

**SUBJECT: PHYSICS (Ph.D. ENTRANCE TEST)**  
**SECTION I (30 MARKS)**

This section will contain 30 questions with multiple choices to test general awareness, research aptitude, reasoning, basics of computation, logic, data interrelation, presentation, analysis synthesis etc.

**SECTION II (70 MARKS 35 QUESTIONS)**

will contain of 35 questions (multiple choices) to assess the candidates capability of explaining concepts & knowledge from the relevant discipline in which he/she seeks registration as indicated in application form (70 marks)

**Mathematical Physics:** Dimensional analysis, Vector algebra and vector calculus, Linear algebra, Matrices, Linear differential equations, Elementary probability theory, Binomial, Poisson and normal distributions, Fourier series, Fourier and Laplace transforms, Elements of complex analysis.

**Classical Mechanics:** Newton's law, central forces, Kepler's law and planetary motion, Lagrange and Hamilton's formalisms, Special theory of relativity – Lorentz transformations, time dilation, Length contraction, Relativistic kinematics, Variation of mass with velocity, Mass – Energy equivalence, Relation between energy and momentum.

**Electromagnetic Theory & Acoustic wave:** Gauss's Law and its applications, Laplace and Poisson equations, Magnetostatics : Bio-Savart's law, Ampere's theorem, Electromagnetic induction, Faraday's law, Maxwell's equations, Scalar and vector potentials, Electromagnetic waves and their reflection , Refraction, Interference, diffraction,polarization,Poynting vector, Energy and momentum ;electromagnetic waves, acoustics, acoustical holography, acoustic radiation, acoustic transmission.

**Quantum Mechanics:** Physical basis of quantum mechanics, Wave – Particle duality, De-Broglie hypothesis, Wave packet and group velocity, , Heisenberg's uncertainty principle, Schrodinger equation (time dependent and time independent), Eigen value problems such as particle- in- a- box, Harmonic oscillator etc.

**Thermodynamics and Statistical Physics:** Law of thermodynamics and their consequences, Macro state and microstates, Phase space, Probability ensembles, Partition function, Free energy, Calculation of thermodynamic quantities, Classical and quantum statistics, Degenerate Fermi gas, Black body radiation and Planck's distribution law, Bose- Einstein condensation, First and second order phase transitions.

**Atomic and Molecular Physics:** Quantum states of an electron in an atom, Electron spin, Spectra of one-and manyelectron atoms, Relativistic corrections for energy levels of hydrogen, Hyperfine structure and isotopic shift, Width of spectral lines, LS & JJ coupling, Zeeman, Paschen Back and Stark effect, X-ray spectroscopy, Electron spin resonance, Nuclear magnetic resonance, lasers.

**Solid State Physics:** Atomic structure and bonding in materials. Crystal structure of materials, unit cell and space lattices, Miller indices of planes and directions, Concept of amorphous, Single and polycrystalline structures and their effect on properties of materials, Crystal growth techniques, Free electron theory, Band theory of solids; metals, semiconductors and insulators, Hall effect, superconductivity, Fermi level, energy gap.

**Nuclear and Particle Physics:** Basic nuclear properties, Size, Shape, Charge distribution, Spin and Parity, Mass defect, Binding energy, semi-empirical mass formula, Liquid drop model, Nature of nuclear force, Nuclear shell model, Alpha decay, Beta decay, Gama decay, Laws of radioactivity, Nuclear reactions, Compound nuclei and direct reactions, Controlled and uncontrolled chain reaction, critical mass, fission and fusion, Nuclear reactor, Elementary particles.

**Electronics:** Semiconductor devices & physics P-N-Jn.depletion region, barrier potential, Transistors, Bipolar junction Transistors, Field effect transistors, UJT,SCR, Rectifier circuits, , Logic gates and symbols, Boolean algebra & Karnaugh map, DeMorgan's theorem, Basic digital logic circuits, Optoelectronic devices including solar cells; photonic devices;

Photo detectors and LEDs, Digital techniques and applications (Registers Counters, Comparators and similar circuits); ICs; modulation & demodulation, AM,PM,FM;A/D and D/A convertors; Sensors.

**TEXT & REFERENCE BOOKS:**

1. Mathematical Physics: Mary L B
2. Statistical Physics: TMH-1988; F.Reif
3. Introduction to Modern Physics:H.S.Mani & G.K.Mehta
4. Introduction to Solid State Physics: C.Kittel
5. Solid State Electronic Devices:B.G.Streetmann
6. Electronics Fundamental & Applications:J.D.Ryder

**SUBJECT: CHEMISTRY (Ph.D. ENTRANCE TEST)**  
**SECTION I (30 MARKS)**

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### **INORGANIC CHEMISTRY**

**Main Group Elements :** S-N compounds Sulphur-phosphorus compounds: Molecular sulphides such as P<sub>4</sub>S<sub>3</sub>, P<sub>4</sub>S<sub>7</sub>, P<sub>4</sub>S<sub>9</sub> and P<sub>4</sub>S<sub>10</sub>. Phosphorus-nitrogen compounds: Phosphazines. Other P-N compounds. Boron-nitrogen compounds:

**Metal Complexes:** Valence bond theory and its limitations. Ligand field theory: Splitting of d orbitals in different ligand fields Jahn-Teller effect MO diagrams of complexes with and without n bonds. Spectral & Magnetic properties of complexes.

**Nuclear Chemistry:** . Nuclear reactions: . Types of nuclear reactions. Spontaneous and induced fission. Principles of working of the reactors of nuclear power plants. Breeder reactor. Nuclear fusion reaction.

**Analytical Principles:** Volumetric methods: Theories of indicators: Acid-base, redox, metallochromic, indicators. Complexation Precipitation Redox titrations. Gravimetric methods: Mechanism of precipitate formation. Aging of precipitates. Precipitation from homogeneous solutions. Coprecipitation and postprecipitation. Contamination of precipitates. Washing, drying and ignition of precipitates.

**Water treatment:** Hardness, Alkalinity, Domestic water treatment Chemical analysis of water, D.O., B.O.D, C.O.D., T.D.S.

### **PHYSICAL CHEMISTRY**

**Quantum Mechanics:** Introduction to Classical Mechanics: The blackbody radiation, photoelectric effect, Compton Effect and atomic spectra. Failure of classical mechanics to explain these phenomena. Quantum mechanical explanations.

**Chemical Kinetics:** Theories of reaction rate: Influence of temperature on reaction rate. Arrhenius equation and its limitations, activation energy. Collision theory and absolute reaction rate theory. Free energy of activation and volume of activation. Thermodynamic formulation of reaction rate. Effects of pressure and volume on the velocity of gas reaction.

**Surface Chemistry:** The colloidal state: Multimolecular, macromolecular and associated colloids. Stability of colloids. The zeta potential. Kinetic, optical and electrical properties of colloids: Electrophoresis, electroosmosis, sedimentation potential and streaming potential Catalysis: Mechanism and theories of homogeneous and heterogeneous catalysis. Acid-base and enzyme catalysis.

**Thermodynamics:** Intensive and extensive properties. Exact differentials. Intrinsic energy, enthalpy, entropy, free energy and their relations and significances. . Maxwell relations. Thermodynamic equations of state. Joule- Thomson effect. Joule-Thomson coefficient for van der Waals' gas. The third law of thermodynamics. .

**Spectroscopy:** Energy levels in molecules, rotational, vibrational, electronic NMR and ESR spectroscopy.

### **ORGANIC CHEMISTRY**

**Principles of organic chemistry:** Inductive, mesomeric, electromeric effect. Carbocations, carbanions, carbens. Addition, Elimination, Substitution reactions

**Chemistry of Polymers:** Types and mechanism of polymerization reactions. Step-growth, free radical, addition, ionic polymerizations. Copolymers. Characterization of polymers. Manufacture and applications of polyolefins, thermoplastics, polyamides, polyesters, polyurethanes, epoxies and industrial polymers.

Chemistry of natural products- Biosynthesis of terpenes and alkaloids. Carbohydrate protein and nucleic acid.

**Organic Photochemistry:** Photochemical processes. Energy transfer, sensitization and quenching. Singlet and triplet states and their reactivity. Photoreactions of carbonyl compounds, enes, dienes, and arenes. Norrish reactions of acyclic ketones. Applications of photoreactions in laboratory and industrial synthesis.

**Separation Techniques:** Chromatographic methods: Classification of chromatographic separations. Theory of chromatography. Applications of chromatographic methods: Adsorption and partition chromatography. Paper, thinlayer and column chromatographic methods.

**REFERENCE BOOKS:**

1. F.A.Cotton and G.Wilkinson, "Advanced Inorganic Chemistry", John Wiley & Sons
2. J.March, "Advanced Organic Chemistry", Wiley
3. Gurdeep Raj , "Advanced Physical Chemistry
4. I.L.Finar, "Organic Chemistry" Vol 2, Longman

**SUBJECT: MATHEMATICS (Ph.D. ENTRANCE TEST)**  
**SECTION I (30 MARKS)**

This section will contain 30 questions with multiple choices to test general awareness, research aptitude, reasoning, basics of computation, logic, data interrelation, presentation, analysis synthesis etc.

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**Linear Algebra :** Finite dimensional vector spaces; Linear transformations and their matrix representations, rank; systems of linear equations, eigen values and eigen vectors, minimal polynomial, Cayley-Hamilton Theorem, diagonalisation, Hermitian, Skew-Hermitian and unitary matrices; Finite dimensional inner product spaces, Gram-Schmidt orthonormalization process, self-adjoint operators.

**Complex Analysis :** Analytic functions, conformal mappings, bilinear transformations; complex integration; Cauchy's integral theorem and formula; Liouville's theorem, maximum modulus principle; Taylor and Laurent's series; residue theorem and applications for evaluating real integrals.

**Real Analysis :** Sequences and series of functions, uniform convergence, power series, Fourier series, functions of several variables, maxima, minima; Riemann integration, multiple integrals, line, surface and volume integrals, theorems of Green, Stokes and Gauss; metric spaces, completeness, Weierstrass approximation theorem, compactness; Lebesgue integral, Fatou's lemma, dominated convergence theorem.

**Ordinary Differential Equations :** First order ordinary differential equations, existence and uniqueness theorems, systems of linear first order ordinary differential equations, linear ordinary differential equations of higher order with constant coefficients; linear second order ordinary differential equations with variable coefficients; method of Laplace transforms for solving ordinary differential equations, series solutions; Legendre and Bessel functions and their orthogonality.

**Algebra :** Normal subgroups and homomorphism theorems, automorphisms; Group actions, Sylow's theorems and their applications; Euclidean domains, Principal ideal domains and unique factorization domains. Prime ideals and maximal ideals in commutative rings; Fields, finite fields.

**Functional Analysis :** Banach spaces, Hahn-Banach extension theorem, open mapping and closed graph theorems, principle of uniform boundedness; Hilbert spaces, orthonormal bases, Riesz representation theorem, bounded linear operators.

