

Ph.D course work
BIOCHEMISTRY SYLLABUS

UNIT 1

Carbohydrates

Classification: Monosaccharides, disaccharides, oligosaccharides, and polysaccharides.

Structure & Stereochemistry: D & L designation, ring structure (Haworth formula), epimers, anomers, and mutarotation. Functions, Structure and biological importance of cellulose, chitin, agar, glycogen, and starch.

Lipids

Classification & Fatty Acids: Saturated and unsaturated fatty acids, essential fatty acids.

Types: Triacylglycerols (fats and oils), phospholipids, sphingolipids, glycolipids, and sterols (cholesterol). Properties: Hydrolysis, saponification, halogenation, and rancidity of fats.

UNIT 2

Amino Acids and Peptides

Structure & Classification: Standard and non-standard amino acids, classification based on polarity and charge.

Properties: Acid-base properties, Zwitter ion, isoelectric pH (pI), and titration curves.

Peptides: Peptide bond structure and characterization (Glutathione).

Nucleic Acids

Components: Structure of purine and pyrimidine bases, nucleosides, and nucleotides.

DNA Structure: Watson-Crick model, forms of DNA (A, B, Z), and denaturation/annealing.

RNA Types: Structure and functions of mRNA, tRNA, and rRNA

UNIT 3

Techniques in Molecular Biology: Identification and characterization of DNA, RNA, Plasmids. Agarose Gel Electrophoresis. Ethidium bromide staining. Southern, Northern, Western blotting. RAPD, RFLP. Sequencing. RTPCR, Cloning, Library construction.

UNIT 4

Research Techniques: Enzyme assay, Enzyme activity and specific activity determination. Cell disintegration and extraction techniques, separation of proteins by fractionation (Ammonium sulphate, Organic solvents). Ion exchange chromatography. Molecular sieve chromatography. Affinity Chromatography, Paper chromatography, Thin layer chromatography, Ultra filtration, Ultra centrifugation, Gel electrophoresis, Iso electric focusing and Immuno-electrophoresis.



Syllabus for Commerce

Unit I: Business Environment

- Overview of Business Environment
- Economic Environment: Micro and Macro Economics
- Legal Environment: Business Laws and Regulations
- Political and Social Environment
- Technological Environment and its Impact on Business
- Global Business Environment and Trade

यूनिट 1: व्यवसायिक पर्यावरण

- व्यवसायिक पर्यावरणका अवलोकन
- आर्थिक पर्यावरण: सूक्ष्म और व्यापक अर्थशास्त्र
- कानूनी पर्यावरण: व्यापार कानून और विनियम
- राजनीतिक और सामाजिक पर्यावरण
- प्रौद्योगिकी पर्यावरण और इसका व्यवसाय पर प्रभाव
- वैश्विक व्यवसाय पर्यावरण और व्यापार

Unit 2: Accounting and Financial Management

- Fundamentals of Financial Accounting
- Managerial Accounting and Decision Making
- Financial Management Principles
- Investment Analysis and Portfolio Management
- International Financial Management
- Ethical Issues in Accounting and Finance

यूनिट 2: लेखा और वित्तीय प्रबंधन

- वित्तीय लेखा के मूल सिद्धांत
- प्रबंधकीय लेखा और निर्णय लेना
- वित्तीय प्रबंधन के सिद्धांत
- निवेश विश्लेषण और पोर्टफोलियो प्रबंधन
- अंतरराष्ट्रीय वित्तीय प्रबंधन
- लेखा और वित्त में नैतिक मुद्दे

Unit 3: Marketing Management

- Principles of Marketing
- Consumer Behavior and Market Research
- Marketing Strategies and Planning
- Digital Marketing and E-commerce
- Branding and Product Management
- Marketing Ethics and Social Responsibility

यूनिट 3: विपणन प्रबंधन

- विपणन के सिद्धांत
- उपभोक्ता व्यवहार और बाजार अनुसंधान
- विपणन रणनीतियाँ और योजना बनाना
- डिजिटल विपणन और ई-कॉमर्स
- ब्रांडिंग और उत्पाद प्रबंधन
- विपणन नैतिकता और सामाजिक जिम्मेदारी

Unit 4: Organizational Behavior

- Theories of Organizational Behavior
- Leadership and Motivation in Organizations
- Group Dynamics and Teamwork
- Organizational Culture and Change Management
- Conflict Resolution and Negotiation
- Ethics in Organizational Behavior

यूनिट 4: संगठनात्मक व्यवहार

- संगठनात्मक व्यवहार के सिद्धांत
- संगठनों में नेतृत्व और प्रेरणा
- समूह गतिशीलता और टीमवर्क
- संगठनात्मक संस्कृति और परिवर्तन प्रबंधन
- संघर्ष समाधान और वार्ता
- संगठनात्मक व्यवहार में नैतिकता

Unit 5: Human Resource Management

- Human Resource Planning and Recruitment
- Training and Development
- Performance Management Systems
- Compensation and Benefits Management
- Labor Relations and Employment Law
- Diversity and Inclusion in the Workplace

यूनिट 5: मानव संसाधन प्रबंधन

- मानव संसाधन योजना और भर्ती
- प्रशिक्षण और विकास
- प्रदर्शन प्रबंधन प्रणाली
- मुआवजा और लाभ प्रबंधन
- श्रम संबंध और रोजगार कानून
- कार्यस्थल में विविधता और समावेशन



ANJANEYA UNIVERSITY, RAIPUR, CHHATTISGARH

PhD Entrance Exam 2024 Syllabus

Syllabus for (Botany)

Unit I: Molecules and Their Interactions

Composition, structure and function of biomolecules (carbohydrates, lipids, proteins, nucleic acids and vitamins); Stabilizing interactions (Van der Waals, electrostatic, hydrogen bonding, hydrophobic interaction, etc.); Bioenergetics, glycolysis, oxidative phosphorylation, coupled reaction, group transfer, biological energy transducers; Principles of catalysis, enzymes and enzyme kinetics, enzyme regulation, mechanism of enzyme catalysis, isozymes; Conformation of proteins (Ramachandran plot, secondary structure, domains, motif and folds); Conformation of nucleic acids (helix (A, B, Z), t-RNA, micro-RNA).

Unit II: Cellular Organization

Membrane structure and function (Structure of model membrane, lipid bilayer and membrane protein diffusion, osmosis, ion channels, active transport, membrane pumps, mechanism of sorting and regulation of intracellular transport, electrical properties of membranes); Structural organization and function of intracellular organelles (Cell wall, nucleus, mitochondria, Golgi bodies, lysosomes, endoplasmic reticulum, peroxisomes, plastids, vacuoles, chloroplast, structure & function of cytoskeleton and its role in motility); Organization of genes and chromosomes (Operon, unique and repetitive DNA, interrupted genes, gene families, structure of chromatin and chromosomes, heterochromatin, euchromatin, transposons); Cell division and cell cycle (Mitosis and meiosis, their regulation, steps in cell cycle, regulation and control of cell cycle)

Unit III: Developmental Biology

Basic concepts of development: Potency, commitment, specification, induction, competence, determination and differentiation; morphogenetic gradients; cell fate and cell lineages; stem cells; genomic equivalence and the cytoplasmic determinants; imprinting; mutants and transgenics in analysis of development meristem; shoot and root development; leaf development and phyllotaxy; transition to flowering, floral meristems and floral development.

Unit III: Plant Physiology

Photosynthesis -- Light harvesting complexes; mechanisms of electron transport; photoprotective mechanisms; CO₂ fixation--C₃, C₄ and CAM pathways. Respiration and photorespiration – Citric acid cycle; plant mitochondrial electron transport and ATP synthesis; alternate oxidase; photorespiratory pathway.

Unit IV: Plant Systematics

Principles & methods of taxonomy: Concepts of species and hierarchical taxa, biological nomenclature, classical & quantitative methods of taxonomy of plants, animals and microorganisms. Comparative anatomy, adaptive radiation, adaptive comparative anatomy,

adaptive radiation modifications. Outline classification of plants, Evolutionary relationships among taxa.

Unit V : Ecological Principles

Habitat and Niche: Concept of habitat and niche; niche width and overlap; fundamental and realized niche; resource partitioning; character displacement. Population Ecology: Characteristics of a population; population growth curves, population regulation, life history strategies (r and k selection) Ecological Succession: Types; mechanisms; changes involved in succession; concept of climax. Ecosystem Ecology: Ecosystem structure; ecosystem function; energy flow and mineral cycling (C, N, P); primary production and decomposition, Biogeography: Major terrestrial biomes; theory of island biogeography; biogeographical zones of India. Applied pollution; global environmental change; biodiversity: status, monitoring and documentation; major drivers of biodiversity change; biodiversity management approaches. Conservation Biology: Principles of conservation,



Syllabus for Biotechnology

Unit I: Biochemistry, Molecular & Cell Biology, Genomics

Biomolecules, Metabolism, Membrane transport, Structure and regulation of prokaryotes and eukaryotes genes, Transcription, Translation, Post-transcriptional and Translational modifications, Molecular interaction, Phylogenetics, Molecular markers, Genetic and physical mapping, Gene interaction; Population genetics, Genetic engineering; Cloning and expression vectors, rDNA technology, Gene cloning approaches, Whole genome sequencing & annotation, High throughput gene expression and Function elucidation technologies, PCR, Blotting techniques, Gene transfer technologies, Protein-protein interactions, Mass spectrophotometry, Signal transduction pathways and their elucidation, Primary and secondary metabolic pathways, Systems biology frameworks for metabolic engineering, Nanobiotechnology, Genomics and proteomics.

Unit II: Microbial & Plant Biotechnology

Microbial taxonomy and diversity (bacteria, fungi, virus); Microbial nutrition, growth and control; Microbial metabolism; Microbial genetics; Microbial production and purification of fermented food and food products, recombinant proteins, industrial enzymes; Free and immobilized enzyme kinetics; Types of bioreactors; Bioseparation techniques; Concept of plant cellular totipotency; Clonal propagation; Organogenesis and somatic embryogenesis, artificial seed, somaclonal variation, embryo culture, *in vitro* fertilization; Plant products of industrial importance; Plant-microbe interactions.

Unit III: Medical Biotechnology

Infectious diseases: Microbial (viral, bacterial, fungal) , Life style diseases, Cell & developmental biology, Cancer biology, Immunotechnology, Antigen antibody interactions, Antibody engineering, vaccines and the associated manufacturing processes, molecular and immuno diagnostics methods and their applications, Cell culture technologies, Regenerative medicine & transplantation technology, Hypersensitivity and autoimmune diseases, tolerance, animal biotechnology, Animal cell preservation, Stem cells and healthcare, Clinical trials



ANJAYEYA UNIVERSITY, RAIPUR, CHHATTISGARH

PhD Entrance Exam 2024 Syllabus

Unit IV: Environmental Biotechnology

Biotransformation and biodegradation; Biofertilizers; Biosensors – living biosensors for the management and manipulation of microbial consortia; Role of biotechnology in energy production.

