्ठभूमि, आलावर सत्त, प्रमुख सम्प्रदाय और आचार्य, भक्ति आन्दोलन का अखिल भारतीय स्वरूप और उसका अन्तःप्रदेशिक वैशिष्ट्य ।
हिंदी सन्त काव्य : सन्त काव्य का वैचारिक आधार, प्रमुख निर्णय सन्त कवि कविजी, नानक, दास, दास, सन्त काव्य की प्रमुख विशेषताएँ, भारतीय धर्म साहित्य में सन्त कवियों का स्थान ।
हिंदी सूफी काव्य : सूफी काव्य का वैचारिक आधार, हिंदी के प्रमुख सूफी कवि और काव्य — मुशा दास्ताद (चदादाद), कृष्ण (मिर्गाश्ती), मूल (मुखमदाली), मलिक मुहम्मद जासूसी (चदादाद), सूफी प्रेमाकार को क्रिया स्वरूप, हिंदी सूफी काव्य की प्रमुख विशेषताएँ ।
हिंदी कृत्ति काव्य : विविध समाधान, वल्लभ समाधान, अब्दुल्लाह, परमुख कृत्ति-भक्ति कवि और काव्य, सुदास (सूरसागर), ननदास (राज पंचायत), ब्रम्मराज्य परम्परा, गीति परम्परा और हिंदी कृत्ति काव्य — गीता और रसकान ।
हिंदी राम काव्य : विविध समाधान, राम भक्ति शाखा के कवि और काव्य, तुलसीदास की प्रमुख कृतियाँ, काव्य रूप और उनका महत्व ।
रीत काला : सामाजिक-सांस्कृतिक परिसर, रीतिकाव्य के मूल स्रोत, रीतिकाल की प्रमुख प्रवृत्तियाँ, रीतिकालीन कवियों का आचरण, रीतिकाल के प्रमुख कविय रीतिकाल के प्रमुख कवि : केशवदास, मलिक, भुषण, बहारीलाल, देवरैल और पदमाल, तीतिकाल में लोकजीवन ।
आयुर्विज्ञान काला : हिंदी ग्रंथ का उद्भव और विकास ।
भारतेश दूर्दूर हिंदी ग्रंथ, 1857 की राज्य काला और सांस्कृतिक पुनर्जागरण, भारतेश और उनका मण्डल, 19 वीं शताब्दी के उत्तरार्ध की हिंदी पत्रकारिता ।
हिंदी ग्रंथ : महावीर प्रसाद हिंदेवी और उनका युग, हिंदी नवजागरण और समस्त शक्ति, मैथिली समाज ग्रंथ और राष्ट्रीय काव्याभास, राष्ट्रीय काव्याभास की प्रमुख कवि, स्वच्छेंद्रता और उनके प्रमुख कवि ।
भाषावाद और उसके बाद : भाषावादी काव्य की प्रमुख विशेषताएँ, भाषावाद के प्रमुख कवि : प्रसाद, निर्मल, पतन और महादेवी, उत्तर भाषावादी काव्य और उसके प्रमुख कवि, प्रमुख भाषावादी कवि और उसके प्रमुख कवि, प्रमुख भाषावाद कवि और उसके प्रमुख कवि, समकालीन कविता, समकालीन साहित्यिक प्रतीकात्मक ।
हिंदी साहित्य की ग्रंथ विधाएँ
हिंदी उपन्यास : प्रमुख पूर्व उपन्यास, प्रमुख और उनका युग, प्रमुख के परवर्ती प्रमुख उपन्यासकार : जैनदास, अलेक्स, हजरी प्रसाद हिंदेवी, वर्षाल, अमृतलाल नागर, प्रसाद शरण रेणु, भीम सहानी, कुमार गोविन्द, नरेश भगता, श्रीलाल शुक्ल, राही मासूम रजा, रंगेय रचना, मनू भंडारी ।
हिंदी कहानी : बौद्ध सदी की हिंदी कहानी और प्रमुख वहाँनी आदिोलन ।
हिंदी नाटक : हिंदी नाटक और रंगमंच, विकास के चरण और प्रमुख नाट्यकृतियों : अंधेरे नगरी, चतुकमा, अंधायुग, आधे-आधूरे, आठवीं सदी, हिंदी एकादीक ।
हिंदी निबंध : हिंदी निबंध के प्रकार और प्रमुख निबंधकार — बाबुलाल शुक्ल, हजरी प्रसाद हिंदेवी, कुंवरसाह राय, विवेकानन्द रे, हरिनारायण परस्पर ।