**Probability and Statistics :** Probability space, conditional probability, Bayes theorem, independence, Random variables, joint and conditional distributions, standard probability distributions and their properties, expectation, conditional expectation, moments; weak and strong law of large numbers, central limit theorem; Sampling distributions; Testing of hypothesis, standard parametric tests based on normal, Chi-Square, t, F - distributions; Linear regression; Interval estimation.

**REFERENCE BOOKS:**

1. Mathematical Analysis by Rudin, M
2. Discrete Mathematics by Truss, Pearson Education
3. Linear Algebra by Ramachandra, McGraw Hill Pub.
4. Mathematical Statistics by M.Ray, S-Chand Pub.
5. Abstract Algebra by S.David, Wiley Pub.
6. Ordinary Differential Equation by Garrett, Wiley Pub.

**SUBJECT: INFORMATION TECHNOLOGY**  
**(Ph.D. ENTRANCE EXAM)**  
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**Computer Organization and Architecture**-Computer Architecture System Inter Connection Structure Addressing modes Arithmetic Processor Design Control Unit Organization Storage and Memory Hierarchy and I/O Organization Parallel Computer Models and Program Parallelism Classification of Machine SISD, SIMD and MIND Synchronous Parallel Processing .

**Soft Computing** :Journal Issues and our view of AI Search and Control Strategies Heuristic Search Techniques Knowledge Representation AI Programming Languages LISP Prolog Natural language Processing Parsing Techniques RTN, ATN, Fuzzy System Expert Systems Artificial Neural Network .

**Object Oriented Concept and Programming Using C++**:Basic Concept of OOP Benefit of OOP Object Oriented language Structure of C++ Program Compiling and Linking Operators and expressions Looping Concepts Arrays and Structure, Functions Class Object Constructor and Destructors Polymorphism Functions Overloading Operators Overloading Inheritance pointer and Virtual Function Life I/O and Templates.

**Information Systems and Software Engineering** Software Engineering Paradigm Life Models S/W Requirements Design Concepts and Principles Testing and Maintenance S/W project management Internet and Web technology Internet protocol -TCP/IP,UDP,HTTP Telnet,SMTP,FTP,SNTP.Internet addressing IP V4 And IPV6 HTML,DHTML,SGML,XML,JAVA Scripts Internet Security and Firewalls web site planning and hosting.

**Database Management System** :Type of Data Models , DBMS, Architecture, Object Orientated Database Relationship Model , Storage and File Organization The Relational Data Model database Design Data Replication and Query Processing and Recovery, Security Management, Parallel and Distributed Database.

**Telecomm Switching and Computer Network** :Basic Concepts of telephony System and Topology, Switching, Wearing and Routing, PHTN, ISDN, DSL, ADSL, Switched Packets Data Services ISDN,ATN, Network, Seven Layer of OSI Model, TCP/IP Protocol Suit Cryptography and Digital Signature GSN,CDMA,Mobile IP Frequency Management and Channel Assignment.

**REFERENCE BOOKS :**

1. Computer System Architecture - M. Morris Mano
2. OOPS With C++ - E. Balagurusamy
3. Data Base System Concepts - Mc Graw Hill - Korth, Silber chats
4. Management And Strategy - Tarun Dhar Diwan
5. Object Oriented Interface and Data Base - Prentice Hall of India
6. Software Engineering By Roger Pressmen
7. Software Engineering By Pankaj jalote
8. Data Communication & Networking - Behrouz A. Forouzan
9. Computer Networks - Andrew s. Tanenbaum
10. Internet & Internet Engineering - Dahiel , Minoli TMH

**SUBJECT: MANAGEMENT (Ph.D. ENTRANCE TEST)**  
**SECTION I (30 MARKS)**

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**Management Process & Organizational Behavior-Overview :** Functions and Principles of management; Management Thought and Concepts; Management Decision Making Processes and Types. Overview of Organizational Behaviour; Understanding and managing Individual Behavior-personality, Perception, Values, Attitudes, Learning and Motivation; Group Dynamics and Team Work. Leadership; Overview of Organizational Development: Organizational structure; Organizational design; OD Interventions & Change Management.

**SUGGESTED READINGS:**

1. Stoner and Freeman, Management, Prentice Hall, N. Delhi.
2. Koontz, O' Donnell Wehrich, Principles of Management, McGraw Hill, New York.
3. Peter F. Drucker, The Practice of Management, Allied Publishers.
4. Robbins S.P., Organisational Behaviour, New Delhi, PHI.
5. Luthans Fred: Organizational Behaviour, TMH New Delhi
6. Singh, Dalip, Emotional Intelligence at Work, Response Books, Sage Publications, Delhi.
7. Management And Strategy - Tarun Dhar Diwan

**Managerial Economics-Overview of Micro-Economics :** Basic Concepts of Demand and Supply; Demand Analysis; Production Function; Cost-Output Relations; market Structures; Pricing theories; Overview of macro-Economics; National Income Concepts; Budgeting.

**SUGGESTED READINGS:**

1. Adhikary, M. Business Economics., New Delhi, Excel Books.
2. Baumol, W.J. Economic Theory and Operations Analysis, New Delhi, Prentice Hall Inc.
3. Chopra, O.P., Managerial Economics, New Delhi, Tata McGraw Hill.
4. Keat Paul G & Philips K.Y. Young, Managerial Economics, Prentice Hall, New Jersey.
5. Koutsoyiannis, A. Modern Micro Economics, New York, Macmillan.
6. Milgrom, P and Roberts J. Economics, Organisation and Management. Englewood Cliffs, New Jersey, Prentice Hall Inc.

**Quantitative Techniques Overview of Probability:** Types of Probability distributions (e.g. Binomial, Poisson, Normal and Exponential). Co-relation & Regression Analysis; Overview of Sampling: Sampling distributions; Tests of Hypothesis; Large and small samples. Univariate and Bivariate Data Analysis: t-test, z-test, Chi-square tests; ANOVA.

**SUGGESTED READINGS :**

1. Richard I. Levin and David S. Rubin, Statistics for Management (Seventh Edition), Prentice Hall of India, New Delhi.
2. Gupta, S. P. and Gupta, M.P, Business Statistics, Sultan Chand and Sons, New Delhi, 1997.
3. Kapoor, V. K., Essentials of Mathematics for Business and Economics, Sultan Chand and Sons, New Delhi, 1999.
4. Kazmier, L. J and Pohl, N. F, Basic Statistics for Business and Economics, McGraw Hill, New York.
5. Gupta S. P. and Gupta, M. P., Business Statistics, Sultan Chand and Sons, New Delhi, 1997.
6. C.R. Kothari Research Methodology,

**Strategic Management-** Overview of Strategic Management: Concept of Corporate Strategy; BCG Model; GE-9 Cell Model ; Value Chain Analysis;SWOT & TOWS Analysis; Porter's Generic Strategies; Competitor Analysis. Overview of Strategy Formulation and Implementation at Corporate and Business level. Strategic Control.

#### **SUGGESTED READING**

1. A A Thompson Jr., A J Strickland III, J E Gamble, *Crafting & Executing Strategy - The Quest for Competitive Advantage*, Tata McGraw Hill, 4th ed., 2005.
2. Ranjan Das, *Crafting the Strategy: Concepts and Cases in Strategic Management*, Tata McGraw Hill, 2004.
3. Henry, Mintzberg, Bruce, Ahlstrand and Joseph, Lampel (1998). *Strategy Safari*. Free Press, New York.
4. Gary, Hamel and Prahalad, C. K. (1999). *Competing for the Future*. HBS Press.
5. Ed. C.A. Montgomery, M.E. Porter, *Strategy - Seeking and Securing Competitive Advantage*, Harvard Business Review Publications, 1991.
6. Peter F. Drucker, *Managing in a Time of Great Change*, Truman Talley Books /Plume Penguin Group, 1998.
7. Strategic management and business policy, C Appa Rao
8. Management And Strategy - Tarun Dhar Diwan

**Ethics in Business Overview of Ethical issues in Business:** Value Based Organizations; Ethical Issues on Individual in Organizations; Gender Issues; Ecological Consciousness; Environmental Ethics; Social Responsibilities of Business; Corporate Governance and Ethics; Benefits of Corporate Social Responsibility.

#### **SUGGESTED READING**

1. Laura P. Hartman & Joe DesJardins, *Business Ethics*;
2. Business Ethics and values, Francis Cherunilum

**Human Resource management Overview of HRM:** Concepts and Perspectives in HRM; HRM in Changing Environment, Overview of HR Planning: Objectives Process and Techniques; Job Analysis ;Recruitment and Selection, Induction;Training and Development; Performance & Potential Appraisal, Overview of Industrial Relations: Wage Policy and Determination; Trade Unions; Dispute Resolution and Grievance Management; Labour Welfare .Overview of e-HRM.

#### **SUGGESTED READING**

1. Dessler, Gary; *Human Resource Management*, 7th International Edition, Prentice Hall, New Jersey,1997.
2. Fisher, Schoenfeldt and Shaw; *Human Resource Management*, 4th Edition, Houghton Mifflin, Boston,1999.
3. Leap, Terry L., andMicheal D. Crino; *Personnel/Human Resource Management*, MacMillan, NewYork, 1990.
4. Teboul, James; *Managing Quality Dynamics*, Prentice Hall, New Jersey, 1991.
5. De Cenzo, D. A. and Robbins, S. P., *Human Resource Management*, 5th ed., John Wiley, 1994.
6. Monappa, A. and Saiyadain, M., *Personnel Management*, Tata McGraw-Hill, New Delhi,1966.

**Finance-** Overview of Financial Accounting; Analysis of Balance Sheet Statement, Overview of Cost Accounting: Costing Methods and Techniques, Overview of Financial Management: Fund Flow Analysis; Management of Working Capital, Overview of Capital Budgeting: Capital Budgeting Decisions; Capital Structure and Cost of Capital. Overview of Dividend Policy: Determinants; Long-term and Short-term Financing Instruments; Mergers and Acquisitions.

#### **SUGGESTED READINGS:**

1. Hampton , john . *Financial Decision Making*. Englewood Cliffs, New Jersey, Prentice Hall Inc.
2. Van Horner, James C. *Financial Management and Policy* , New Delhi, Prentice Hall of India.
3. Winger, Bornard and Mohan, Nancy, *Principles of Financial Management*, New York, Macmillan Publishing Company.
4. J.C. Van Horne, *Fundamentals of Financial Management*, PHI , New Delhi.
5. Weston Brigham, *Managerial Finance*, McGraw Hill , New York.
6. I.M. Pandey, *Financial Management* Vikas Pub. House, New Delhi. VII. P. Chandra, *Financial Management*, TMH, New Delhi .
7. S.C. Kuchhal, *Financial Management*, Chaityna Publishing House, Aligarh.