Unit V: Bioinformatics/Statistics

Major bioinformatics resources (NCBI, EBI, ExPASy); Sequence and structure databases and analysis, Sequence analysis, Phylogeny, Comparative genomics; Molecular modeling and simulations. Overview and functions of a computer system; Basics of programming; Statistics: Descriptive statistics, Correlation and regression, Hypothesis Testing, Probability theory.



Faculty of Engineering Department of Civil Engineering

Pre-PhD Entrance Examination

SYLLABUS

Unit I: Structural & Solid Mechanics

Engineering mechanics, strength of materials, theory of elasticity, plasticity, structural analysis, matrix methods, structural dynamics, earthquake engineering, finite element method, fracture mechanics

Unit II: Geotechnical & Geological Engineering

Soil mechanics, foundation engineering, rock mechanics, engineering geology, ground improvement techniques, geosynthetics, slope stability, soil dynamics, geo-environmental engineering, tunneling engineering

Unit III: Water Resources & Environmental Engineering

Fluid mechanics, hydraulics, hydrology, irrigation engineering, groundwater engineering, water resources systems, environmental engineering, water supply engineering, wastewater engineering, solid waste management

Unit IV: Transportation & Construction Engineering

Highway engineering, traffic engineering, pavement design, railway engineering, airport engineering, construction technology, construction planning, project management, estimation and costing, infrastructure engineering

Unit V: Advanced & Interdisciplinary Areas

Remote sensing and GIS, environmental impact assessment, disaster management, coastal engineering, offshore engineering, sustainable development, smart cities, research methodology, numerical methods, engineering mathematics



ANJAYEYA UNIVERSITY, RAIPUR, CHHATTISGARH

PhD Entrance Exam 2024 Syllabus

Syllabus for Ph.D. Entrance Exam: Computer Science

Unit I:

Theory of Computing:

Growth of Functions, Divide-and-Conquer, Probabilistic Analysis and Randomized Algorithms, Heap sort, Quick sort, Sorting in Linear Time, Hash Tables, Binary Search Trees, Red-Black Trees, Dynamic Programming, Greedy Algorithms, B-Trees, Elementary Graph Algorithms, Minimum Spanning Trees, Single-Source Shortest Paths, All-Pairs Shortest Paths, Maximum Flow, Multithreaded Algorithms, Linear Programming, String Matching, NP-Completeness, Finite Automata and Regular Expressions, Properties of Regular Sets, Context Free Grammars, Push down Automata, Properties of Context Free Languages, Turing Machines, Undesirability, Chomsky Hierarchy.

Unit II:

Computer Architecture:

Fundamentals of Quantitative Design and Analysis, Memory Hierarchy Design, Instruction-Level Parallelism and Its Exploitation, Data-Level Parallelism in Vector, SIMD, and GPU Architectures, Thread-Level Parallelism, Warehouse-Scale Computers to Exploit Request-Level and Data-Level Parallelism, Computer Abstractions and Technology, Instructions: Language of the Computer, Arithmetic for Computers, Assessing and Understanding Performance, The Processor: Data path and Control, Enhancing Performance with Pipelining, Large and Fast: Exploiting Memory Hierarchy, Storage, Networks, and Other Peripherals, Multiprocessors and Clusters.

Unit III:

Information Systems and Information Retrieval:

Overview of Database Systems, Introduction to Database Design, The Relational Model, Relational Algebra and Calculus, SQL: Queries, Constraints, Triggers, Database Application Development, Internet Applications, Overview of Storage and Indexing, Storing Data: Disks and Files, Tree-Structured Indexing, Hash-Based Indexing, Overview of Query Evaluation, External Sorting, Evaluating Relational Operators, A Typical Relational Query Optimizer, Overview of Transaction Management, Concurrency Control, Crash Recovery, Schema Refinement and Normal Forms, Physical Database Design and Tuning, Security and Authorization, Parallel and Distributed Databases, Object-Database Systems, Deductive



ANJAYEYA UNIVERSITY, RAIPUR, CHHATTISGARH

PhD Entrance Exam 2024 Syllabus

Databases, Data Warehousing and Decision Support, Data Mining, Information Retrieval and XML Data, Spatial Data Management,

Unit IV:

Networking:

Concept of layering. LAN technologies (Ethernet). Flow and error control techniques, switching. IPv4/IPv6, routers and routing algorithms (distance vector, link state). TCP/UDP and sockets, congestion control. Application layer protocols (DNS, SMTP, POP, FTP, HTTP). Basics of Wi-Fi. Network security: authentication, basics of public key and private key cryptography, digital signatures and certificates, firewalls.

Programming Languages and Translators:

Introduction to Programming Languages, Language Description: Syntactic Structure, Statements: Structured Programming, Types: Data Representation, Procedure Activations, Groupings of Data and Operations, Object-Oriented Programming, Elements of Functional Programming, Functional Programming in a Typed Language, Functional Programming with Lists, Logic Programming, An Introduction to Concurrent Programming, Semantic Methods, Static Types and the Lambda Calculus, Introduction to Compiling,

Unit V:

Artificial Intelligence:

Artificial Intelligence, Intelligent Agents, Solving Problems by Searching, Beyond Classical Search, Adversarial Search, Constraint Satisfaction Problems, Logical, First- Order Logic, Inference in First-Order Logic, Classical Planning, Planning and Acting in the Real World, Knowledge Representation, Quantifying Uncertainty, Probabilistic Reasoning, Probabilistic Reasoning over Time, Making Simple Decisions, Making Complex Decisions, Learning from Examples, Knowledge in Learning, Learning Probabilistic Models, Reinforcement Learning, Natural Language Processing, Natural Language for Communication, Perception, Robotics, Philosophical Foundations, AI: The Present and Future.



ANJAYEYA UNIVERSITY, RAIPUR, CHHATTISGARH

PhD Entrance Exam 2024 Syllabus

Syllabus for Ph.D. Entrance Exam: Computer Science Engineering

Unit I:

Theory of Computing:

Growth of Functions, Divide-and-Conquer, Probabilistic Analysis and Randomized Algorithms, Heap sort, Quick sort, Sorting in Linear Time, Hash Tables, Binary Search Trees, Red-Black Trees, Dynamic Programming, Greedy Algorithms, B-Trees, Elementary Graph Algorithms, Minimum Spanning Trees, Single-Source Shortest Paths, All-Pairs Shortest Paths, Maximum Flow, Multithreaded Algorithms, Linear Programming, String Matching, NP-Completeness, Finite Automata and Regular Expressions, Properties of Regular Sets, Context Free Grammars, Push down Automata, Properties of Context Free Languages, Turing Machines, Undesirability, Chomsky Hierarchy.

Unit II:

Computer Architecture:

Fundamentals of Quantitative Design and Analysis, Memory Hierarchy Design, Instruction-Level Parallelism and Its Exploitation, Data-Level Parallelism in Vector, SIMD, and GPU Architectures, Thread-Level Parallelism, Warehouse-Scale Computers to Exploit Request-Level and Data-Level Parallelism, Computer Abstractions and Technology, Instructions: Language of the Computer, Arithmetic for Computers, Assessing and Understanding Performance, The Processor: Data path and Control, Enhancing Performance with Pipelining, Large and Fast: Exploiting Memory Hierarchy, Storage, Networks, and Other Peripherals, Multiprocessors and Clusters.

Unit III:

Information Systems and Information Retrieval:

Overview of Database Systems, Introduction to Database Design, The Relational Model, Relational Algebra and Calculus, SQL: Queries, Constraints, Triggers, Database Application Development, Internet Applications, Overview of Storage and Indexing, Storing Data: Disks and Files, Tree-Structured Indexing, Hash-Based Indexing, Overview of Query Evaluation, External Sorting, Evaluating Relational Operators, A Typical Relational Query Optimizer, Overview of Transaction Management, Concurrency Control, Crash Recovery, Schema Refinement and Normal Forms, Physical Database Design and Tuning, Security and Authorization, Parallel and Distributed Databases, Object-Database Systems, Deductive



ANJAYEYA UNIVERSITY, RAIPUR, CHHATTISGARH

PhD Entrance Exam 2024 Syllabus

Databases, Data Warehousing and Decision Support, Data Mining, Information Retrieval and XML Data, Spatial Data Management,

Unit IV:

Networking:

Concept of layering. LAN technologies (Ethernet). Flow and error control techniques, switching. IPv4/IPv6, routers and routing algorithms (distance vector, link state). TCP/UDP and sockets, congestion control. Application layer protocols (DNS, SMTP, POP, FTP, HTTP). Basics of Wi-Fi. Network security: authentication, basics of public key and private key cryptography, digital signatures and certificates, firewalls.

Programming Languages and Translators:

Introduction to Programming Languages, Language Description: Syntactic Structure, Statements: Structured Programming, Types: Data Representation, Procedure Activations, Groupings of Data and Operations, Object-Oriented Programming, Elements of Functional Programming, Functional Programming in a Typed Language, Functional Programming with Lists, Logic Programming, An Introduction to Concurrent Programming, Semantic Methods, Static Types and the Lambda Calculus, Introduction to Compiling,

Unit V:

Artificial Intelligence:

Artificial Intelligence, Intelligent Agents, Solving Problems by Searching, Beyond Classical Search, Adversarial Search, Constraint Satisfaction Problems, Logical, First- Order Logic, Inference in First-Order Logic, Classical Planning, Planning and Acting in the Real World, Knowledge Representation, Quantifying Uncertainty, Probabilistic Reasoning, Probabilistic Reasoning over Time, Making Simple Decisions, Making Complex Decisions, Learning from Examples, Knowledge in Learning, Learning Probabilistic Models, Reinforcement Learning, Natural Language Processing, Natural Language for Communication, Perception, Robotics, Philosophical Foundations, AI: The Present and Future.



ANJAYEYA UNIVERSITY, RAIPUR, CHHATTISGARH

PhD Entrance Exam 2024 Syllabus

Syllabus for Electrical and Electronics Engineering

UNIT -1

Electric Circuits: Mesh current and node voltage method of analysis for D.C and A.C. circuits, star delta conversion. Network Theorems, Self and mutual inductance – Coefficient of coupling, Transient response of RL, RC and RLC Circuits, two port networks, analysis of three phase circuits.