हिंदी आलोचना : हिंदी आलोचना का विकास और प्रमुख आलोचक : रामचंद्र शुक्ल, नन्दुरारे वाजपेयी, हजरी प्रसाद हिंदेवी, रामविलास शामी, डा० गोन्न, डा० नामवर सिंह, विजयदेव नारायण साही ।
हिंदी की अन्य ग्रंथ विधाएँ : रेखाचित्र, संस्करण, यात्रा-साहित्य, आत्मकथा, जीवनी और रीतिपरिचय।
काव्यशास्त्र और आलोचना
भरत मुनि का रस सूत्र और उसके प्रमुख व्याख्याकार ।
रस के अवधार ।
साधारण अवधारण ।
शब्द शाक्तियों और ध्वनि का स्वरूप ।
अलंकार — यमक, लेख, क्रियाकलाप, उपलक्ष, संदेह, भावनिमाण, अतिशयोक्ति, अयोक्ति, समारोहक, अत्युक्त, विशेषादि, दृष्टांत, उदाहरण, प्रमुखविनिमाण, निर्देशना, अर्थात्वत्वास, विभावना, असंगति तथा विरोधभाषा ।
रीति, गुण, दोष ।
भिंति, फूटासी, कल्पना, प्रतीक और विष्म ।
स्वच्छन्दतावाद और यथार्थवाद, संरचनावाद, उत्तर संरचनावाद, आधुनिकता, उत्तर आधुनिकता ।
समकालीन आलोचना की कलापय अवधारणाएँ : विद्वेशना (आयरनी), अजनाताप (एलियनेट), विवशिर (एम्स), अनावरात्रि (पेडाडॉक्स), विश्वास (डिक्स्ट्रक्शन) ।
वैचारिक पृष्ठभूमि, मानसिकता, मनोविश्लेषणवाद, आत्मतबाद ।
प्रसंगितवाद : सामाजिक दृष्टि, नागरिक — यथार्थ चेतना और लोक-दृष्टि, केदारनाथ अग्रवाल — प्रकृति, चित्रण और स्रोत-वोध ।
प्रयोगवाद : व्यस्त-चेतना, अंतर्धान — प्रयोगरूप और काव्य-भाषा ।
नदी कविता : व्यस्त-मनोवृत्ति-वोध, मुक्तिवृत्ति — समाज-वोध, फैसली ।
समकालीन कविता : काल संस्कृति और लोक संस्कृति, पुरुषोत्तर सहाय — राजनीतिक चेतना, काव्य-भाषा, कुंवर नारायण — समयकृती चेतना, काव्य-दृष्टि ।
हिंदी नाटक और भारतैत्तरू : भारत-दुर्दशा, अंधेरे नगरी, यथार्थ वोध ।
प्रसाद के नाटक : चन्द्रदेव, धुरस्वामी, राष्ट्रीय और सांस्कृतिक चेतना, नाट्य-शिल्प ।
प्रसादात्तर नाटक : अंधामुक्त, आँधे-अधृत — आधुनिकता बोध, प्रयोगरूप और नाट्य-भाषा ।
निबन्ध और प्रमुख निबन्धकार : बालकृष्ण भट्ट, रामचंद्र शुक्ल, भियुमतमण, अन्तर्वृत्त और शिल्प ।
शृंखलातर निबन्ध और निबन्धकार : हजारी प्रसाद द्विवेदी, कुंबेरनाथ राय, विद्यानिवास मिश्र, संस्कृति-बोध, लोक-संस्कृति ।
भक्ति-काव्य : स्वरूप और भेद, निर्गुण और सगुण का सम्बन्ध : साम्य और वेषमय।
कबीर : निर्गुण का स्वरूप, कबीर के राम और तुलसी के राम में अन्तर, रहस्य साधना, कबीर का समाज दर्शन और उनकी प्रारंभिकता, कबीर : कवि के रूप में।
जायसी : सांस्कृतिक दृष्टि, प्रेम-भावना, पद्मावत में लोक-तत्त्व, सांस्कृति, प्रकृति-चित्रण, सौन्दर्य-दृष्टि, रूपकं तत्त्व।
सूरदास : भक्ति-भावना, माधुर्य और श्रृंगार वर्णन, लोक-तत्त्व, सौन्दर्य-वोध, प्रकृति-चित्रण, भ्रमरीत, अंतर्वस्तु और विदर्थवा, गीत-तत्त्व, लीला-भाव, बाल-लीला वर्णन का वैशास्त्य।
तुलसीदास : तुलसी की रचनाएँ, भक्ति, दर्शन, मानस की प्रबन्ध कल्पना, मयादा भाव, चित्रकूट सभा का महत्त्व, सामाजिक-परिवारिक आदर्श, युग-वोध, रामराज्य की परिकल्पना, तुलसी की काव्य-दृष्टि।
1. Philosophical Foundation of Education