**Marketing Management:** Overview of Marketing: Marketing Mix, Market Segmentation, Targeting and Positioning; Overview of Product Management; Product Mix Decisions; Product Life Cycle, New Product Development, Branding;



Pricing Methods and Strategies. Overview of Promotional Management: Promotion Mix; Advertising; Personal selling; Supply Chain Management; Viral & Niche Marketing; Customer Relation management. Overview of e-Marketing: Uses of Internet as Marketing Medium; Issues in Branding, Market Development, advertising and Retailing on Internet.

**SUGGESTED READINGS:**

1. Baker, Michael J., Marketing : An Introductory Text, McMillan Press Ltd., 1996.
2. Czinkota, Michael R., Massaki, Kotabe and David Mercer B., Marketing Management :Text and Cases, Blackwell Publishers, Massachusetts, 1997.
3. Kotler, Philip, Marketing Management : Analysis Planning, Implementation and Control, 9th Ed., Prentice Hall of India Pvt. Ltd. , New Delhi, 1997.
4. Kotler, Philip and Armstrong, Gary, Principles of Marketing, 6th ed., Prentice Hall of Indi, Pvt. Ltd., New Delhi, 1995.
5. Mc Carthy, E.Jerome and Pessault, William D. Jr., Basic Marketing, Richard D. Irwin Inc. , Homewood, Illinois, 1994.
6. Saxena, Rajan, Marketing Management, Tata McGraw Hill Publishing Company, New Delhi, 1997.

**Production Management:**Overview of Production management: Demand Forecasting for Operations; Production Scheduling; Work Measurement; time and Motion Study;Statistical Quality Control; Facility Location; Layout Planning. Overview of Operations Research: Linear programming; Transportation model; Inventory control; Queuing theory; Decision theory; PERT/CPM.

**SUGGESTED READINGS:**

1. Adam, E E & Ebert, R.J. Production & Operation Management, New Delhi , PHI.
2. Amrine Harold T. etc. Manufacturing Organization and management. Englewood Cliffs, New Jersey, PHI Inc.
3. Buffa, E.S. Modern Production Management, John Wiley ( New York.)
4. Dobler, Donald. W & Lee Lamar Purchasing & Materials Management, New York, Mc Graw Hill.
5. Mayor R, Production and Operation management,
6. Telsong, Industrial & Production Management

**Information System-**Overview of MIS: Application of Information Systems in management; MIS and Decision Making; System Analysis and Design.Overview of Database Management System;Overview of E-Commerce:

**SUGGESTED READINGS:**

1. Laudon, Kenneth C, & Jane P.Laudon, Management Information System : Organisation and Technology ,PHI Publication
2. Narayan B. Management Information System , APH , New Delhi 1998
3. Senn, James A., Analysis and Design of Information Systems , McGraw Hill Publication
4. Applegate Lynda M., et. al., Corporate Information Systems Management: Text and Cases, McGraw Hill, New York, 1999.
5. Malcolm Pettu, Introducing Information System Management, Baldwin Publications, London, 1990.
6. Mensching James R., & Dennis A.Adams, Managing an Information System, Prentice Hall, New Jersey,

**SUBJECT: COMMERCE (Ph.D. ENTRANCE TEST)**  
**SECTION I (30 MARKS)**

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**Business Environment:** Meaning and Elements of Business Environment, Economic Environment, Economic Policies, Economic Planning. Competition policy, Consumer protection, Environment protection Liberalization, Privatization and globalization, Second generation reforms, Industrial policy and implementation, Industrial growth and structural changes.

**Financial & Management Accounting:** Basic Accounting concepts, Capital & Revenue, Financial statements. Partnership Accounts: Admission, Retirement, Death, Dissolution and cash Distribution. Advanced Company Accounts: Issue, Forfeiture, Purchase of Business, Liquidation, Valuation of shares, Amalgamation, Absorption and Reconstruction, Holding company accounts. Cost Management Accounting: Ratio Analysis, Funds Flow Analysis, Cash Flow Analysis, Marginal costing & Break-even analysis, Standard costing, Budgetary control, Costing for decision making, Responsibility accounting.

**Business Economics:** Nature & uses of Business Economics, Concept of Profit & Wealth maximization. Demand Analysis & Elasticity of Demand, Curve Analysis Law Utility Analysis & Indifference Curve analysis, Laws of Returns and Law of Variable proportions.

**Business Statistics & Data Processing:** Data types, Data collection and analysis, Sampling, need, errors, & method of sampling, Normal Distribution, Hypothesis testing, Analysis and Interpretation of data. Correlation and Regression, small sample tests-t-test, F-test and chi-square test

**Business Management:** Concept of management Planning: Objectives, Strategies, Planning process, Decision-making. Staffing: Leading, Motivation, Leadership, Committees, Communication. Controlling: Corporate Governance and Business Ethics.

**Marketing Management:** The evolution of marketing concepts, Concepts of Marketing, Marketing mix, Marketing environment, Product decision, Pricing decision, Distribution decision.

**Financial Management:** Capital Structure, Financial & Operating leverage Cost of capital, Capital budgeting, Working capital management. Dividend Policy.

**Human Resources Management:** Concepts, Role and Functions of Human Resource management, Human Resource planning, Recruitment & Selection. Training & Development, Succession planning. Compensation: Wage & Salary Administration

**Banking & Financial Institutions:** Importance of Banking to Business, Types of Banks & Their functions Development Banking: IDBI, IFCI, SFCs, UTI, SIDBI.

**International Business:** World Trade Organisation: Its function & policies.

**REFERENCE BOOKS:**

1. Chisnall, Peter M: The Essonce of Marketing Research Prentice Hall, New Delhi.
2. Davis ,J.J.: Advertising Research, Prentice Hall, New Delhi.
3. Hooda, R.P.: Statistics for Business and Economics. Macmillan India, New Delhi.
4. Adhikary K: Conomic Environment of Business, Sultan Chand & Sons. New Delhi.
5. Ahluwalia. I. J: Industrial Growth in India, Oxford University Press. New Delhi.
6. Aswathappa K: Legal Environment of Business, Himalaya Publication New Delhi.
7. Ghose Biswanath: Economic Environment of Business, Vikas Publication. New Delhi.
8. Agrawal, K.N. Deeksha Agrawal : Business on the Net : What's & How's of E-Commerce MacMillan New Delhi.
9. Agrawal, K.N. Deeksha Agrawal : Business on the Net :bridge to the Online Storeform: MacMillan. New Delhi.  
© Diwan Prag & Sunil Sharma : Electronic Commerce : A Manager's guide toE-Business, Vanity Books International, Delhi.

**SUBJECT: HISTORY (Ph.D. ENTRANCE TEST)**  
**SECTION I (30 MARKS)**

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**खण्ड-अ**

**प्राचीन भारतीय इतिहास**

स्रोत : पुरातात्विक स्रोत, खोज उत्खनन, पुरालेखविधा, मुद्राशास्त्र, स्मारक साहित्यिक स्रोत

स्वदेशी : प्राथमिक तथा गौण : काल-निर्धारण की समस्याएं मिथक, आख्यान काव्य वैज्ञानिक साहित्य, क्षेत्रीय भाषाओं में साहित्य, धार्मिक साहित्य।

विदेशी विवरण : यूनानी, चीनी तथा अरब लेखक, प्रागैतिहास तथा आद्य इतिहास

मानव तथा पर्यावरण : भौगोलिक कारक, आखेट तथा संग्रह, (पुरापाषाण तथा मध्यपाषाण) कृषि का प्रारंभ (नव पाषाण तथा ताम्र पाषाण)

सिंधुघाटी की सभ्यता : उद्भव, तारीख, विस्तार, लक्षण, पतन, अवशेष तथा महत्व। लोह युग, द्वितीय शहरीकरण।

**वैदिक काल**

प्रवास तथा बस्तियां, वैदिक काल निर्धारण, साहित्यिक तथा पुरातात्विक साक्ष्य, सामाजिक तथा राजनीतिक संस्थाओं का विकास, धार्मिक तथा दार्शनिक विचार, अनुष्ठान तथा पद्धतियां।

**महाजनपद काल**

राज्यों का (महाजनपद) का निर्माण गणराज्य तथा राज्यतंत्र, शहरी केन्द्रों का उदय, व्यापार मार्ग, आर्थिक संवृद्धि, सिक्कों का प्रचलन, जैन धर्म और बौद्ध धर्म का विस्तार, मगध तथा नन्दों का उदय। ईरान तथा मेसेडोनिया के आक्रमण और उनका प्रभाव।

**मौर्य साम्राज्य**

मौर्य साम्राज्य की स्थापना, चन्द्रगुप्त, कौटिल्य तथा अर्थशास्त्र अशोक, धर्म की संकल्पना, राजादेश, ब्राम्ही तथा खरोष्ठी लिपियां। प्रशासन, अर्थव्यवस्था, वास्तुकला तथा मुर्तिकला, ब्राम्ही संपर्क। साम्राज्य का विघटन, शुंग तथा कण्व।

**मौर्यात्तर काल (भारत ग्रीक, शक, कुषाण, पश्चिमी क्षत्रप)**

बाहरी, दुनिया से संपर्क, शहरी केन्द्रों का विकास, अर्थव्यवस्था, सिक्का, धर्मों का विकास, महायान, सामाजिक दशाएं कला तथा वास्तुकला, साहित्य तथा विज्ञान।

**राज्य तथा समाज की स्थिति -**

पूर्वी भारत दक्खिन तथा दक्षिण भारत में खारवेल, सात वाहन संगम युग के तमिल राज्य, प्रशासन अर्थव्यवस्था, सिक्के, व्यापार-संघ तथा शहरी केन्द्र, बौद्ध केन्द्र संगम साहित्य, तथा संस्कृतिक, कला तथा वास्तुकला।

**गुप्त सम्राट तथा भारत के क्षेत्रीय राज्य**

गुप्त और वाकटक, हर्ष, प्रशासन, आर्थिक स्थिति, गुप्त सम्राटों के सिक्के, भू-प्रदान, शहरी केन्द्रों का पतन, भारतीय सामंतवाद, जातिप्रथा, महिलाओं की स्थिति, शिक्षा तथा शैक्षणिक संस्थायें- नालंदा विक्रमशिला, और वल्लभी, पडोसी देशों से संपर्क- मध्य एशिया, दक्षिण-पूर्व एशिया तथा चीन, संस्कृति साहित्य वैज्ञानिक साहित्य, कला तथा वास्तुकला। कदम्ब, गंग, पल्लव और बदामी के चालुक्य-प्रशासन, व्यापार संघ, संस्कृति साहित्य तथा क्षेत्रीय भाषाओं और लिपियों का विकास, वैष्णव तथा शैव धर्मों का विकास, तमिल भक्ति आंदोलन, शंकाराचार्य-वेदान्त, मंदिर तथा मंदिर