Electrical Machines: Dc machines – separately excited, series and compound machines. Induction machines – squirrel cage and wound rotor. Synchronous machines. Methods of speed control of dc and induction machines. Theory and operation of single and three phase transformers, equivalent circuit, Testing of machines

UNIT-2

Electrical and Electronic Measurements:

Bridges and Potentiometers, Measurement of voltage, current, power, energy and power factor; Instrument transformers, Digital voltmeters and multi-meters, Phase, Time and Frequency measurement; Oscilloscopes, Error analysis. Basics of instrumentation, sensors and transducers.

Analog and Digital Electronics:

Characteristics of diodes, BJT, MOSFET; rectifiers; Amplifiers: Biasing, Equivalent circuit and Frequency response; Oscillators; Operational amplifiers: Characteristics and applications; Combinational and Sequential logic circuits, A/D and D/A converters, 8085 Microprocessor.

UNIT-3

Power Electronics:

Characteristics of semiconductor power devices: Diode, Thyristor, MOSFET, IGBT; DC to DC conversion: Buck, Boost and Buck-Boost converters, PWM control of dc-dc converters; Single and three phase configuration of uncontrolled rectifiers, Line commutated thyristor based converters, Bidirectional ac to dc voltage source converters, Issues of harmonics, Power factor,



ANJAYEYA UNIVERSITY, RAIPUR, CHHATTISGARH

PhD Entrance Exam 2024 Syllabus

Distortion factor of ac to dc converters, Single phase and three phase inverters, Sinusoidal pulse width modulation.

UNIT-4

Power Systems: Power generation concepts, ac and dc transmission concepts, Models and performance of transmission lines and cables, Distribution systems, Utilization of electrical energy. Series and shunt compensation, Per-unit quantities, Bus admittance matrix, Gauss-Seidel and Newton- Raphson load flow methods, Voltage and Frequency control, Power factor correction, Symmetrical components, Symmetrical and unsymmetrical fault analysis, Principles of over- current, differential and distance protection; Circuit breakers, System stability concepts, Equal area criterion. Introduction to Solar Photovoltaic Systems, Wind power systems.

UNIT-5

Control Systems: Mathematical modeling and representation of systems, Feedback principle, transfer function, Mathematical modeling and representation of systems, Feedback principle, transfer function, Block diagrams and Signal flow graphs, Transient and Steady-state analysis of linear time invariant systems, Routh-Hurwitz and Nyquist criteria, Bode plots, Root loci, Stability analysis, Lag, Lead and Lead-Lag compensators; P, PI and PID controllers; State space model, State transition matrix.

Reference Books:

1. William H. Hayt Jr, Jack E. Kemmerly and Steven M. Durbin, **Engineering Circuits Analysis**, Tata McGraw Hill publishers
2. Grainger and Stevenson, **Power System Analysis**, Tata McGraw Hill
3. Ned Mohan and Tore Undeland, **Power Electronics**, John Wiley
4. Katsuhiko Ogata, **Modern Control Engineering**, Prentice Hall, 2010 \
5. Nagrath and Kothari, **Electric Machines**, McGraw Hill
6. Cooper Helfrick, “**Electrical Instrumentation and Measuring Techniques**”, Prentice Hall India, 1986



ANJANEYA UNIVERSITY

Department of Geography Faculty of Arts & Humanities *Syllabus for Entrance* Ph.D. in Geography

Unit-I	Geomorphology: Continental Drift, Plate Tectonics, Endogenetic and Exogenetic Forces. Denudation and Weathering, Geomorphic Cycle (Davis and Penck), Seismicity, Folding & Faulting, Vulcanicity), Landform Occurrence and Causes of Geomorphic Hazards (landslides & avalanches)
Unit-II	Climatology: Composition and Structure of Atmosphere, Insolation & Heat Budget of Earth, Temperature, Pressure and Winds, Atmospheric Circulation: Cyclones & Anticyclones (Tropical and Temperate), Climatic Classification of Koppen & Thornthwaite, Climate Change & Global Warming.
Unit-III	Oceanography: Relief of Oceans, Composition: Temperature, Density & Salinity, Circulation: Warm & Cold Currents, Sea Waves, Tides, Sea Level Changes, Coral Reefs & Tsunami.
Unit-IV	Geography of Environment: Physical Environment. Ecosystem Ecology Functions: Trophic Levels, Energy Flows, Food Chain, Food Web and Ecological Pyramid, Atmospheric Pollution: Water, Air, Noise & Land, Sustainable Development and Its Goals.
Unit-V	Population and Settlement Geography: Sources of Population Data, World Population Distribution (Measures, Patterns And Determinants), World Population Growth, Migration (Types, Causes And Consequences), Population Composition And Characteristics (Age, Sex, Rural-Urban, Occupational Structure And Educational Levels). Rural Settlements (Types, Patterns And Distribution), Contemporary Problems Of Rural Settlements, Land Use Changes; Land Acquisition And Transactions), Peri-Urban Areas, Rural-Urban Fringe & Satellite towns.



ANJAYEYA UNIVERSITY, RAIPUR, CHHATTISGARH

PhD Entrance Exam 2024 Syllabus

Syllabus for (English)

Unit I: 1 Old English and Middle English literature (4th to 15th centuries)

2. Renaissance Literature (16th-17th centuries)

Unit II: 3. Romantic period (late 18th to early 19th centuries)

4. Victorian Literature (19th century)

Unit III: 5. Modern period (early 20th century)

6. Postmodern period (mid-20th century onwards)

Unit IV: 7. Indian writing in English

8. English in India: history and Evolution

Unit V: 9. Diasporic writers

10 Film and pop culture

Syllabus for Hindi

Unit I: हिन्दी भाषा और उसका विकास

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, नागरी 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 ।

Unit II: 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 अन्तः प्रादेशिक 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 (चन्दायन), 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, राम भक्ति शाखा के कवि और 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 पद्माकार, रीतिकाव्य में लोकजीवन ।

आधुनिक काल: हिन्दी गद्य का उद्भव और विकास ।

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

द्विवेदी युग : महाबीर प्रसाद द्विवेदी और उनका युग, हिन्दी नवजागरण और सरस्वती, मैथिलीशरण गुप्त और राष्ट्रीय काव्यधारा, राष्ट्रीय काव्यधारा के प्रमुख कवि, स्वच्छन्दतावाद और उसके प्रमुख कवि ।

Unit III: भारतीय एवं पाश्चात्य काव्यशास्त्र

काव्य—लक्षण, काव्य—हेतु काव्य — प्रयोजन, काव्य के प्रकार ।

रस का स्वरूप, रस—निष्पत्ति, साधारणीकरण ।

अलंकार सिद्धांत और अलंकारों का वर्गीकरण ।

रीति की अवधारणा और भेद ।

वक्रोक्ति की अवधारणा और भेद

ध्वनि का स्वरूप और ध्वनि काव्य के प्रमुख भेद ।

औचित्य सिद्धांत और औचित्य के भेद ।

हिन्दी कवि — आचार्यों का काव्यशास्त्रीय चिंतन: लक्षण, काव्य परंपरा। हिन्दी आलोचना, की प्रमुख प्रवृत्तियाँ: शास्त्रीय, व्यक्तिवादी/सौष्ठववादी, ऐतिहासिक, तुलनात्मक, मनोविश्लेषणवादी और सौंदर्यशास्त्रीय ।

अरस्तू : अनुकरण और विरेचन सिद्धान्त ।

लॉजाइनस : कल्पना — सिद्धांत और ललित — कल्पना ।

टी. एस. इलियट : निर्वैयक्तिकता का सिद्धांत ।

आई. ए. रिचर्ड्स : रागात्मक अर्थ। संवेगों का संतुलन।

सिद्धांत और वाद : आभिजात्यवाद, स्वच्छंदतावाद, मार्क्सवाद, मनोविश्लेषण तथा अस्तित्ववाद ।

Unit IV: आधुनिक हिन्दी काव्य

1. मैथिलीशरण गुप्त: कृति—परिचय, साकेत के नवम, सर्ग का काव्य — सौन्दर्य, विरहवर्णन, चरित्रचित्रण ।
2. जयशंकर प्रसाद : कृति—परिचय, कामयानी : प्रबन्धविन्यास, चरित्रनिरूपण,
3. रूपकतत्त्व, समरसता और आनन्दवाद, सौन्दर्यबोध ।
4. सुमित्रानन्दन पंत — कृति — परिचय, प्रकृतिचित्रण, कल्पनाशीलता, सौन्दर्यचेतना, पंत की काव्यभाषा ।
5. सूर्यकांत त्रिपाठी निराला — कृति — परिचय, निराला की प्रगतिचेतना, मुक्त छन्द, राम की शक्तिपूजा का काव्यसौन्दर्य, कुकुरमुत्ता ।
6. महादेवी वर्मा — कृति — परिचय, गीतिकला, विरहवर्णन, रहस्यवाद, सौन्दर्यबोध काव्यकला ।
7. सच्चिदानंद हीरानंद वात्स्यायन 'अज्ञेय' — कृति — परिचय, प्रयोगधर्मिता, असाध्यवीणा का काव्यसौन्दर्य ।
8. गजानन माधव मुक्तिबोध — कृति — परिचय, समाजबोध, प्रगतिशील चेतना फैंटेसी, ब्रह्मराक्षस का काव्यसौन्दर्य ।
9. भारतेन्दु युग : प्रमुख साहित्यकार, रचनाएँ और साहित्यिक विशेषताएँ ।
10. द्विवेदी युग : प्रमुख साहित्यकार, रचनाएँ और साहित्यिक विशेषताएँ ।
11. छायावादी काव्य, प्रमुख साहित्यकार, रचनाएँ और साहित्यिक विशेषताएँ ।
12. उत्तरछायावाद की विविध प्रवृत्तियाँ : प्रगतिवाद, प्रयोगवाद, नयी कविता। प्रमुख साहित्यकार, रचनाएँ और साहित्यिक विशेषताएँ ।

Unit V: भाषाविज्ञान एवं हिन्दी भाषा

भाषा की परिभाषा और अभिलक्षण, भाषाविज्ञान का स्वरूप तथा अध्ययन की दिशाएँ — वर्णनात्मक, ऐतिहासिक और तुलनात्मक ।

स्वन विज्ञान का स्वरूप और शाखाएँ, वाग्यंत्र और उसके अंग

रूपविज्ञान का स्वरूप और शाखाएँ, रूपिम की अवधारणा और भेद । वाक्य की अवधारणा, और वाक्य के भेद ।

अर्थ की अवधारणा, शब्द और अर्थ का संबंध, अर्थ परिवर्तन ।

हिन्दी का भौगोलिक विस्तार, हिन्दी की उपभाषाएँ, पश्चिमी हिन्दी, पूर्वी हिन्दी । खड़ी बोली, ब्रज और अवधी की विशेषताएँ ।



ANJAYEYA UNIVERSITY, RAIPUR, CHHATTISGARH

PhD Entrance Exam 2024 Syllabus

Syllabus for Ph.D. Entrance Exam: Department of Journalism Mass Communication

Unit – I

Principles of Communication –

Meaning of communication, importance of communication, features and scope of communication, barriers of communication, 7Cs of communication. the age of signs and signals, the age of speech and languages, the age of writing, pictography, phonetic writing, alphabetical writing, development of portable media, the age of print, spread of literacy, the age of mass communication.