   Relationship of Education and Philosophy

   Western Schools of Philosophy:
   
   Idealism, Realism, Naturalism, Pragmatism, Existentialism, Marxism with
   special reference to the concepts of knowledge, reality and values their
   educational implications for aims, contents and methods of education.

   Indian Schools of Philosophy (Sankhya, Vedanta, Buddhism, Jainism, Islamic
   traditions) with special reference to the concept of knowledge, reality and values
   and their educational implications

   Contributions of Vivekananda, Tagore, Gandhi and Aurobindo to educational
   thinking

   National values as enshrined in the Indian Constitution, and their educational
   implications

   Modern concept of Philosophy: Analysis—Logical analysis, Logical empiricism
   and Positive relativism—(Morris L. Prigge)

2. Sociological Foundations of Education

   Relationship of Sociology and Education

   Meaning and nature of Educational sociology and Sociology of education

   Education—as a social sub-system—specific characteristics

   Education and the home

   Education and the community with special reference to Indian society

   Education and modernization

   Education and politics

   Education and religion

   Education and culture

   Education and democracy

   Socialization of the child

   Meaning and nature of social change

   Education as related to social stratification and social mobility

   Education as related to social equity and equality of educational opportunities

   Constraints on social change in India (caste, ethnicity, class, language, religion,
   regionalism)

   Education of the socially and economically disadvantaged sections of the society
   with special reference to scheduled castes and scheduled tribes, women and
   rural population
3. Psychological Foundations of Education

Relationship of Education and Psychology

Process of Growth and Development
— physical, social, emotional and intellectual
— development of concept formation, logical reasoning, problem solving and creative thinking; language development
— individual differences—determinants; role of heredity and environment; implications of individual differences for organising educational programmes

Intelligence—its theories and measurement

Learning and Motivation
Theories of learning—Thorndike's connectionism; Pavlov's classical and Skinner's operant conditioning; Learning by insight; Hull's reinforcement theory and Tolman's theory of learning; Lewin's Field theory
— Gagne's hierarchy of learning
— Factors influencing learning
— Learning and motivation
— Transfer of learning and its theories

Psychology and education of exceptional children—creative, gifted, backward, learning disabled and mentally retarded

Personality—type and trait theories—measurement of personality

Mental health and hygiene—process of adjustment, conflicts and defence mechanisms, mental hygiene and mental health. Sex Education

Guidance

4. Methodology of Educational Research

Nature and Scope of Educational Research—
Meaning and Nature
Need and Purpose
Scientific Inquiry and Theory Development—some emerging trends in research
Fundamental—Applied and Action Research

Formulation of Research Problem
Criteria and sources for identifying the problem
Delineating and Operationalizing variables
Developing assumptions and hypothesis in various types of research

Collection of Data
Concept of population and sample
Various methods of sampling
Characteristics of a good sample

Tools and Techniques
Characteristics of a good research tool
Types of research tools and techniques and their uses
Questionnaire-Interviews-Observations
Tests and scales, projective and sociometric techniques
Major Approaches to Research

Descriptive Research
Ex-post facto Research
Laboratory Experiment
Field Experiment
Field Studies
Historical Research

Analysis of Data

Descriptive and Inferential Statistics. The null hypothesis, test of significance, types of error, one-tailed and two-tailed tests

The $t$-test

The F-test (one-way and ANOVA)
Non-parametric tests (Chi-square test)

Biserial, point-biserial, tetrachoric and phi-coefficient of correlation
Partial and multiple correlations