वास्तुकला की संस्थायें। कामरूप के वर्मन, पाल और सेन, राष्ट्रकूट, प्रतिहार कलचुरि के चेदि, परमार गुजरात के चालुक्य, चोल, चेर होसला, पांड्य, प्रशासन तथा स्थानीय सरकार कला तथा वास्तुकला का विकास, धार्मिक पंथ (सम्प्रदाय) मंदिर और मठ संस्था, अग्रहार, शिक्षा तथा साहित्य, अर्थव्यवस्था तथा समाज, श्रीलंका और दक्षिण-पूर्व एशिया से संपर्क।

### खण्ड-ब

#### मध्यकालीन भारतीय इतिहास

स्रोत पुरातत्व, पुरालेख और सिक्काशास्त्र, संबंधित सामग्री और स्मारक। इतिवृत। साहित्यिक स्रोत- फारसी, संस्कृत और क्षेत्रीय भाषायें। पुरा लेख सामग्री विदेशी यात्री- वृतांत।

#### राजनीतिक विकास

सल्तनत- गौरी, तुर्क, खिलजी, तुगलक, सैयद और लोदी।

मुगल साम्राज्य की नींव-बाबर, हुमायूं और सूरी, अकबर से औरंगजेब तक राज्य विस्तार।

मुगल साम्राज्य का पतन-राजनीतिक, प्रशासनिक तथा आर्थिक कारण। बाद के मुगल और मुगल साम्राज्य का विघटन

विजय नगर और बहमनी राज्य- उत्थान, विस्तार और विघटन

मराठा आंदोलन - शिवाजी द्वारा स्वराज्य की नींव, पेशवाओं के अधीन इसका

विस्तार, मराठा राज्य मंडल पतन के कारण।

#### प्रशासन

सल्तनत के अधीन प्रशासन- असैनिक, न्यायिक, राजस्व, राजकोषीय और सैनिक।

शेरशाह के प्रशासनिक सुधार, मुगल प्रशासन-भू-राजस्व और आय के अन्य स्रोत, मन सबदारी और जागीरदारी।

दक्खन में प्रशासन पद्धति-विजयनगर, बहमनी राज्य तथा मराठा।

#### आर्थिक पक्ष

कृषि उत्पादन- ग्रामीण अर्थव्यवस्था, कृषक वर्ग।

शहरी केन्द्र ओर जनसंख्या।

उद्योग-सूती वस्त्र उद्योग, हस्तशिल्प, कृषि आधारित उद्योग, संगठन, कारखाना, प्रौद्योगिकी।

व्यापार और वाणिज्य- राज्य की नीतियाँ, आंतरिक और बाह्य व्यापार

यूरोपीयन व्यापार, व्यापार केन्द्र और पतन, परिवहन और संचार।

वित्तीयन व्यापार, वाणिज्य और उद्योग, हुण्डी (विनिमय पत्र) और बीमा। मुद्रा।

#### सामाजिक धार्मिक आंदोलन

सूफी उनके धार्मिक संघ, विश्वास और पद्धतियां, प्रख्यात सुफी संत।

भक्ति सम्प्रदाय- शैव और उसकी शाखायें, वैष्णववाद और उसकी शाखायें।

मध्यकालीन संत- उत्तर और दक्षिण उनका सामाजिक राजनीतिक और धार्मिक जीवन पर प्रभाव।

सिक्ख आंदोलन - गुरुनानक देव और उनके उपदेश और साधना, आदि ग्रन्थ, खालसा।

#### समाज

वर्गीकरण- शासक वर्ग, प्रमुख धार्मिक वर्ग, व्यापारी और व्यवसायिक वर्ग,

ग्रामीण समाज- छोटे सामंत, ग्राम कर्मचारी, कृषक और गैर- कृषक वर्ग शिल्पकार।

महिलाओं की स्थिति

#### सांस्कृतिक जीवन

शैक्षणिक पद्धति और उसकी अभिप्रेरणा।

साहित्य-फारसी, संस्कृत तथा क्षेत्रीय भाषायें।

ललित कलाएं-चित्रकारी के प्रमुख स्कूल, संगीत।

उत्तर तथा दक्षिण भारत का वास्तुपूरक विकास भारतीय इस्लामिक वास्तुकला।

### खण्ड-स

#### आधुनिक भारत का इतिहास

स्रोत तथा इतिहासशास्त्र

पुरालेखी सामग्री, जीवनी तथा संस्मरण सामाचार-पत्र।

मौखिक साक्ष्य, सृजनात्मक साहित्य तथा चित्रकला।

आधुनिक भारतीय इतिहासशास्त्र की समस्याएँ- साम्राज्यवादी, राष्ट्रवादी, मार्क्सवादी तथा मध्यवर्ती।

### **ब्रिटिश शक्ति का उदय**

17वीं और 18वीं शताब्दी में भारत में यूरोपीय व्यापारी पुर्तगाली, डच, फ्रांसीसी तथा ब्रिटिश।

भारत में ब्रिटिश शासन की स्थापना तथा विस्तार।

भारत की प्रमुख शक्तियों के साथ ब्रिटिश संबंध और उनका आधुनिकीकरण- बंगाल, अवध, हैदराबाद, मैसूर, मराठा तथा सिक्ख।

### **कम्पनी तथा राजा (काउन) का प्रशासन**

ईस्ट इंडिया कंपनी के अधीन मध्य तथा प्रांतीय ढांचे का विकास (1773-1853) कम्पनी तथा काउन के अधीन परमोच्च शक्ति, सिविल सेवा, न्यायिक, पुलिस सेवा तथा सेना।

स्थानीय स्वशासन

संवैधानिक परिवर्तन, 1909-1935

### **आर्थिक इतिहास**

व्यापार का बदलता हुआ संगठन, व्यापार का आयाम तथा दिशा, दि ट्रिब्यूट।

कृषि का विस्तार तथा वाणिज्यकरण, भूमि संबंधी अधिकार, भूमि बंदोबस्त, ग्रामीण ऋणग्रस्तता, भूमिहीन मजदूर।

उद्योगों का पतन -कारीगरों की बदलती हुई सामाजिक आर्थिक दशाएं, अशहरीकरण।

औद्योगिक नीति- प्रमुख आधुनिक उद्योग, फैक्टरी कानून का स्वरूप, श्रमिक तथा मजदूर संघ के आंदोलन।

मौद्रिक नीति- बैंकिंग, मुद्रा तथा विनिमय, रेलवे तथा सड़क परिवहन नये शहरी केन्द्रों का विकास, शहर आयोजन तथा वास्तुकला की नई विशेषताएँ।

दुर्भिक्ष तथा महामारी और सरकार की नीति

आर्थिक विचार- इंग्लिश उपयोगितावादी, भारतीय आर्थिक इतिहासकार निकास सिद्धान्त।

### **संक्रमणाधीन भारतीय समाज-**

इसाई धर्म से संपर्क, मिशन भारतीय सामाजिक तथा आर्थिक पद्धतियों एवं धार्मिक विश्वासों की समीक्षा, शैक्षणिक तथा अन्य गतिविधियां।

नई शिक्षा सरकारी नीति, स्तर तथा विषय, अंग्रेजी भाषा, आधुनिक विज्ञान, शिक्षा में भारतीय पहल।

राजाराममोहन राय, सामाजिक धार्मिक सुधार, मध्यम वर्ग का उदय, जाति संघ तथा जाति गतिशीलता।

महिलाओं का प्रश्न- राष्ट्रवादी कथन, महिला संगठन, महिलाओं से संबंधित ब्रिटिश कानून, संवैधानिक स्थिति।

मुद्रणालय (प्रिंटिंग प्रेस)- पत्रकारिता संबंधी गतिविधि तथा जनमत।

भारतीय भाषाओं तथा साहित्यिक रूपों का आधुनिकीकरण, चित्रकला का पुनर्विन्यास, संगीत तथा प्रदर्शन कलाएँ।

### **राष्ट्रीय आंदोलन**

भारतीय राष्ट्रीयता का उदय, राष्ट्रीयता के सामाजिक तथा आर्थिक आधार। 1857 का विद्रोह तथा भिन्न-भिन्न सामाजिक वर्ग जनजातीय तथा किसान आंदोलन। भारतीय राष्ट्रीय कांग्रेस की विचारधारा तथा कार्यक्रम 1885-1920 स्वदेशी आंदोलन का प्रवृत्तियां। भारत तथा विदेश में भारतीय क्रांतिकारियों की विचारधारा एवं कार्यक्रम। वामपंथी राजनीति। दलित वर्ग का आंदोलन। साम्प्रदायी राजनीति तथा पाकिस्तान का उदय। स्वाधीनता तथा विभाजन की ओर।

### **स्वतंत्रोत्तर भारत (1947-1984)**

विभाजन के बाद पुनर्वास

भारतीय राज्यों का एकीकरण: कश्मीर का प्रश्न। भारतीय संविधान का

निर्माण। नौकरशाही तथा पुलिस का ढांचा। जनांकिकीय प्रवृत्तियां आर्थिक नीतियां तथा योजना प्रक्रिया।

राज्यों का भाषा वैज्ञानिक पुनर्गठन। विदेश नीति संबंधी पहल कार्य।

### **इतिहास में अनुसंधान**

इतिहास की अवधारणा, इतिहास के क्षेत्र तथा मूल्य, इतिहास में कार्य कारण संबंध, इतिहास में वस्तुनिष्ठता तथा अभिनति, इतिहास और उसके सहायक विज्ञान,

अनुसंधान का क्षेत्र- प्रस्तावित।

अनुसंधान क्षेत्र में स्रोत- प्राथमिक/द्वितीयक

अनुसंधान के अनुसंधानकारी क्षेत्र में आधुनिक इतिहास लेखन



**SUBJECT: POLITICAL SCIENCE (Ph.D. ENTRANCE TEST)**  
**SECTION I (30 MARKS)**

This section will contain 30 questions with multiple choices to test general awareness, research aptitude, reasoning, basics of computation, logic, data interrelation, presentation, analysis synthesis etc.