Intrapersonal communication, interpersonal communication, group communication, mass communication, non-verbal communication, written communication. Hannon and Weaver model, SMCR model, Laswell's model, Osgood model, Gate-Keeping model, Convergent model, Hypodermic Needle theory, Two-Step theory, Multistep theory, Commercial theory, Play theory, Selective Exposure, Perception and Retention theory, Individual Difference theory, The Authoritarian theory, The libertarian theory, The Social Responsibility theory, Development Media theory, Democratic Participant theory.

Unit – II

Advertising and Public Relation –

Meaning and significance of advertising, origin and development of advertising, history of advertising, purpose and goals of advertising, history of Indian advertising, Publicity, Propaganda, Sales Promotion, advertising types, principles of advertising, structure of advertising agency. Advertising as a marketing and PR tool, ethics and morals of advertising, code of the advertising standards, Media planning: advertising through print, radio and TV, advertising appeals, print, electronic and social media advertising, copywriting in advertisement, Public Relations: An Introduction, Concepts, Definition, Difference between advertising and PR, Objectives and Functions of PR, PR Communication and Process, PR Tools and strategies, Ethical and Legal Issues: Paid News, media-net, Special Supplement etc. PR in Government sector, PR in Public, Private and NGO Sectors, PR codes and Professional Bodies



ANJAYEYA UNIVERSITY, RAIPUR, CHHATTISGARH

PhD Entrance Exam 2024 Syllabus

Unit – III

Reporting & Editing –

Reporting concept: Concept of reporting, types of reporting, Reporting skills, news writing skills, five Ws & one H, Intro and body, reporting techniques for newspaper, radio and TV.

Editing-Meaning: Editing-Meaning and Concept, Structure of news paper organization, Function and organization of the editorial department of a news paper-Editor, Asst Editor, News editor, chief sub editor, sub editor, chief reporter, reporter etc. Functions and responsibilities of Group Editor, Managing editor, coordinating editor, Resident editor.

Unit – IV

New Media –

New Media and Convergence: The Genesis, The New Paradigm, Its Affect on Data Networks, Application Convergence, Technology convergence, Institutional convergence institutional convergence, Convergence Regulation, A powerful motor for job creation and creation and growth, India on The Threshold of Convergence.

Citizen Journalism: Birth of Blogs and the Indymedia Movement, Objectivity, Quality, Legal repercussions, “Citizen journalism” versus “grassroots media”, Proponents of citizen journalism.

Unit – V

Compliance to Media Law –

History of Press Laws in India, Media laws-scope and need, The Press and Registration of Books Act 1867. Working Journalist and other newspaper employees (conditions of service & miscellaneous provisions) Act 1955, Cinematograph Act 1953, Prasar Bharati Act, Cable Television Act, Intellectual property right legislations including Copyright Act.

Meaning, origin, main provisions under Right to Information Act 2005, Scope, significance and role of RTI Act, Misuse of RTI Act: Case studies, Areas exempted from RTI; Official Secrets Act. 1923. vis-a-vis RTI, RTI and Mass Media.



ANJAYEYA UNIVERSITY, RAIPUR, CHHATTISGARH

PhD Entrance Exam 2024 Syllabus

Syllabus for PhD Entrance exam: Library Science

Unit I: Foundation of library

- Social and Historical Foundation of Library
- Different types of Libraries Their Distinguishing Features and function
- Role of library in formal and informal education
- Five laws of library science and implications in library & information centre

Unit II: Library legislation

- Library legislation-need and essential features
- Library legislation in India
- Development of Libraries with special reference to India
- Library movement in UK and USA
- Book delivery act
- Copy right act

Unit III: Five laws of library science

- Ranganathan five laws of library science & their applications
- Role of libraries in academic and social institution
- Library legislation in India
- Library association / professional organization: their objectives and functions: UNESCO, IFLA, IASLIC, ILA ALA etc.

Unit IV: 3 MANAGEMENT

- Management: Definition, components, features and principles of management
- Administration versus organisation
- Library rules and regulation
- Scientific management, personnel management
- Financial Management
- Budgeting: its concept, types and methods
- Collection development: principles and policies, different types of selection tools and their importance
- Maintenance of library record and statistics
- Annual report, resource sharing

Unit V: Library Classification

- Universal and special schemes of classification.
- Species of library classification
- Abstract classification.
- Choice of schemes of classification.



Syllabus for History

इकाई 1

इतिहास और पद्यति

इतिहास का अर्थ, परिभाषा एवं स्वरूप तथा अन्य सामाजिक विज्ञानों से संबंध, इतिहास में वस्तुनिष्ठता, इतिहास में तथ्य, भारतीय इतिहास की व्याख्या— राष्ट्रवादी, साम्राज्यादी, जनवादी, इतिहास शोध की पद्धति— अभिलेखागार, ऐतिहासिक अवलोकन, समाजशास्त्रीय पद्धति, भारतीय इतिहास जानने के स्रोत—साहित्यिक, पुरातात्विक, विदेशी यात्रा वृतांत, अभिलेखागार, शासकीय प्रतिवेदन एवं अशासकीय स्रोत ।

Unit I:

History and Methodology

Meaning, definition and nature of history and relation with other social sciences, objectivity in history, facts in history, interpretation of Indian history – nationalist, imperialist, democratic, method of researching history – archivist, historical observation, sociological method, Sources of knowing Indian history – literary, archaeological, foreign travelogues, archives, government reports and non-government sources.

इकाई 2

प्राचीन भारत का इतिहास

प्रारंभ से तृतीय शताब्दी तक

भारत की भौगोलिक संरचना, प्रागैतिक काल, विस्तार एवं लक्षण, वैदिक संस्कृति— पूर्व एवं उत्तर-भूगोल : सामाजिक एवं राजनैतिक संस्थाएँ, आर्थिक स्थिति, धार्मिक एवं दार्शनिक विचार, महाजनपद, गणराज्य आर्थिक अभिवृद्धि, जैन एवं बौद्ध धर्म का उदय, मगध का अभ्युदय, मेसेडोनिया के आक्रमण और उसका प्रभाव। मौर्य साम्राज्य की स्थापना : चन्द्रगुप्त, अशोक एवं उसका धम्म, मौर्य प्रशासन, अर्थव्यवस्था, कला एवं स्थापत्य, मौर्य साम्राज्य का विघटन, संगम युग, शुंग, सातवाहन एवं कुषण : प्रशासन, धर्म, समाज, अर्थव्यवस्था, व्यापार एवं वाणिज्य, संस्कृति कला एवं स्थापत्य, साहित्य ।



Unit II:

History of Ancient India

(First to Third century)

Geographical structure of India, prehistoric period, extent and characteristics, vedic culture, early and late – Geography : Social and political institutions, Economics conditions, Religious and philosophical Ideas. Mahajanapadas republics. Economics growth- Emergence of Jainism and Buddhism- Rise of Magadha- Macedonian invasion and its effects. Foundation of the Mauryan Empire- Chandragupta, Ashoka and his Dhamma, Mauryan administration, Economy, Art and Architecture, Disintegration of the Maurayan empire. Sangam age, Sugas, Satavahanas and Kushanas : Administration, religion, Society, economy, trade and commerce, culture- Art and architecture literature.

ईकाई – 3

चौथी से बाहरवी शताब्दी तक भारत

गुप्त – वाकाटक युग, हर्ष-पल्लव, प्रारम्भिक चालुक्य, राष्ट्रकूट, चोल, प्रतिहार, पाल, परमार, कलचुरि, गहड़वाल एवं चौहानों का संक्षिप्त इतिहास, प्रशासन, सामन्तवाद, समाज, स्त्रियों की स्थिति, शिक्षा केन्द्र, अर्थव्यवस्था, धार्मिक प्रवृत्तियाँ, मन्दिर-स्थापत्य की शैलियाँ, कला, साहित्य, वैज्ञानिक एवं प्रौद्योगिक विकास का संक्षिप्त विवरण, बाह्य जगत से भारतीय सम्पर्क ।

भारत 1206 से 1526ई. तक

विस्तार और संगठन – गोरी, तुर्क, खिलजी, तुगलक, सैय्यद और लोदी, विजयनगर और बहमनी साम्राज्य, राज्य और धर्म – प्रभुसत्ता औ अवधारण, धर्मिक आन्दोलन और सूफीमत, आर्थिक पक्ष – शहरी केन्द्र, उद्योग, व्यापार और वाणिज्य, भू-राजस्व और कीमतें, मंगोल समस्या और उसका प्रभाव, प्रशासकीय संरचना, कला, स्थपत्य और साहित्य, स्रोत – पुरातात्विक, फरावी और गैर – फारसी साहित्य, विदेशी यात्रा – वृत्तान्त ।



Unit III:

India from the 4th Century AD to 12th century AD

Gupta- Vakataka Age- Harsha Pallavas- Early chalukyas- Rashtrakutas- Cholas Pratiharas – palas – A brief survey of the history of the Parmaras, Kalachuris, Gahadavalas and Chauhans administration. Feudalism, Society, position of Women, Educational centres, Economy religious trends, styles of temple architecture, art, literature, an outline of scientific and technological developments. India's contacts with the outside world.

India from 1206 to 1526

Expansion and Consolidation- The Ghori, the Turks, the Khiljis, The Tughlaqs, the Sayyids and the Lodhis, Vijaynagar and Bahamani kingdom, State and religion- concept of Sovereignty, religious movements and Sufism. Economic aspect- urban centres, Industries, trade and commerce, land revenue and prices, Mongol problem and its impact, Administrative structure, Art, architecture and literature. Sources- Archaeological, Persian and non-Persian literature, Foreign travellers account.