**SECTION II (70 MARKS 35 QUESTIONS)**

will contain of 35 questions (multiple choices) to assess the candidates capability of explaining concepts & knowledge from the relevant discipline in which he/she seeks registration as indicated in application form (70 marks)

1. Overview of Indian Political Thought, Genesis and development.
2. The Indian Renaissance- Raja Ram Mohan Roy, Balgangadhar Tilak, Vivekanand.
3. Influences on the Ideas of Mahatma Gandhi.
4. Satya, Dharma, Shanti, Prem, Ahinsa, Asteya, Swadeshi, Roti Ke Liye Shram, Brahmacharya, Savinaya Awagya Andolan.
5. Political ideas of Pandit Jawahar Lal Nehru.
6. Dr. Bhimrao Ambedkar.
7. Political System, Approach and Analysis (David Easton)
8. Why's and where fore's of Marxian approach.
9. Political Elites (View of Pareto, Mosca, Michels, Laswell)
10. Political Socialization (Views of Apter, Almond and Powell)
11. Political Communication (views of Norbert Weiner and Karl Deutsch)
12. Meaning, Nature and Scope of International Politics
13. The concept of Non-Alignment :Bases, Role and Relevance
14. Regional Cooperation SAARC, ASAEAN.
15. Disarmament and Arms Control, CTBT, NPT
16. North –South Dialogue and South, South Dialogue and their major issues
17. Globalization- Meaning, Nature, its advantages and disadvantages, role of the WTO.
18. Evolution of Public “Administration as a discipline.
19. Meaning, Nature and Scope of public administration.
20. New Public Administration -Trends
21. Financial Administration
22. Financial Administration- Importance and Aims
23. Zero base Budgeting and performance budgeting processes, problems and importance.
24. Political Thought of Plato
25. Political Thought of Aristotle
26. Machiavelli, Hobbes, Locke, Rousseau, Montesquieu.
27. Bentham, J.S. Mill, Hegal, Green, Marx

1. भारतीय राजनीतिक विचारों का परिदृश्य, उत्पत्ति तथा विकास
2. भारतीय पुनर्जागरण- राजाराममोहन रॉय, बालगंगाधर तिलक, विवेकानंद
3. महात्मा गांधी के विचारों पर प्रभाव
4. सत्य, धर्म, शांति, प्रेम, अहिंसा, अस्तेय, स्वदेशी, रोटी के लिए श्रम, ब्रह्मचर्य, सविनय अवज्ञा आंदोलन
5. पंडित जवाहरलाल नेहरू के राजनीतिक विचार
6. डॉ. भीमराव आंबेडकर
7. राजनीतिक व्यवस्था, उपागम एवं विश्लेषण (डेविड ईस्टन)
8. मार्क्सवादी उपागम के कारण तथा परिप्रेक्ष्य
9. राजनीतिक अभिजात्य (पेरेटो, मोस्का, मिशेल्लस, लासवेल के विचार)
10. राजनीतिक संचार (एफ्टर, ऑलमंड तथा पॉवेल के विचार)
11. राजनीतिक संचार (नॉर्बर्ट वीमन तथा कार्ल इयूस्ट के विचार)
12. अंतर्राष्ट्रीय राजनीति का अर्थ, प्रकृति तथा विस्तार



13. गुटनिरपेक्षता- आधार, भूमिका तथा महत्व
14. क्षेत्रीय सहभागिता- सार्क, आसियान
15. निःशस्त्रीकरण तथा शस्त्रों पर नियंत्रण- सीटीबीटी, एनपीटी
16. दक्षिण-उत्तर संवाद तथा दक्षिण-दक्षिण संवाद तथा इनके महत्वपूर्ण मुद्दे
17. भूमंडलीकरण- अर्थ, प्रकृति, लाभ, हानियां, डब्ल्यूटीओकी भूमिका।
18. लोक प्रशासन का विकास
19. लोक प्रशासन का अर्थ, प्रकृति एवं विस्तार
20. नवीन लोक प्रशासन- प्रवृत्तियां
21. वित्तीय प्रशासन- महत्व तथा उद्देश्य
22. शून्य आधारित बजट तथा पर्फॉरमेन्स बजट- प्रक्रिया, कठिनाईयां तथा महत्व
23. प्लेटो के राजनीतिक विचार
24. अरस्तू के राजनीतिक विचार
25. मेकियावली, हॉब्स, लोक, रूसो, मांटेस्क्यू
26. बेंथम, जे.एस. मिल, हीगल, ग्रीन, मार्क्स

Constituent Assembly: Composition and working ; Making of the Indian Constitution, Salient features of the Indian constitution

संविधान सभा: गठन एवं कार्य, भारतीय संविधान का निर्माण, भारतीय संविधान की प्रमुख विशेषताएँ

Preamble; Fundamental Rights and Duties; Directive Principles of State Policy, Amendment Procedure

प्रस्तावना, मौलिक अधिकार एवं कर्तव्य, राज्य के नीति निर्देशक तत्व, संविधान संशोधन

Union Executive: President, Prime Minister and Council of Ministers

संघीय कार्यपालिका: राष्ट्रपति, प्रधानमंत्री एवं मंत्रीपरिषद

Union Legislature: Lok Sabha and Rajya Sabh; Union Judiciary: The Supreme Court of India

संघीय व्यवस्थापिका : लोकसभा एवं राज्यसभा, संघीय न्यायपालिका : भारत का सर्वोच्च न्यायालय

State Executive: Governor, Chief Minister and Council of Ministers

राज्य की कार्यपालिका : राज्यपाल, मुख्यमंत्री एवं मंत्री परिषद

State Legislature: Vidhan Sabha and Vidhan Parishad

राज्य की व्यवस्थापिका : विधान सभा एवं विधान परिषद

Judiciary : High Court and Subordinate Courts

राज्य की न्यायपालिका : उच्च न्यायलय एवं अधीनस्थ न्यायालय

Problem Areas

1. Increasing Demand for State Autonomy
2. Demand for the creation of new states
3. State politics in the era of Globalization and coalition politics.
4. Inter state river water disputes
5. Factors influencing state politics in India

समस्या के क्षेत्र

1. राज्य स्वायत्तता की बढ़ती मांग
2. नये राज्यों की गठन की मांग
3. भूमंडलीकरण एवं गठबन्धन की राजनीति के युग में राज्य राजनीति
4. अन्तरराज्यीय नदी जल विवाद
5. भारत में राज्य राजनीति को प्रभावित करने वाले कारक।

Main political issues since 1971 AD.

Nepal- The status of the roots of democracy.

Indo Pak Relation

I. Nature and Evolution of International Organization.

II. The League of Nations: Role in protecting world peace, causes of failure of League of Nations.

III. The United Nations: Structure and Functions, Various organs of the UN Need of reforms in the UN structure. Humanitarian role.

IV. UN's role in Disarmament

- Nature of social Research: Importance and uses, Difference between Pure and applied research, Identification of Research problem, Research Design.
- Hypothesis, Concepts and Variables, Typologies, Hypotheses Formulation and testing, Sampling Methods. Tools and Techniques of Data collection
- Observation: Characteristics of observation, Kinds of observation, Merits and Demerits, Questionnaire, scheduled and interviews.
- Sampling and survey techniques.
- Nature of study : Case study, techniques, Role and importance of case studies, Pilot studies and panel studies.

**Theory Formation in Social Sciences-** Survey Analysis- Types, Merits, Demerits, Report writing- Purpose and contents of a Report.

Origin and Development of International law, Meaning, Nature, scope and sources of International law.

अंतर्राष्ट्रीय कानून : उद्भव एवं विकास, अर्थ, प्रकृति, क्षेत्र एवं स्रोत

Relationship between international law and national law- Codification and Progressive Development of International law

अंतर्राष्ट्रीय कानून एवं राष्ट्रीय कानून के मध्य संबंध, अंतर्राष्ट्रीय कानून का संहिताकरण एवं क्रमिक विकास

Laws of Air, Land and sea warfares, Treatment of Prisoners of War, 1949, Geneva Convention.

हवाई युद्ध, थल युद्ध एवं समुद्री युद्ध के नियम, युद्ध बंदियों के साथ व्यवहार,

जेनेवा सम्मेलन

1. Foreign policy: Meaning, nature and determinants
2. Determinants of Indian Foreign Policy: Internal and external
3. Principles and objectives of Indian Foreign Policy.
1. विदेशनीति : अर्थ, प्रकृति और निर्धारक तत्व
2. भारतीय विदेश नीति के निर्धारक तत्व : आन्तरिक एवं बाह्य
3. भारतीय विदेश नीति के सिद्धांत एवं उद्देश्य

1. Indian and the USA
2. India and Russia
3. India and China
1. भारत और संयुक्त राज्य अमेरिका
2. भारत एवं रूस
3. भारत एवं चीन

1. Nature of Indian Federal System
2. Center State Relations in India : Legislative, Administrative and Financial
1. भारती संघीय व्यवस्था की प्रकृति,
2. केन्द्र राज्य संबंध : विधायी, वित्तीय एवं प्रशासनिक

1. Emerging trends in Indian federal system
2. Development of Local- Self Government after Independence, 73rd and 74th constitutional amendments.
1. भारतीय संघीय व्यवस्था की उभरती प्रवृत्तियाँ,
2. स्वतंत्र भारत में स्थानीय स्वशासन का विकास, 73 एवं 74वाँ संविधान संशोधन

Finance and local self Govt.: Bureaucracy and local self Govt; women's reservation in a Panchayat and its effects. Local autonomy and its importance

स्थानीय स्वशासन एवं वित्त, स्थानीय स्वशासन एवं नौकरशाही, पंचायतों में महिला आरक्षण एवं उसके प्रभाव, स्थानीय स्वायत्तता एवं इसका महत्व

Reorganization of States (1956) and Formation of Bihar, Division of Bihar. Determinants and Characteristics of Bihar Politics, Party System and Main Political Parties in Bihar.

राज्यों का पुनर्गठन (1956) तथा बिहार का निर्माण। मध्य प्रदेश का विभाजन। बिहार की राजनीति के निर्धारक तत्व एवं विशेषताएँ, बिहार की दलीय व्यवस्था एवं राजनीतिक दल।

Administration in Bihar : Secretariat, Chief Secretary, Secretary, Commissioner

बिहार का प्रशासन : सचिवालय, मुख्यसचिव, सचिव तथा आयुक्त। बिहार में जिला प्रशासन: जिलाधीश की भूमिका।

Emerging Trends in Bihar Politics : Politics of Tribal, Politics of Dalits, Naxalite problem, Women and Politics, Electoral Politics and voting Behaviour. Politics of Development in Bihar.

बिहार राजनीति की उभरती प्रवृत्तियाँ : जनजातीय राजनीति, दलित राजनीति, नक्सल समस्या, महिलाएं और राजनीति। निर्वाचन की राजनीति एवं मतदान व्यवहार। बिहार में विकास की राजनीति।

Meaning & Objectives of Diplomacy, Relation of Diplomacy with International Relations, Foreign Policy and International law. Historical evolution of diplomatic theory, methods and techniques upto present day. Limitations of Diplomacy.

राजनय: अर्थ एवं उद्देश्य, राजनय एवं अन्तर्राष्ट्रीय संबंध, विदेशनीति एवं अन्तर्राष्ट्रीय कानून राजनयिक सिद्धांत का ऐतिहासिक विकास, राजनय की प्रवृत्तियाँ एवं तकनीक। राजनय की सीमाएं।

Types of Diplomacy, Functions & Duties of a diplomat, Diplomatic procedure, Diplomatic Language.

राजनय के प्रकार, राजनयिक के कार्य एवं कर्तव्य, राजनयिक प्रक्रिया, राजनयिक भाषा।

Meaning and nature of Human Rights, Origin of development of concept of Human Rights. Human Rights : Global and regional scenario. UNO and Human rights, Provisions in UN charter- Universal Declaration of Human Rights.