ईकाई – 4

भारत 1526 के बाद

मुगल काल के स्रोत – मुगल विस्तार और संगठन : बाबर द्वारा भारत में मुगल राज्य की स्थापना ; हुमायूँ और सूर : अकबर, जहाँगीर, शाहजहाँ और औरंगजेब, मुगलों के अमीर तथा राजपूतों से सम्बन्ध, जहाँगीर – स्थिरता तथा विस्तार का काल 1611–1621, संकट का काल 1622–1627 नूरजहाँ जुंटा, मुगल साम्राज्य का पतन : राजनीतिक, प्रशासनिक और आर्थिक कारण, मराठा आन्दोलन, शिवाजी द्वारा स्वराज्य की स्थापना, उसका विस्तार और प्रशासन, मराठा संघ और उसके पतन के कारण, प्रशासन : शेरशाह के प्रशासनिक सुधार, मुगल प्रशासन, भू-राजस्व और आय के अन्य स्रोत मनसबदारी और जागीरदारी।

मुगलों के अन्तर्गत सामाजिक, आर्थिक और सांस्कृतिक जीवन

ग्रामीण समाज और अर्थव्यवस्था, कला, स्थापत्य कला और साहित्य, व्यापार और वाणिज्य, अकबर से औरंगजेब तक धार्मिक नीति, शहरी केन्द्र और उद्योग, मुद्रा, महिलाओं की स्थिति।



ANJANEYA UNIVERSITY, RAIPUR, CHHATTISGARH

PhD Entrance Exam 2024 Syllabus

Unit IV:

India from 1526 onward

Sources of Mughal period. Mughal expansion and consolidation- Babur's establishment of Mughal rule in India ; Humayun and Surs ; Akbar, Jahangir, Shahjahan and Aurangzeb. Mughal relations with the nobility and the Rajputs. Jahangir – the period of stability and expansion 1611-1621 the period of crises 1622-1627 The Nurjahan Junta. Decline of Mughal empire : political, administrative and economic causes. The Maratha movement the foundation of Swarajya by Shivaji- its expansion and administration, Maratha confederacy causes of decline. Administration : Sher Sha's administration reforms, Mughal administration, land revenue and other sources of income, Mansabdari and Jagirdari.

Socio-economic and cultural life under the Mughals

Village society and economy, Art, Architecture and literature, trade and commerce, religious policy from Akbar to Aurangzeb, Urban centres and Industries, Currency, position of women.

ईकाई – 5

ब्रिटिश राज की स्थापना

युरोपियों शक्तियों का उदय— ब्रिटिश सत्ता का विस्तार एवं संगठन, प्रमुख भारतीय शक्तियों— बंगाल, अवध, हैदराबाद, मैसूर, मराठा और सिख के साथ ब्रिटिश, ईस्ट इण्डिया कम्पनी एवं क्राउन के अधीन प्रशासन, परमोच्च शक्ति सिविल सेवा, न्यायिक, पुलिस सेवा तथा सेना। स्थानीय स्वशासन, संवैधानिक विकास 1909 से 1935।

आर्थिक एवं सामाजिक नीतियाँ

कृषि सम्बन्धी ब्रिटिश नीति, भू-राजस्व, कृषि एवं भूमि सम्बन्धी अधिकार, अकाल नीति, ग्रामीण ऋणग्रस्तता। व्यापार एवं उद्योग नीति, मजदूरों की दशा, मजदूर संघ के आन्दोलन, फैक्टरी कानून, बैंकिंग, परिवहन, निकास सिद्धान्त, संक्रमणाधीन भारतीय समाज, ईसाई मिशन, सामाजिक-धार्मिक सुधार आन्दोलन, स्त्रियों की स्थिति, जीवन शिक्षण नीति, अंग्रेजी भाषा, आधुनिक विज्ञान, पत्रकारिता, भारतीय भाषाएँ एवं साहित्य।



ANJANEYA UNIVERSITY, RAIPUR, CHHATTISGARH

PhD Entrance Exam 2024 Syllabus

Unit V:

Foundation of the British rule

Rise of European powers- Expansion and consolidation of the British rule & Organisation. British relations with major Indian powers- Bengal, Oudh, Hyderabad, Mysore, Marathas and Sikhs. Administration under the East India Company and Crown, Paramountcy, civil service, Judiciary, police and army. Local Self Government, Constitutional Development from 1909 to 1935.

Economic and Social policies

Agrarian policy of the British, Land revenue, Agriculture and land rights, famine policy, Rural indebtedness. Policy towards trade and industries, Condition of Labour, trade Union movements. Factory legislation, Banking, Transport, Drain theory. Indian Society in transition, Christian missions, Socioreligious reform movements, Status of women. New educational policy, English language, modern science, Journalism Indian languages and literature.

ईकाई – 6

राष्ट्रीय आंदोलन एवं स्वातंत्र्योत्तर भारत

राष्ट्रवाद का उदय, 1857 का विद्रोह, जनजातीय एवं कृषक आन्दोलन, भारतीय राष्ट्रीय कांग्रेस की विचारधारा एवं कार्यक्रम, स्वदेशी आन्दोलन, भारतीय क्रान्तिकारी आन्दोलन भारत एवं विदेश में। गाँधीवादी जन आन्दोलन, जस्टिस पार्टी की विचारधारा एवं कार्यक्रम, वामपंथी राजनीति, दलित वर्ग का आन्दोलन, महात्मा ज्योतिबा फुले एवं डॉ. भीमराव अम्बेडकर, पाकिस्तान का उद्भव, भारत स्वतंत्रता एवं विभाजन की ओर। स्वातंत्र्योत्तर भारत, विभाजन के बाद पुनर्वास, भारतीय रियासतों का विलय, कश्मीर प्रश्न। भारतीय संविधान का निर्माण, नौकरशाही एवं पुलिस का ढाँचा, आर्थिक नीतियाँ एवं योजना प्रक्रिया, राज्यों का भाषायी पुनर्गठन, विदेश नीति सम्बन्धी पहल कार्य।

Unit VI:

National movement and post- Independent India

Rise of nationalism- revolt of 1857, Tribal and peasant movements Ideologies and programs of Indian National Congress, Swadeshi movement, Indian revolutionary movement in India and abroad. Gandhian Mass movement Ideologies programs of the Justice Party, Left wing politics, Movement of the depressed classes – Mahatma Jyotiba Phule, Dr. Bhimrao Ambedkar, Genesis of Pakistan, India towards Independent and partition. India states, the Kashmir question. Making of the Indian constitution, Structure of Bureaucracy and the police, Economic policies and the planning process. Linguistic reorganization of the states, foreign policy initiatives.



ईकाई – 7

विश्व इतिहास – संकल्पनाएँ, विचार अवधियाँ

पुनर्जागरण, धर्मसुधार, प्रबुद्धतावाद, मानव के अधिकार, नस्लवाद, साम्राज्यवाद, समाजवाद, नाजीवाद, संसदीय लोकतंत्र, राष्ट्रमंडल, विश्वशान्ति के प्रयास, शीत युद्ध, उत्तर आधुनिकवाद।

Unit VII:

World History- Concept, Ideas and terms

Renaissance, Reformation, enlightenment, Right of man, Apartheid, Imperialism, Socialism, Nazism, Parliamentary Democracy, Commonwealth, Efforts at world peace, Cold War, Post_ Modernism.

ईकाई – 8

छत्तीसगढ़ का इतिहास

छत्तीसगढ़ का भौगोलिक परिचय—सीमाएं, नामकरण, प्राचीन कालीन छत्तीसगढ़— प्रागैतिहासिक काल से पूर्व मौर्यकाल तक , प्राचीन कालीन छत्तीसगढ़— मौर्य, गुप्त, वाकाटक, नल, राजर्षितुल्य, शरभपुरीय, पांडु, छिन्दकनाग, सोमवंश, छत्तीसगढ़ में कलचुरिकाल एवं कलचुर युगीन सामाजिक, आर्थिक एवं सांस्कृतिक दशा, छत्तीसगढ़ में मराठा शासन एवं युगीन सामाजिक, आर्थिक एवं सामाजिक दशा, छत्तीसगढ़ में ब्रिटिश शासन एवं ब्रिटिश युगीन सामाजिक, आर्थिक एवं सांस्कृतिक दशा, छत्तीसगढ़ की जमींदारियां एवं करद राज्य तथा भारतीय संघ में विलय, 1857ई. का विद्रोह एवं छत्तीसगढ़, छत्तीसगढ़ में स्वाधीनता आंदोलन एवं क्रांतिकी आंदोलन 1947 ई. तक, छत्तीसगढ़ में किसान. मजदूर एवं जनजातीय आंदोलन, छत्तीसगढ़ में शैव, शाक्त, जैन, बौद्ध मत, कबीर पंथ एवं सतनाम पंथ, छत्तीसगढ़ की लोक कला, साहित्य एवं संस्कृति, छत्तीसगढ़ राज्य निर्माण की पृष्ठभूमि, छत्तीसगढ़ के प्रमुख ऐतिहासिक स्थल एवं महान विभूतियां।



ANJANEYA UNIVERSITY, RAIPUR, CHHATTISGARH

PhD Entrance Exam 2024 Syllabus

Unit VIII:

History of Chhattisgarh

Geographical introduction of Chhattisgarh - boundaries, nomenclature, ancient period Chhattisgarh - from prehistoric period to pre-Mauryan period, ancient period Chhattisgarh - Maurya, Gupta, Vakata, Nal, Rajarshitulya, Sharabpuriya, Pandu, Chhindaknag, Somvansh, cultural period and cultural era social in Chhattisgarh, Economic and cultural condition, Maratha rule in Chhattisgarh and contemporary social, Economic and social condition, British rule in Chhattisgarh and British era social, economic and cultural condition, Zamindaris and tax states of Chhattisgarh and merger with the Indian Union, 1857 AD. Revolt of and Chhattisgarh, freedom movement and revolutionary movement in Chhattisgarh till 1947 AD, Farmer in Chhattisgarh. Labor and tribal movements, Shaiva, Shakta, Jainism, Buddhism in Chhattisgarh, Kabir sect and Satnam sect, folk art, literature and culture of Chhattisgarh, background of formation of Chhattisgarh state, major historical places and great personalities of Chhattisgarh.

Faculty of Law

UNIT 1. JURISPRUDENCE

Natural Law Theory:-Its meaning and definition, Historical evolution of natural Law theory: Ancient period, medieval period, the period of renaissance, modern period critical appraisal of natural law theory, Natural Law in British, American and Indian Legal Systems.

School of Jurisprudence and their exponent and their views: Analytical school; Bentham, Austin, H.L.A. Hart and Kelson. Historical School: Savigny, Sir Henry Maine, Philosophical School: Hegel, Herbert Spencer. Economical School: Marx and Lenin. Sociological School: Rudolph Von Ihering, Eugen Ehrlich, Leon Duigvit, Dean Roscoe Pound. Realistic School: Oliver Wendell Holmes, Alf Ross. Jurisprudence and Law: Definition of Law, its nature, Kinds and Classification of Law. Law and Morality, Law and State theories of Origin and evolution of the State, Function of the state, The concept of world federation. Sovereignty, its definition nature, and essentials of Sovereignty, Assessment of Sovereignty, in the Constitution of Britain, America and India.