मानव अधिकार का अर्थ एवं प्रकृति।

मानव अधिकार की अवधारणा की उत्पत्ति एवं विकास, मानवाधिकार- वैश्विक एवं क्षेत्रीय परिदृश्य। संयुक्त राष्ट्र घोषणा पत्र में मानवाधिकारों के प्रावधान। मानवाधिकारों का सार्वभौमिक घोषणा (विश्वव्यापी)

International protection of Human Rights : Civic, Political, Social and Economic Rights, Collective Rights. Basis of self decisions, Problems and solutions.

मानवाधिकारों का अन्तर्राष्ट्रीय संरक्षण, नागरिक, राजनीतिक, सामाजिक एवं आर्थिक अधिकार सामूहिक अधिकार आत्म निर्णय का आधार, समस्याएँ एवं समाधान।

**SUBJECT: HINDI (Ph.D. ENTRANCE TEST)**  
**SECTION I (30 MARKS)**

This section will contain 30 questions with multiple choices to test general awareness, research aptitude, reasoning, basics of computation, logic, data interrelation, presentation, analysis synthesis etc.

**SECTION II (70 MARKS 35 QUESTIONS)**

will contain of 35 questions (multiple choices) to assess the candidates capability of explaining concepts & knowledge from the relevant discipline in which he/she seeks registration as indicated in application form (70 marks)

**1. हिन्दी भाषा का विकास एवं भाषा विज्ञान**

अपभ्रंश (अवहट्ट सहित) और पुरानी 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 विवरण (रूपगत), हिन्दी की बोलियाँ- वर्गीकरण तथा क्षेत्र, देवनागरी लिपि का विकास और उसका मानककीकरण।

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 का भाषिक स्वरूप: हिन्दी की स्वनिम व्यवस्था- खंड्य, खंड्येत्तर। हिन्दी शब्द रचना-उपसर्ग, प्रत्यय, समास। रूपरचना-लिंग, वचन और कारक व्यवस्था के संदर्भ में हिन्दी के संज्ञा, सर्वनाम, विशेषण और क्रियारूप। हिन्दी वाक्य-संरचना, पदक्रम और अन्विति।

**2. हिन्दी साहित्य का इतिहास**

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

हिन्दी साहित्य के प्रमुख इतिहास ग्रन्थ, हिन्दी के प्रमुख साहित्यिक केन्द्र, संस्थाएँ एवं पत्र-पत्रिकाएँ, 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, अमीर खुसरो की हिन्दी कविता, विद्यापति और उनकी पदावली, आरम्भिक गद्य तथा लौकिक साहित्य।

**मध्यकाल:** भक्ति-आन्दोलन के उदय के सामाजिक-सांस्कृतिक कारण, प्रमुख निर्गुण एवं सगुण सम्प्रदाय, वैष्णव भक्ति की सामाजिक-सांस्कृतिक पृष्ठभूमि, आलवार सन्त, प्रमुख सम्प्रदाय और आचार्य, भक्ति आन्दोलन का अखिल भारतीय स्वरूप और उसका अन्तःप्रादेशिक वैशिष्ट्य।

**हिन्दी सन्त काव्य :** सन्त काव्य का वैचारिक आधार, प्रमुख निर्गुण सन्त कवि कबीर, नानक, दादू, रैदास, सन्त काव्य की प्रमुख विशेषताएँ, भारतीय धर्म साधना में सन्त कवियों का स्थान।

**हिन्दी सूफी काव्य :** सूफी काव्य का वैचारिक आधार, हिन्दी के प्रमुख सूफी कवि और काव्य- मुल्ला दाऊद (चन्दयान), कुतुबन (मिरगावती), मंझन (मधुमालती) मलिक मुहम्मद जायसी (पद्मावत), सूफी प्रेमाख्यानकों का स्वरूप, हिन्दी सूफी काव्य की प्रमुख विशेषताएँ।

**हिन्दी कृष्ण काव्य :** विविध सम्प्रदाय, वल्लभ सम्प्रदाय, अष्टछाप, प्रमुख कृष्ण-भक्त कवि और काव्य, सूरदास (सूरसागर), नन्ददास (रास पंचाध्यायी), भ्रमरगीत परम्परा, गीति परम्परा और

हिन्दी कृष्ण काव्य- मीरा और रसखान।

**हिन्दी राम काव्य :** विविध सम्प्रदाय, रामभक्ति शाखा के कवि आरै काव्य, तुलसीदास की प्रमुख कृतियाँ, काव्य रूप और उनका महत्व।

**रीति काल** : सामाजिक-सांस्कृतिक परिप्रेक्ष्य, रीतिकाव्य के मूल स्रोत, रीतिकाल की प्रमुख प्रवृत्तियाँ, रीतिकालीन कवियों का आचार्यत्व, रीतिमुक्त काव्यधारा, रीतिकाल के प्रमुख कवि : केशवदास, मतिराम, भूषण, बिहारीलाल, देव, घनानन्द और पद्माकर, रीतिकाव्य में लोकजीवन।

**आधुनिक काल** : हिन्दी गद्य का उद्भव और विकास।

भारतेन्दु पूर्व हिन्दी गद्य, 1857 की राज्य क्रान्ति और सांस्कृतिक पुनर्जागरण, भारतेन्दु और उनका मण्डल, 19वीं शताब्दी के उत्तरार्द्ध की हिन्दी पत्रकारिता।

**द्विवेदी युग** : महावीर प्रसाद द्विवेदी और उनका युग, हिन्दी नवजागरण और सरस्वती,

मैथिलीशरण गुप्त और राष्ट्रीय काव्यधारा, राष्ट्रीय काव्यधारा के प्रमुख कवि, स्वच्छन्दतावाद और उसके प्रमुख कवि।

**छायावाद और उसके बाद** : छायावादी काव्य की प्रमुख विशेषताएँ, छायावाद के प्रमुख कवि : प्रसाद, निराला, पन्त और महादेवी, उत्तर छायावादी काव्य और उसके प्रमुख कवि, प्रगतिशील काव्य और उसके प्रमुख कवि, प्रयोगवाद और नई कविता, नई कविता के कवि, समकालीन कविता, समकालीन साहित्यिक पत्रकारिता।

### 3. हिन्दी साहित्य की गद्य विधाएँ

**हिन्दी उपन्यास** : प्रेमचन्द पूर्व उपन्यास, प्रेमचन्द और उनका युग, प्रेमचन्द के परवर्ती प्रमुख उपन्यासकार : जैनेन्द्र, अज्ञेय, हजारी प्रसाद द्विवेदी, यशपाल, अमृतलाल नागर, फणीश्वरनाथ रेणु, भीष्म साहनी, कृष्णा सोबती, निर्मल वर्मा, नरेश मेहता, श्रीलाल शुक्ल, राही मासूम रजा, रांगेय राघव, मन्मू भण्डारी।

**हिन्दी कहानी** : बीसवीं सदी की हिन्दी कहानी और प्रमुख कहानी आन्दोलन।

**हिन्दी नाटक** : हिन्दी नाटक और रंगमंच, विकास के चरण और प्रमुख नाट्यकृतियाँ : अंधेर नगरी, चन्द्रगुप्त, अंधायुग, आधे-अधूरे, आठवां सर्ग, हिन्दी एकांकी।

**हिन्दी निबन्ध** : हिन्दी निबन्ध के प्रकार और प्रमुख निबन्धकार - रामचन्द्र शुक्ल, हजारी प्रसाद द्विवेदी, कुबेरनाथ राय, विद्यानिवास मिश्र, हरिशंकर परसाई।

**हिन्दी आलोचना** : हिन्दी आलोचना का विकास एवं प्रमुख आलोचक - रामचन्द्र शुक्ल, नन्ददुलारे वाजपेयी, हजारी प्रसाद द्विवेदी, रामविलास शर्मा, डॉ. नगेन्द्र, डॉ. नामवर सिंह, विजयदेव नारायण साही।

**हिन्दी की अन्य गद्य विधाएँ** : रेखाचित्र, संस्मरण, यात्रा-साहित्य, आत्मकथा, जीवनी और रिपोर्टाज।

### 4. भारतीय एवं पाश्चात्य काव्यशास्त्र तथा हिन्दी आलोचना

काव्य लक्षण, काव्य हेतु और काव्य प्रयोजन। प्रमुख सिद्धान्त : रस, अलंकार, रीति, ध्वनि, वक्रोक्ति और औचित्य- सामान्य परिचय। भरत मुनि का रस सूत्र और उसके प्रमुख व्याख्याकार।

रस के अवयव, स्वरूप।

साधारणीकरण एवं सहृदय की अवधारणा।

शब्द शक्तियाँ और ध्वनि का स्वरूप।

अलंकार - यमक, श्लेष, वक्रोक्ति, उपमा, रूपक, उत्प्रेक्षा, संदेह, भ्रान्तिमान, अतिशयोक्ति, अन्योक्ति, समासोक्ति, अत्युक्ति, विशेषोक्ति, दृष्टान्त, उदाहरण, प्रतिवस्तूपमा, निदर्शना, अर्थान्तरन्यास, विभावना, असंगति तथा विरोधाभास।

रीति, गुण, दोष।

प्लेटो और अरस्तू का अनुकरण सिद्धान्त तथा अरस्तू का विरेचन सिद्धान्त।

वर्गसवर्थ का काव्य-भाषा सिद्धान्त।

कालरिज कल्पना और फैन्टसी।

आई.ए. रिचर्ड्स - मूल्य सिद्धान्त तथा काव्य-भाषा सिद्धान्त।

टी.एस. इलियट - निर्वैयक्तिकता का सिद्धान्त, वस्तुनिष्ठ सह-सम्बन्धी, परम्परा की अवधारणा।

मिथक, फन्तासी, कल्पना, प्रतीक और बिम्ब।

स्वच्छन्दतावाद और यथार्थवाद, संरचनावाद, उत्तर संरचनावाद, आधुनिकता, उत्तर आधुनिकता। समकालीन आलोचना की कतिपय अवधारणाएँ : विडम्बना (आयरनी), अजनबीपन (एलियनेशन), विसंगति (एब्सर्ड), अन्तर्विरोध (पैराडॉक्स), विखण्डन (डीकन्स्ट्रक्शन)।

हिन्दी आलोचना - रामचन्द्र शुक्ल और उनके आलोचनात्मक प्रतिमान।

शुक्लोत्तर समीक्षा और समीक्षक - हजारी प्रसाद द्विवेदी, नन्ददुलारे वाजपेयी, डॉ रामविलास शर्मा, डॉ. नामवर सिंह, विजयदेव नारायण साही, समकालीन आलोचना।

## 5. प्रयोजन मूलक हिन्दी

**अनुवाद विज्ञान** : अनुवाद का स्वरूप, क्षेत्र, प्रक्रिया एवं प्रविधि। हिन्दी की प्रयोजनीयता में अनुवाद की भूमिका।

**मीडिया लेखन** : जनसंचार प्रौद्योगिकी एवं चुनौतियाँ, विभिन्न जनसंचार माध्यमों का स्वरूप- मुद्रण, श्रव्य, दृश्य-श्रव्य, इण्टरनेट।

**दृश्य-श्रव्य माध्यम** : (फिल्म, टेलीविजन एवं वीडियो) दृश्य माध्यमों में भाषा की प्रकृति। दृश्य एवं श्रव्य सामग्री का सामंजस्य पार्श्व वाचन (वायस ओवर) पटकथा लेखन।

**हिन्दी कम्प्यूटिंग** : कम्प्यूटर : परिचय, रूपरेखा, उपयोग तथा क्षेत्र, वेब पब्लिशिंग का परिचय।

**पत्रकारिता** : स्वरूप एवं प्रकार, हिन्दी पत्रकारिता का संक्षिप्त इतिहास, शीर्षक की संरचना, लीड इंट्रो एवं शीर्षक-संपादन, संपादन के आधारभूत तत्व।

**SUBJECT: ENGLISH (Ph.D. ENTRANCE TEST)**  
**SECTION I (30 MARKS)**

This section will contain 30 questions with multiple choices to test general awareness, research aptitude, reasoning, basics of computation, logic, data interrelation, presentation, analysis synthesis etc.

**SECTION II (70 MARKS 35 QUESTIONS)**

will contain of 35 questions (multiple choices) to assess the candidates capability of explaining concepts & knowledge from the relevant discipline in which he/she seeks registration as indicated in application form (70 marks)

The paper will cover the study of English literature from Shakespeare to 1950. A first hand reading of the prescribed texts and critical ability is required to be tested.

**I Literary Forms**

Poetry : Lyric, Ode, Sonnet, Elegy, Satire, Epic  
Drama : Tragedy, Comedy, Farce, Melodrama, One Act Play, Masque

**II William Shakespeare** : General Questions on the writer and a critical study of the following works Hamlet, The Tempest

**III A critical study of the following poets with reference of the poems shown against each of them Poetry**

Milton : Sonnets  
Pope : Essay of Man  
Johnson : The Vanity of Human Wishes  
Wordsworth : Tintern Abbey. Immortality Ode  
Keats : Odes  
Tennyson : Ulysses

**IV The works of the following novelists with special reference to the novels mentioned against each.**

Dickens : Oliver Twist  
Thomas Hardy : Tess of the D'urbervilles Poetics  
Aristotle : Poesie  
Longinus : On the Sublime  
Dryden : Essay on Dramatic Poesie  
Arnold : The Study of Poetry

**V (a) A critical study of the 20th century writers and their works.**

E.M. Forster : A Passage to India  
D.H. Lawrence : Sons and Lovers  
G.B. Shaw : Saint Joan  
W.B. Yeats : Byzantium, The Second Coming, A Prayer to My Daughter  
T.S. Eliot : The Waste Land

**V (b) American Literature**

Emerson : The American Scholar  
Thoreau : Civil Disobedience  
Hawthorne : The Scarlet Letter  
Eugene O'Neill : The Hairy Ape.

**RECOMMENDED BOOKS:-**

1. A History of English Literature - Arthur Compton-Rickett.
2. American Literature - Meenakshi Raman
3. English Language Literature - P.D. Wadgaunkar

**SUBJECT: SOCIOLOGY (Ph.D. ENTRANCE TEST)**  
**SECTION I (30 MARKS)**

This section will contain 30 questions with multiple choices to test general awareness, research aptitude, reasoning, basics of computation, logic, data interrelation, presentation, analysis synthesis etc.

**SECTION II (70 MARKS 35 QUESTIONS)**

will contain of 35 questions (multiple choices) to assess the candidates capability of explaining concepts & knowledge from the relevant discipline in which he/she seeks registration as indicated in application form (70 marks)

1. **Nature of Sociology:** Definition, Basic Concept, Community, Institution, Culture, Social Structure, Structure and Role Their Interrelationship, Social Group.
2. **Social Institution :** Marriage, Family, Education, religion, Socialization, Theories of Socialization
3. **Social Stratification:** Social Differentiation, Forms of Stratification, Caste, Class, Gender, social mobility, Social Change
4. **Structural:** Radcliffe Brown, Levi Straus Functional- Durkheim, Malinowski, parsons, Interactionist - Social action, Max Weber , Pareto Bulmer Conflict - Karl Marx , Dahrendorf
5. **The Challenges of Globalization:** Globalization and Social Development, Globalization and Woman's Development
6. **Meaning and Nature of Social Research:** The scientific methods , the Problem of the Study of Social Phenomena, Objectivity and Subjectivity Fact & value , Quantitative Methods - Survey , Research Design & its types , Techniques of Data Collection
7. **Qualitative Methods:** Statistics in Social Research, Measures of Central Tendency - Mean Median Mode, etc

**REFERENCE BOOKS -**

- 1 Advanced Sociology - Manahan & Manahan
- 2 Elements of Social Research - Baghel & Pandey
- 3 Development of Sociology - G.R. Mohan
- 4 Sociology Thinkers - RavindraNath Mukharji
- 5 Indian Society - R.V. Badi, N.V. Badi
- 6 Social change in modern India - M.N. Srinivas
- 7 Social Change - William F. Ogburn
- 8 The Concept of Sociology - Farley E Eubank



**SUBJECT: ECONOMICS (Ph.D. ENTRANCE TEST)**  
**SECTION I (30 MARKS)**

This section will contain 30 questions with multiple choices to test general awareness, research aptitude, reasoning, basics of computation, logic, data interrelation, presentation, analysis synthesis etc.

**SECTION II (70 MARKS 35 QUESTIONS)**

will contain of 35 questions (multiple choices) to assess the candidates capability of explaining concepts & knowledge from the relevant discipline in which he/she seeks registration as indicated in application form (70 marks)

1. **Economic Systems** - Capitalism, Socialism and mixed economy.
2. **National Income** -Concept and measurement
3. **Consumer behaviour** - Law of demand , Elasticity of demand, utility analysis and indifference -curve techniques
4. **Producer's behaviour** - Production Function, Laws of Returns, Returns, of Scale cost curves
5. **Price Theory** - Price determination under different market condition, pricing of factors of production Keynesian and Modern theory of employment Banking objective and instruments of Central Banking , credit policies in a planned developing economy
6. **Types and principles of taxation.** Principles of Public expenditure, objective and instruments of budgetary and fiscal policy in a planned developing economy
7. **International trade**-Theory and policy of international trade , determination of exchange rates ,balance of payment
8. **International Monetary institutions** - I. B.R.D. and I.M.F. Characteristics of under developed economy, human and natural resources, primary,secondary and tertiary sectors in India, mixed economy in India
9. **Agricultural development**- Agricultural Policy. land reforms Green Revolution and its aftermath
10. **Industrial development** - Industrial Policy, Public. and private sectors, Regional distribution of Industries in India Pricing policies for agricultural and industrial outputs. Fiscal and monetary policy in India - Objectives, recent budgetary trends, bank nationalization in India. Reserve Bank and monetary policy in India Recent trends in India's foreign trade and balance of payments
11. **Indian Planning** - Objectives and strategies, planned growth and distributive justice eradication of poverty, problems of Indian planning.

**BASIC READING LIST:**

1. Stigler G. (1996) Theory of Price, 4th Edition, Prentice Hall of India, New Delhi.
2. Sen A. (1999) Microeconomics: Theory and Application, Oxford University Press, New Delhi.
3. Kreps David M. (1990), A Course in Microeconomic Theory, Princeton University Press, Princeton.
4. Samuelson, P.A. and W.O. Nordhaus (1998), Economics, 16th Edition, Tata McGraw Hill, New Delhi.
5. Varian H. (2000) Microeconomic Analysis, W.W Norton New York.
6. Michale Perkin (1996) Economics, 3rd Edition, Addison Westey Publishing company, Inc. U.S.A.
7. Koutsoyiannis, A. (1979), Modern Microeconomics, 2nd edition Macmillan Press, London.
8. Layard, P.R.G. and A.W. Walters (1978) Microeconomic Theory, McGraw Hill, New York.
9. Ahuja H.L. (2003) Advanced Economic theory : Microeconomic Analysis, 13th Edition, S.Chand and Co. Ltd. New Delhi.
10. Richard A. Musgrave (1989), Public Finance in Theory and Practice McGraw Hill Book Company, New York.

11. Buchaman J.M. (1970), The Public Finances, Richard D.Irwin, Homewood.
12. Jha H. (1998), Modern Public Economics, Routledge, London.
13. Singh S.K. (1986) Public Finance in Developed and Developing Countries, S.Chand and Company Ltd, New Delhi.
14. Chelliah R.J. (1971), Fiscal Policy in Underdeveloped Countries.
15. Hemlata Rao (2006) Fiscal Federalism -Issues and Policies, New Country Publications, New Delhi.
16. Atkinson A.B. and J.E. Siglitz (1980). Lectures on Public Economics, Tata MacGraw Hill, New Delhi.
17. Comes R. and T.Sandler (1986) The theory of Externalities, Public Goods and Club Goods, Cambridge University Press, Cambridge.
18. Duff L. (1997), Government and Market, Orient Longman, New Delhi.
19. Friedman A. (1986), Welfare Economics and Social Choice Theory, Martins Nighoff, Boston. Topic: 2 & 3
20. Bird R. And O.Aidman (1967) Reading on Taxation in Developing Countries, The John Hopkins University.

**SUBJECT: SOCIAL WORK (Ph.D. ENTRANCE TEST)**  
**SECTION I (30 MARKS)**

This section will contain 30 questions with multiple choices to test general awareness, research aptitude, reasoning, basics of computation, logic, data interrelation, presentation, analysis synthesis etc.

**SECTION II (70 MARKS 35 QUESTIONS)**

will contain of 35 questions (multiple choices) to assess the candidates capability of explaining concepts & knowledge from the relevant discipline in which he/she seeks registration as indicated in application form (70 marks)

**Evolution of Social Work Profession:** Impact of Social Reform Movements: Factors that influenced the emergence of method approach in Social Work Practice; Social Work profession and Human Rights.

**Social Work Education:** Content, Training, Supervision, Problems and Challenges. Meaning and Characteristics of Society, Community, Social Group and Social Institution; Social Structure and Social Stratification; theories of Social change and Social Disorganisation.

**Concept and Causative Factors of Indian Social Problems-** Analysis. Intervention in Social Problems — Government and Voluntary Efforts at Micro- and Micro- levels. Role of the Social Workers in identifying social problems and development of appropriate strategies.

**Study of Group Process -** Group Dynamics, Member's behavior, leadership and Role of the Worker in various settings.

**Community organization as a Para-political process-** Networking, conscientisation, planning and organizing, roles and strategies of social movements- types and role of NGOs.

**Social Policy-** Concept and Scope, Distinction between Social and Economic Policies, Place of Ideology and Values.

**Concept of Social Justice-** Its relationship with Social Legislation: Civil Rights; Human Rights; and Issues of Social Justice. Global Efforts for human Development Concept of Sustainable Development. Social Work and social Development. Problem of Social Development in India.