UNIT 2. CONSTITUTION

State, Fundamental Rights and their position under the Constitution, Right to Equality, Right to Freedom, right against Exploitation, Right to Freedom of Religion, Cultural and Educational Rights, Right to Constitutional Remedies including Public Interest Litigation (Art.12-35). Directive Principles of State Policy, their relevance, Comparison with Fundamental Rights, Classification of Directive Principle of State Policy, Correlation between Fundamental Rights (Art.36-51) Fundamental Duties (Art.51-A). Union Executive- President, Vice President, Council of Ministers, Attorney General, and conduct of Government Business (Art. 52-78). Union Legislature (The Parliament) Constitution, Composition, Duration of Houses, Qualification of Members and other General Provisions, Officers of the Parliament (Art.79-104), Powers, Privileges and immunities of the members (Art. 105-106). Legislative Procedure including procedure in financial matters (Art. 107-122), Legislative Powers of the President (Art. 123), Union Judiciary- Supreme Court of India (Art. 124-144), Comptroller General of India (Art.148-151), State Executive-Governor, Council of Ministers, Advocate General for the State, Conduct of Government Business (Art.152-167) State Legislature Constitution,

Composition, Powers, Privileges and immunities of State Legislatures and their Members, Legislative Procedure (Art. 168-212) Legislative Powers of Governor (Art. 213)

- High Courts in the States and Subordinate Judiciary (Art.214- 237). Administration of Union Territories(Art.239-241), The Panchayats-Definitions, Gram Sabha, Constitution and Composition of Panchayats, Reservation of Seats, Duration, Disqualifications for Membership, Powers, Authority and responsibilities of Panchayats(Art.243-243-O)The Municipalities-Definition, Constitution and Composition of Municipalities and Wards Committees, Reservation of Seats, Duration, Disqualifications for Membership, Powers, Authority and responsibilities of Municipalities, Power to impose Taxes, Finance Commission etc.(Art.243-P-243 ZG). The Scheduled and Tribal Areas (Art.244- 244-A). Relations between Union and the States-Legislative Relations (Art.245- 255)Administrative Relations, Disputes Relating to Waters and Co-ordination Between States (Art. 256-263), Provisions Regarding Finance(Art.264-279) Finance Commission(Art.280-281)Miscellaneous Financial Provisions(Art.282- 290)Borrowing by the Government of India and the States(Art.292-293), Constitutional Provisions Regarding Property, Contracts, Rights, Liabilities Obligations and Suits(Art.292-300) Right to Property (Art.300-A) Trade Commerce and Intercourse (Art.301-307) Service under the Union and the States (Art. 308-313) Public Service. Commissions (Art.315-323) Administrative Tribunals and Tribunals for other Matters (Art. 323-A-323-B), Provisions regarding Election and Election Commission (Art.324-329), Special Provisions regarding to certain Classes (Art. 330-342. Official Language-Language of the Union, Regional Languages, Language of the Supreme Court and the High Court's etc, Special Directives as to Languages(Art.343-351), Emergency Provisions (Art. 352-360) Miscellaneous Provisions(Art.361-367), Amendment of the Constitution (Art. 368), Temporary, Transitional and Special Provisions(Art,369-392), Short Title, Commencement, Authoritative Text in Hindi and Repeals, All Schedules and Amendments.

UNIT 3. BHARTIYA NYAYA SANHITA (BNS)

(a) Introduction to Bhartiya Nyaya Sanhita, (b) Retrospective and Prospective Applicability of BNS (c) Reforms in Bhartiya Nyaya Sanhita (d) Comparative Analysis of Indian Penal Code and Bhartiya Nyaya Sanhita (e) Newly Added Offences and Punishments under Bhartiya Nyaya Sanhita (f) Overview of New Criminal Law Reforms.

Acts & Omission (S. 2(1) & S. 2(25) [IPC- S. 33], Child (S.2(3)BNS), Gender (S.2(10)) [IPC- S.8], Dishonestly(S.2(7)) [IPCS.24], Government (S.2(12)) [IPC- S. 17], Injury(2(14) [IPCS.44], Offence (S.2(24) [IPC- S.40], Common Intention(S.3(5) [IPC- S.34], Wrongful Gain (S.2(36) [IPC- S.23] and Wrongful loss (S.2(37) [IPC- S.23] A) Concept of Crime

*Constituents of a crime

*Stages of Crime

*Principles of Mensrea and Strict liability offences

B) Concept of Punishments (S.4) [IPC- S.53]

*Death

*Imprisonment for Life

*Imprisonment- Rigorous and Simple

*Forfeiture of Property

*Fine

**Community Service

(Chapter-III, Sections 14 to 44 BNS) [Chapter-IV, Sections 76 to 106IPC]

(A) Defenses based on justifications - (a) Private defense (b) Necessity (c) Consent

(B) Defenses based on excuses -(a) Duress (b) Intoxication (c) Mistake (d) Infancy

(e) Unsoundness of Mind (f) Superior orders

(a) Rape & Gang Rape and their Punishment (Ss. 63-66) [IPC- S.375-376-A]& S. 70 [IPC- S.376-D]), (b) Sexual Intercourse by employing Deceitful Means (S. 69) [IPCS....](c)Sexual Harassment (S. 75) [IPC- S.354-A](d)Voyeurism (S.77) [IPC- S.354-C](e) Dowry Death (S.80) [IPC- S.304-B](f)Selling and Buying of Child for purpose of Prostitution (S. 98 & 99)[IPC- S.372 & S. 373],(g) Culpable Homicide and Murder (S. 100–103[IPC- S.299-302]& S.105[IPC- S.8]), (h) Abetment of suicide (S. 108)[IPC- S.306], (i) Causing Death by Negligence (S. 106) [IPC- None], (j) Organized Crime (S. 111) [IPC- None] (k) Terrorist Act (S. 113) [IPC- None], (l) Hurt and Grievous Hurt (Ss. 114-117 (4)) [IPC- S. 319-325], (m) Kidnapping and Abduction (Ss. 137 & 138) [IPC- S. 359-362]

Waging or abetting waging of war against the Government of India. (S. 147) [IPC- S. 121], (b) Conspiracy to commit offences punishable by Sec 147. Attempting to Wage war, or 148) [IPCS.121-A], (c) Act endangering Sovereignty, Unity and Integrity of India. (S. 152) [IPC- None], (d) Miscellaneous, (e) Theft (S.303) [IPC- S. 378-379], (f)Snatching (S.304) [IPC- S.

None], (g)Extortion (S.308(1) & (2)) [IPC- S. 383-384], (h)Robbery & Dacoity (S. 309(1)-(4) & 310(1)-(4)) [IPC- S. 390 &392...S.391-399], (i)Dishonest Misappropriation & Criminal breach of trust (S. 314 &316) [IPC- S. 403-409],(j)Cheating (S. 318 (1) & (2)) [IPC- S. 415-417],(k)Mischief (S. 324 (1) & (2)) [IPC- S. 425-426]

UNIT 4. LAW OF TORTS

Law of torts: Definition, Nature, Scope, Object & General Principles of Law of Torts: Historical Background of law of Torts - Evolution in England and India, Form of Action and its uncodified characters. It's Indian Origin from the principles of equity justice and good conscience, Definition Torts: Its comparison with crime and breach of contract, its nature, purpose and functions, general principles of liability, its kinds, *demnum sine injuria* and *injuria sine demnum*. General Elements in torts - Acts and omission voluntary and non-voluntary act, Mental Element in torts - Malice, intention, negligence, motive, recklessness, carelessness, malafide, malfeasance, misfeasance, non-feasance and fault, Immunities, Justification, Remedies, Discharge and Effect of Death, Immunities from tortious liability. Justification and defences in action of torts - Act of God Act of State, Judicial act, inevitable accident, Private defence, necessity, consent, leave and license, Remedies

- damages and its kind, quantum of damages, injunction and its types, Specific restitution of property, joint-tort feors, contribution between wrongdoer, remedies under constitution and compensation as prescribed by statutes, self-help, distress damage feasant, discharge of torts - by accord and satisfaction, waiver by election, release acquiescence judgment recovered and statute of limitation and effect of death on tort claim, Wrongs relating to person & property relations; rights: Wrongs relating to person, assault, battery, false imprisonment and malicious prosecution. Wrong relating to domestic and other rights. Intimidation and conspiracy, fraud and deceit, interference with trade business and occupation by unlawful means, Wrongs relating to immovable - trespass to land, trespass by animal, trespass abinitio injury to reversion & waste and casent, wrongs relating to movable property, trespass to goods, conversion and detention, Torts affecting immovable and movable property - slender of title, slender of goods: maintenance and champert ,In-corporal personal property right – patent, copyright & trademarks act etc. Negligence, Nuisance, Defamation and Liability for Wrongs Committed by Others: Negligence - Its nature, condition and exception, negligence of various persons is occupied, carriers counsel, doctors,

animal, keepers, dangerous goods holder, street and statutory duty and contributing negligence, Nuisance- Nature classification and kind injury to property and remedies, Defamation – Its kinds libel and slander, its definition and essentials, repetition, defences in defamation and remedies for defamation, Liability for wrongs committed by others - liability by ratification by relations i.e. master and servants, principal and agent, owner and independent contractor, liability of the State doctrine of common employment, liability for abatement, absolute and strict liability.

UNIT 5. ADMINISTRATIVE LAW

Introduction of administrative law, administrative process, discretion and direction: Meaning, nature, history and function of administrative law, sources of administrative law, its origin and scope, reasons for its growth, its historical development in England, America and India, administrative law and constitutional law, droit administrative and council, State, constitutional foundation of administrative law, the rule of law, its meaning, supremacy of regular laws and equality before the laws, doctrine of separation of powers, its meaning and its position in U.K., U.S.A. & India

Administrative Process - Nature of administrative process, and its classification, legislative, judicial, quasi-judicial and pure executive action, their characteristics and difference among them.

Administrative Discretion - Meaning, nature and criteria, its use or principle applicable for its use, need for administrative discretion, limit on exercise of discretion, malafide exercise of discretion acting under dictation, constitutional imperative... and use of discretionary authority, non-application of mind, unreasonableness and standard of reasonableness, taking irrelevant consideration or not taking in to consideration among relevant matter, non-exercise of discretionary powers, administrative arbitrariness and bias. Procedural safeguards for use of discretion.



ANJAYEYA UNIVERSITY, RAIPUR, CHHATTISGARH

PhD Entrance Exam 2024 Syllabus

Syllabus for Mechanical Engineering

Unit I:

Thermodynamics

Zeroth law, First law & Second law of thermodynamics, air & vapor power cycles, nozzles, boilers, steam turbines, compressors, refrigeration and air-conditioning, internal combustion engines, gas turbines.