**SUGGESTED READINGS:**

1. An introduction to Social Work- Beatly J. Piccard
2. History and Philosophy of Social Work in India- Prof A.R.Wadia
3. Social Group Work: Principles and Practice- H.B.Treker
4. Community Organization- Dr(Prof.) Banmala
5. Organization of Social Welfare — A.S. Kohli & S.R. Sharma
6. Social Problems in India- Ram Anuja
7. Social Justice and Development of Weaker Section- Bindheswar Pathak

**SUBJECT: LIBRARY AND INFORMATION SCIENCE**  
**(Ph.D. ENTRANCE TEST)**  
**SECTION I (30 MARKS)**

This section will contain 30 questions with multiple choices to test general awareness, research aptitude, reasoning, basics of computation, logic, data interrelation, presentation, analysis synthesis etc.

**SECTION II (70 MARKS 35 QUESTIONS)**

will contain of 35 questions (multiple choices) to assess the candidates capability of explaining concepts & knowledge from the relevant discipline in which he/she seeks registration as indicated in application form (70 marks)

Information, Information Science Information Society. Information Transfer Cycle. Intellectual Property Right - Concept, Copyright, Censorship .Law of Library Science ,Resource Sharing and Networking Library Movement and Library Legislation in India Library Association in India and UK, Library Association at International Level - FID, IFLA, UESCO. Sources of Information - Primary, Secondary and Tertiary Biographical Sources, Reference Sources . E- Documents, E- Journals, E-Books. Databases-Bibliographic and Full Text Reference and information Services. Indexing and Abstracting Services, CAS, SDI .Online Services. Reprographic Services . Library Classification - Canons and Principles. Library Classification Schemes CC and DDC. Library Cataloguing - Canons and Principles. Library Cataloguing Codes CCC and AACR-11 .indexing - Pre-Coordinate and Post-Coordinate .Management - Principles Function School of Thought Planning Organization Structure .Collection Development .Human Resources Management .Financial Management .Total Quality Management TQM Information Technology- Components Impact of IT on Society Telecommunication .Networking .ISDN. Library Automation .Library Networks .National and International Information Systems .Types of Libraries Digital Libraries .Virtual Libraries. Role of UGC in the growth and development of libraries and Information Center.

**REFERENCE BOOKS**

1. Classification , Krishan Kumar, Ess Publication
2. Descriptive Question NET/SLET ,SM Tripathi, Ess Publication
3. Cataloging , SS Agrawal, Hindi Gtanth Acadmi Bhopal
4. Pralekhan Aum Suchana Vigyan , SP Sood RB Publication Jaipur
5. Library Automation, A R. Nai Ess Publication
6. Library Management, Saxena Suchana aum Sandrabh Sava Ke Nven Ayam , S M Trapathi Ess Publication

**SUBJECT: BOTANY (Ph.D. ENTRANCE TEST)**  
**SECTION I (30 MARKS)**

This section will contain 30 questions with multiple choices to test general awareness, research aptitude, reasoning, basics of computation, logic, data interrelation, presentation, analysis synthesis etc.

**SECTION II (70 MARKS 35 QUESTIONS)**

will contain of 35 questions (multiple choices) to assess the candidates capability of explaining concepts & knowledge from the relevant discipline in which he/she seeks registration as indicated in application form (70 marks)

1. **Microbiology** - Viruses and Bacteria Structure, classification and reproduction. General Account of infection, immunity and serology: Microbes in industry and agriculture.
2. **Pathology** - Knowledge of important plant disease in India caused by fungi. Modes of infection and methods of control.
3. **Plant Groups** - Structure, reproduction, life- history, classification, evolution, ecology and economic importance of algae, fungi, bryophytes, pteridophytes and gymnosperms.
4. **Morphology, anatomy and embryology of Angiosperms** - Tissues and tissue systems. Morphology and anatomy of stem, root and leaf (including development aspects and anomalous growth), Morphology of flower Structure of anther and ovule, fertilization and Development of seed.
5. **Taxonomy** - Principles of nomenclature and classification of angiosperms. Modern trends in Taxonomy. A general knowledge of the more important families of angiosperms.
6. **Cell Biology** - Cell as unit of structure and functions. Ultra structure function and interrelationships of plasma membranes endoplasmic reticulum, mitochondria, ribosomes chloroplasts and nucleus, Chromosomes- chemical and physical nature behaviour during mitosis and meiosis.
7. **Genetics and Evolution** - Mendelian concept of genetics. Development of the gene concept Nucleic acids their structure and role in reproduction and protein synthesis. Genetic code and regulation. Mechanism of microbial recombination. Organic evolution evidences, mechanism and theories.
8. **Physiology** - Photosynthesis history, factors, mechanism and importance. Absorption and conduction of water and salts. Transpiration, Major and minor essential elements and their role in nutrition, Nitrogen fixation and nitrate reduction Enzymes, Respiration and fermentation. General account of growth. Plant hormones and their functions. Photoperiodism. Seed dormancy and germination.
9. **Ecology** - Scope of ecology, structure, function and dynamics of ecosystems, Plant communities and succession. Ecological factors. Applied aspects of ecology including conservation and control of pollution.
10. **Economic Botany** - General account of important sources of food fiber, wood and drugs.

**SUGGESTED READING MATERIAL:**

1. Basra, K.S. & Basra, R.K. 1997. Mechanisms of environmental stress resistance in plants, Hartwood Academic Publishers, The Netherlands.
2. Chopra, V.L. & Pagoda, R.S. 1988. Approaches for incorporating drought and salinity resistance in crop plants, Oxford & IBH Publishing Co. Pvt. Ltd., ND
3. Gupta, U.S. 1985. Physiological aspects of dry land farming, Oxford & IBH
4. Journal of Bioscience, Special issue' Cellular Stress Response, 1998 23(4):Oct. The Indian Academy of Sciences, Bangalore

5. Kramer, P.J. 1983. Water relations of plants, Academic Press Inc., NY
6. Levitt, 1972, 1980.
7. Nilsen, L. & Orcutt, 1998. Physiology of plants under stress :Abiotic factors Orcutt
8. Paleg, L.G. & Aspinall, D. 1981. Physiology and biochemistry of drought resistance in plants, Academic Press, NY.
9. Singh, Randhir & Sawhney, S.K. 1988. Advances in frontier areas of plant biochemistry, Prentice-Hall of India Pvt, Ltd., New Delhi

**SUBJECT: ZOOLOGY (Ph.D. ENTRANCE TEST)**  
**SECTION I (30 MARKS)**

This section will contain 30 questions with multiple choices to test general awareness, research aptitude, reasoning, basics of computation, logic, data interrelation, presentation, analysis synthesis etc.

**SECTION II (70 MARKS 35 QUESTIONS)**

will contain of 35 questions (multiple choices) to assess the candidates capability of explaining concepts & knowledge from the relevant discipline in which he/she seeks registration as indicated in application form (70 marks)

1. **Non-Chordata and Chordata** : A general survey, classification and relationship of the various phyla. Protozoa : Study of the structure, bionomics and life history of Paramecium, Monocystic, malarial parasite, Trypanosoma. Protozoa & disease. Perifera : Sycon. Coelenterate : Structure and life history of Obelia and Aurelia. Sea anemones, Corals, Aplysion. Helminths, Structure and life history of planaria. Fasciola. Taenia. Ascaris, Medical importance of Nematodes. Annelida, Neries, earthworm and leech. Arthropoda, Palaemon, Scorpion, Cockroach, Mollusca. Unio and Pila, Pearl Formation Modifications of nervous system. Echinodermata, Asterias and its larva. General organisation and characters, outline classification and inter-relationship of proto-chordata. Pisces, Amphibia, Reptilia, Aves and Mammalia. Neoteny and retrogressive metamorphosis. A general study of comparative account of the various systems of vertebrates. Locomotion and respiration in fishes, structure and affinities of Dipnoi. Structural peculiarities of Amphibia. Poisonous and non-poisonous snakes of India, Aerial adaptations of birds. Structural peculiarities and affinities distribution relation of prototheria and Metatheria
2. **Ecology and Economic Zoology**: Environment: Abiotic factors and their role; Biotic factors -Inter and Intra-specific relations. Ecosystem, Biogeo-Chemical cycles. Adaptation in fresh water, marine and terrestrial habitats. Pollution in air, water and land. Wild life in India and its conservation.
3. **Economic Zoology**: Parasitism, Commensalism and Host parasite relationship. Parasitic protozoan's and helminthes of man. Beneficial and harmful insects.
4. **Cell Biology** -Structure and function of cell and cytoplasmic constituents : structure of nucleus, plasma membrane, mitochondria, Golgi-bodies, endoplasmic reticulum and ribosome's, cell division, mitosis and meiosis. Gene structure and function: Watson-Crick models of DNA, sex-chromosomes and sex-determination.
5. **Genetics** - Mendelian laws of inheritance, linkage and crossing over, mutation and evolution, cytoplasmic inheritance genes and diseases.
6. **Evolution and Systematics** - Origin of life, History of evolutionary thought. Lamarck and his works, Darwin and his works, Sources and nature of organic variation. Natural selection, Isolation. Concept of species and sub-species, principles of classification, zoological nomenclature and international code. Fossils, geological eras, distribution of animal's zoogeographical realms of the world.
7. **Biochemistry** -Structure of carbohydrates, lipids, amino-acids, proteins and nucleic acids, glycolysis and Krebs cycle, oxidation and reduction. Oxidative phosphorylation, energy conservation and release, ATP, cholesterol. Enzymes and coenzymes, Hormones and their functions.
8. **Physiology with special reference to mammals**: Composition of blood, blood groups in man, coagulation, oxygen and carbon dioxide transport, nephron and urine formation, mechanism of conduction along axon and across synapse, neurotransmitters, Vision, Hearing and other receptors, mechanism of contraction of skeletal muscle, role of salivary gland, liver, pancreas and intestinal glands indigestion. Absorption of digested food, roles of pituitary, thyroid, parathyroid, pancreas, adrenal testis, ovary and pineal body.

- 9. Embryology:** Gametogenesis, fertilization, types of eggs, cleavage, development up to gastrulation in Branchiostoma, frog and chick, Metamorphosis in frog; Formation and fate of extra embryonic membranes in chick; formation of amnion, allantois and classification of placenta in mammals, function, of placenta in mammals.

**SUGGESTED READING MATERIAL:**

1. M. Kato. The Biology of Biodiversity, Springer.
2. J.C. Avise. Molecular Markers. Natural History and Evolution, Chapman & Hall, New York.
3. E.O. Wilson. Biodiversity, Academic Press, Washington.
4. G.G. Simpson. Principle of Animal Taxonomy. Oxford IBH Pub.Co.
5. E. Mayer. Elements of Taxonomy.
6. E.O. Wilson. The Diversity of Life (The College Edition), W.W.Northern & Co.
7. B.K. Tikadar. Threatened Animals of India, ZSI Publication, Calcutta.
8. Jorgensen, SE., Fundamentals of Ecological Modelling, Elsevier New York.