Heat Transfer

Fourier's law of heat conduction, three dimensional heat conduction equation in Cartesian, cylindrical and spherical coordinates, heat conduction with heat generation, fins, unsteady heat conduction with negligible internal temperature gradients, free and forced convection, thermal radiation, boiling heat transfer.

Unit II:

Theory of Machines

Kinematics & kinetics of particles, lower pairs & higher pairs, mechanisms and DOF, inversions, velocity and acceleration analysis, instantaneous centre, governors, flywheels, gears & cams, torsional vibrations, various types of damping, forced harmonic vibration.

Machine Design

Introduction to design, objectives of design, design process, concept of factor of safety in design, design of riveted joints, welded joints, screw jack, design of brakes, gear design, bearing design, Various types of loading in mechanical systems, stress concentration, endurance limit, SN curves and fatigue.

Unit III:

Mechanics of Materials

Free body diagrams, section forces in beams, analysis of stress and strain, pressure vessels, mechanical properties of solids, symmetric & unsymmetrical beam bending, theories of elastic failure, columns, torsion of circular shafts, strain energy due to normal and shear stresses, castigliano's theorem, complementary energy theorem, slopes and deflections, theories of failure, stresses in hollow and solid discs, stresses in rotating disc of constant thickness, closed coiled helical springs, leaf springs, conical springs.

Material science

Classification of materials, modern and advanced materials, primary and secondary bonds and energy related concepts, structure of metals and ceramics, concept of unit cell and lattice arrangements, ceramic crystals and density computations, crystal systems, poly-crystalline materials, and single crystalline material, atomic densities (linear and planar), x-ray diffraction, diffusion mechanism, deformation and strengthening mechanisms, phase diagrams

Unit IV: Fluid Mechanics & Hydraulic Machinery

Fluid at rest, manometers, hydrostatic pressure thrusts, buoyancy, flotation, stability, scalar and velocity fields, flow field and description of fluid motion, Continuity equation, Momentum equation, energy equation, Euler's equation, Bernoulli equation, Navier-stokes equation, boundary layer equations, momentum-integral equation of boundary layer, Turbulent flow, Work output and efficiency, water turbines, pumps, dimensional analysis



ANJAYEYA UNIVERSITY, RAIPUR, CHHATTISGARH

PhD Entrance Exam 2024 Syllabus

consideration in design, standardization of design of friction elements, design of internal combustion engine components, introduction to fracture mechanics based design.

Automatic Control

Open and closed loop systems, servo-mechanisms, block diagram and transfer functions, system response, first and second order systems, response to step and pulse, ramp and sinusoidal inputs, modes of control, stability of control systems, Routh's criteria, frequency response analysis, Bode and Nyquist stability criteria

Instrumentation

Generalized measurement system, standards, calibration, uncertainty, errors, Hydraulic and pneumatic load cells, instruments for high, mid and low pressure measurement, flow measuring devices, temperature sensing techniques

Unit V:

Manufacturing Technology

Introduction to basic manufacturing processes and engineering materials, casting technologies, introduction to metal cutting, machine processes and machine tools, metal forming, hot working and cold working, forging, extrusion, presswork operations, explosive forming, electromagnetic forming, fabrication of composites, welding, resistance welding, ultrasonic welding, laser beam welding, defects in welding

Industrial Engineering

Productivity, work study, facility layout & location, material management & its techniques, SQC, techniques of operation research

Mathematics

Laplace transforms, numerical Methods, statistics and probability, complex variables, ordinary and partial differential equations, complex variables



ANJAYEYA UNIVERSITY, RAIPUR, CHHATTISGARH

PhD Entrance Exam 2024 Syllabus

Syllabus for Microbiology

Unit I: History, Spontaneous generation, Golden era of microbiology, Kingdom classification, Techniques used in microbial classification, Ultrastructure of bacterial cell, Viruses, Nutritional classification, Culture media, Pure culture, Cultivation of anaerobic bacteria, Preservation methods, Microbial growth and control, Microbial genetics, Microbes in agriculture, Environmental microbiology, Basics of microbial pathogenesis, Diagnostic methods.

Unit II: History and chronological development of industrial microbiology. Industrially important strains – Isolation and preservation. Inoculum development for various fermentation processes. Strain development – mutation, recombinant DNA technology and protoplast fusion

Unit III: Cells and Organs of immune system, T / B cell – maturation, activation – receptor, Cytokines – structure and functions, Antigen – Structure and chemical make-up, Immunoglobulin – structure - Organization and expression of Immunoglobulin genes, Purification of antigens and immunoglobulins., MHC – structure and functions, HLA tissue typing,

Unit IV: History of Virology, Brief outline of virology: discovery of virus, General properties of viruses, Classification of viruses, Preservation of viruses, & Cultivation of viruses.

Unit V: Gram positive organisms: Morphology, cultural characteristics, antigenic property, pathogenicity, laboratory diagnosis and Treatment. Staphylococcus sp., Streptococcus sp., Bacillus sp., Corynebacterium sp., Clostridium sp. and Mycobacterium sp.
Gram negative organisms: Morphology, cultural characteristics, antigenic property, pathogenicity, laboratory diagnosis and Treatment. E.coli, Klebsiella sp.

Syllabus for Entrance Examination for Admission in Ph.D. Programme

Discipline: Pharmacy

Pharmaceutical Chemistry: Introduction to pharmaceutical chemistry: definition, scope, and importance, Basics of organic chemistry: structure and reactivity of organic molecules, functional groups, isomerism, and stereochemistry, Medicinal chemistry: design and development of drugs, drug targets, drug-receptor interactions, drug metabolism, and pharmacokinetics, Biochemistry: biomolecules, enzymes, metabolic pathways, and their role in drug action and metabolism. Basic principles of analytical chemistry: qualitative and quantitative analysis, gravimetric and volumetric analysis, and acid-base titrations, Instrumental methods of analysis: spectrophotometry, chromatography, electrochemistry, and mass spectrometry, Quality control and assurance: validation of analytical methods, reference standards, and stability testing.

Pharmaceutics: Pharmaceutical dosage forms: types, formulations, and factors affecting drug absorption and bioavailability, Drug delivery systems: routes of administration, sustained-release systems, and targeted drug delivery, pharmaceutical technology: physical and chemical properties of drugs, stability, and formulation development, Biopharmaceutics: Biopharmaceutical classification, dissolution tests, Bioavailability. Regulatory Affairs: Roles & responsibility of CDSCO, ICH guidelines, Clinical trials: phases of clinical trials, informed consent, and ethics in clinical research, Drug approval processes: NDA, ANDA, and post-marketing surveillance

Pharmacology & Toxicology: General pharmacological principle including Toxicology. Drug interaction, Pharmacology of drugs acting on Central nervous system, Cardiovascular system, Autonomic nervous system, Gastro intestinal system and Respiratory system. Pharmacology of Autocoids, Hormones, Hormone antagonists, Chemotherapeutic agents including anticancer drugs. Bioassays, Immuno Pharmacology. Drugs acting on the blood & blood forming organs. Drugs acting on the renal system.

Pharmacognosy: Introduction to pharmacognosy: sources, classification, quality control, and adulteration of crude drugs and their detection. Extraction techniques: successive and exhaustive extraction and other methods of extraction. Separation of phytoconstituents by the latest CCCET and SCFE techniques, including preparative HPLC and flash column chromatography. Phytochemistry: chemical constituents of medicinal plants, their isolation, and biological activities.

Microbiology: Principles and methods of microbiological assays of the Pharmacopoeia. Methods of preparation of official sera and vaccines, Serological and diagnostics tests. Application of microorganisms in Pharmaceutical industry.

Biochemistry: Metabolism of Carbohydrate, lipids and proteins, Biochemical role of Vitamins, Enzymes, Nucleic acids. General principles of immunology. Methods of determine kidney & liver function.



Syllabus for Ph.D. Entrance Exam: Physics

Unit-I

ATOMIC AND MOLECULAR PHYSICS

Quantum states of one electron atoms-atomic orbitals, Hydrogen spectrum, spin-orbit(l-s) interaction energy, fine structure of hydrogen spectrum including l-s interaction and relativistic correction, spectra of alkali elements, fine structure in alkali spectra, penetrating and non-penetrating orbits, intensity rules. Pauli's principle, equivalent and non-equivalent electrons, ground state (basic level of different elements), two electron systems, interaction energy in L-S. and J-J. Coupling, Hyperfine structure, line broadening mechanisms (general ideas). Normal and anomalous Zeeman effect, early discoveries and developments, vector models of one electron system in a weak magnetic field, magnetic moment of a bound electron, magnetic interaction energy, selection rules, intensity rules, Paschen-Back(PB) effect – principal series effect, Zeeman and PB effects in hydrogen, Stark effect- discovery, Stark effect in Hydrogen, orbital model, weak and strong effect in Hydrogen. Types of molecules: linear and diatomic molecules, symmetric top, asymmetric top and spherical top molecules. Rotational spectra of diatomic molecules: rigid rotator model, energy levels, spectrum, comparison with observed spectrum and non-rigid rotator model, Intensities of spectral lines, microwave spectrometer, Raman spectrum; classical and quantum theory of Raman Effect, pure rotational Raman spectrum. Vibrational spectra of diatomic molecules: simple harmonic model, energy levels and spectrum, comparison with observed spectrum and an harmonic model, Vibrating rotators, Interaction of rotations and vibrations, fine structures and P-Q-R branches, IR spectrometer, Vibrational Raman spectrum, Vibrational rotational Raman spectrum.

Unit II

SOLID STATE PHYSICS

Electrons in Solids and Electronic Properties, Energy bands: nearly free electron model, origin of energy gap and its magnitude, Bloch function, Kronig-Penny model, Wave equation of electron in periodic potential, restatement of Bloch theorem, crystal moment of an electron, solution of Central equation, Kronig-Penny model in reciprocal space, empty lattice Approximation, approximate solution near zone boundary, Number of orbitals in a band,



ANJAYEYA UNIVERSITY, RAIPUR, CHHATTISGARH

PhD Entrance Exam 2024 Syllabus

metals and insulators. Fermi surfaces and metals Effect of temperature on F-D distribution, free electron gas in three dimension. Different zone schemes, reduced and periodic zones, construction of Fermi surfaces, nearly free electrons, electron, hole, open orbits, Calculation of energy bands, Tight binding, Wigner-Seitz, cohesive energy, pseudo potential methods. Experimental methods in Fermi surface studies, quantization of orbits in a magnetic field, de Haas van Alphen Effect, External orbits, Fermi surface of copper. Crystal vibration and thermal properties Lattice dynamics in monoatomic and diatomic lattice: two atoms per primitive basis, optical and acoustic modes, quantization of elastic waves, phonon momentum, inelastic neutron scattering by phonons, Anharmonic crystal interactions-thermal expansion, thermal conductivity, thermal resistivity of phonon gas, umklapp processes, imperfections

Unit-III

Magnetism

General ideas of dia- and para- magnetisms, quantum theory of paramagnetism, rare earth ions, Hund rule, iron group ions, crystal field splitting, quenching of orbital angular momentum, spectroscopic splitting factor, van vleck temperature dependent paramagnetism, Cooling by isentropic demagnetization, nuclear demagnetization, paramagnetic Susceptibility of conduction electrons. Optical Processes & Excitons and defects- Optical reflectance, excitons, Frenkel and Mott-Wannier excitons, Alkali Halides and Molecular crystals Defects: lattice vacancies, Schottkey and Frenkel point effects, colour centers, F and other centres, Line defect. Shear strength of single crystals, dislocations edge and screw dislocations, Burger vectors, Stress fields of dislocations, low angle grain boundaries, dislocation densities, dislocation multiplication and slip, strength of alloys, dislocations and crystal growth, hardness of materials.

Unit IV

ELECTRONIC & PHOTONIC DEVICES AND OPTICAL MODULATORS

Special Bipolar devices: Thyristors- the four-layer diodes and their basic characteristics, Shockley diode, three terminal thyristor, Diac & Triac, SCR, UJT, Field controlled Thyristors. Unipolar Devices : JFET, MESFET and MOSFET, basic structure, working and device I-V characteristics, small signal equivalent circuit for Microwave performance Introduction to MIS and MOS diodes, charge coupled devices (CCDs), basic structure and working principle , MOSFET-basic device characteristics, types of MOSFET. Special



ANJAYEYA UNIVERSITY, RAIPUR, CHHATTISGARH

PhD Entrance Exam 2024 Syllabus

Microwave Devices: Tunnel diode and backward diode- basic device characteristics, IMPATT diodes and their static and dynamic characteristics, Transfer electron devices- transferred electron effect, Gunn diodes. Photonic Devices : Radiative transitions, LEDs, Visible and infrared SC lasers; Photo detectors; Photo conductor, & Photodiode, Solar cells, Solar radiation and ideal conversion efficiency, p-n junction solar cells, Hetero junction. Interface thin film solar cells. Optical Modulators and Display Devices :Modulation of light- Birefringence, Optical activity, Electrooptic, Magneto-optic and Acoustic- optic effects, Materials exhibiting these properties, Non-linear optics. Display devices: Luminescence, Photo-luminescence, Electro-luminescence, Liquid crystal displays, Numeric displays.

Unit V

QUANTUM MECHANICS

Inadequacy of classical mechanics, Plank quantum hypothesis and radiation law, Photoelectric effect, de-broglie's theory. Schrödinger equation, continuity equation, Ehrenfest theorem, admissible wave functions, general formalism of wave mechanics, representation of states and dynamical variables, stationary states, Schrödinger equation for harmonic oscillator and its solution. Superposition principle, uncertainty relations, commutation relationship, completeness and normalization of eigen functions, Dirac-delta function, Bra & Ket notation, matrix representation of an operator, harmonic oscillator and its solution by matrix method, Heisenberg equation of motion. Angular momentum in quantum mechanics, commutation relationships, eigen values, Spin angular momentum, Pauli's matrices, addition of angular momentum, Clebsch-Gordon coefficients. Central force problem, spherically symmetric potentials in three dimensions, separation of wave equation, parity, three-dimensional square-well potential and energy levels, the hydrogen atom; solution of the radial equation, energy levels and stationary state wave functions, discussion of bound states, degeneracy.



ANJAYEYA UNIVERSITY, RAIPUR, CHHATTISGARH

PhD Entrance Exam 2024 Syllabus

Syllabus for Management

Unit I: Management Concept: Concept, nature, scope and importance of Management, Principles of management, PODSCORB (functions of management), Planning, Objectives, Goals Components and Steps involved in the planning process; MBO, Motivation, Organizing, Staffing, and Controlling.

Unit II: Managerial Economics: Nature and Scope of Managerial Economics, Fundamental Concepts in Managerial Economics, Nature and Concept of Profit and Theories of Profit. Theory of Demand, Law & Nature of Demand, Demand Determinants, Demand Forecasting, Demand Function, Elasticity of Demand, Supply, Law of Supply, Nature of Supply and Equilibrium.

Unit III: Quantitative Techniques: Scope, importance and limitations of ~~stat~~ Data Presentation Methods, Tables and Charts. Frequency Distributions and Analysis: Measures of Central Tendency (Mean, Median and Mode), Measures of Dispersion (Quartile Deviation, Mean Deviation, Standard Deviation), Probability, Sampling: Concept, Central limit theorem. Hypothesis Testing.

Unit IV: Optimization Methods: Linear Programming Problem: Meaning of Linear programming, General Mathematical Formulation of LPP. Feasible and Optimal Solutions, Graphical Analysis, Simplex Method, Duality and Sensitivity Analysis. Advantages and Limitations of LPP.

Unit V: Marketing Research: Introduction to Marketing Research; Classification of marketing research; Marketing research Process, Exploratory Research Designs: Secondary data analysis; Qualitative research, Classification of qualitative research procedures, focus groups, interviews and projective techniques; Qualitative Vs Quantitative Research. Descriptive Research Designs: Survey Methods; Observation Methods, Behavioral Vs Non-behavioral observation, Questionnaire Design and Data Collection.



ANJAYEYA UNIVERSITY, RAIPUR, CHHATTISGARH

PhD Entrance Test Syllabus Research Aptitude

Common for Arts and Humanities, Commerce and Management, Education, Engineering and Science

Syllabus for Research Aptitude

Unit I: Understanding the Research: Definitions, Quality, Purpose, Importance, and Objectives. Research Ethics: Integrity, Moral Principles, and Ethical Practices, Values, Privacy, and Confidentiality.

Unit II: Types of Research: Basic and Applied Research, Quantitative and Qualitative Research, Descriptive and Analytical Research.

Unit III: Writing a Research Proposal: Identifying and selecting the Research problem, Research questions, Background or literature review, Method and design, and References.

Unit IV: Definition and Importance of Hypothesis, Types of Hypothesis (Null Hypothesis and Alternative Hypothesis). Sampling Techniques – Random sampling, Stratified sampling, Cluster sampling, Systematic sampling, convenience sampling, and Judgment sampling.

Unit V: Data Collection Tools: Primary data and secondary data, Types of Questionnaire, Interview protocol, observation methods, Data Interpretation. Data Analysis: Tabulation, Diagrammatical representation of the data, Graphical representation of the data; Basics of documentation software tools.



Syllabus for Ph.D entrance exam in Sociology

Unit I: Classical and Modern Sociological Theories

- Karl Marx, Emile Durkheim, Max Weber, George Simmel, Ferdinand Tönnies, Vilfredo Pareto
- Structuralism: Radcliffe Brown, Claude Lévi Strauss, S.F. Nadel; Functionalism & Neo Functionalism: Emile Durkheim, B. Malinowski, Talcott Parsons and Robert K. Merton.
- Conflict Theories: Marxist, Neo Marxist and Weberian theoretical tradition
- Critical Theories: Horkheimer, Adorno, Marcuse & Habermas
- Exchange Theories: James Frazer, Malinowski, Homans and Peter Blau
- Theories of Action: Weber's Theory of Social Action, Symbolic Interactionism
- Social Constructionist perspective: Phenomenology: Alfred Schutz, Peter Berger and Thomas Luckman; Ethnomethodology: Harold Garfinkel and Irving Goffman.

Unit II: Structuration, Post Modernism, Theories of Globalization and Risk

- Michel Foucault
- Jacques Derrida
- Immanuel Wallerstein
- Ronald Robertson
- Anthony Giddens
- Ulrich Beck
- Pierre Bourdieu

Unit III: Conceptualizing Indian Society: Theoretical Perspectives

- Indological Approach: G. S. Ghurye, Louis Dumont
- Structural –Functionalism: M. N. Srinivas, S.C. Dube
- Marxian perspective: D. P. Mukherjee, A.R. Desai
- Civilizational Perspective: N.K. Bose, Surjit Sinha
- Subaltern perspective: B.R. Ambedkar, David Hardiman

Unit IV: 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).
- Sampling (Probability and Non-Probability)

Unit V: Contemporary Debates and Challenges

- Secularism, Pluralism and Nation Building
- Polity, Economy, Health Education and professions in contemporary India: Issues and Challenges
- Globalization and Indian Society
- Population, Development, Displacement and Environment Degradation
- Social Movements in India
- Sexual minorities and identity: Problems and Prospects
- Agrarian distress and Farmers' suicide causes and consequences.

इकाई I: शास्त्रीय और आधुनिक समाजशास्त्रीय सिद्धांत

- कार्ल मार्क्स, एमिल दुर्खीम, मैक्स वेबर, जॉर्ज सिमेल, फर्डिनेंड टोनीस, विल्फ्रेडो पैरेटो
- संरचनावाद: रैडक्लिफ ब्राउन क्लाउड लेवी स्ट्रॉस, एस.एफ. नाडेल कार्यात्मकता और नव कार्यात्मकता: एमिल दुर्खीम, बी. मालिनोवस्की टैल्कोट पार्सन्स और रॉबर्ट के. मेर्टन।
- संघर्ष सिद्धांत: मार्क्सवादी, नव मार्क्सवादी और वेबरियन सैद्धांतिक परंपरा
- आलोचनात्मक सिद्धांत: होर्केइमर, एडोर्नो मार्क्स और हैबरमास
- विनिमय सिद्धांत: जेम्स फ्रेजर, मालिनोवस्की, होमन्स और पीटर ब्लाउ
- कार्रवाई के सिद्धांत: वेबर का सामाजिक कार्रवाई का सिद्धांत, प्रतीकात्मक अंतःक्रियावाद
- सामाजिक निर्माणवादी परिप्रेक्ष्य: घटना विज्ञान: अल्फ्रेड शुटज़, पीटर बर्गर और थॉमस लकमैन एथनोमैथोडोलॉजी: हेरोल्ड गारफिंकल और इरविंग गोफमैन।

इकाई II: संरचना, उत्तर आधुनिकतावाद, वैश्वीकरण और जोखिम के सिद्धांत

- मिशेल फौकॉल्ट
- जैक्स डेरिडा
- इमैनुअल वालरस्टीन
- रोनाल्ड रॉबर्टसन
- एंथनी गिडेंस
- उलरिच बेक
- पियरे बौर्डियू

इकाई III: भारतीय समाज की अवधारणा: सैद्धांतिक दृष्टिकोण

- इंडोलॉजिकल दृष्टिकोण: जी.एस. घुर्ये, लुइस ड्यूमाउंट
- संरचनात्मक-कार्यात्मकता: एम.एन. श्रीनिवास, एस.सी. दुबे
- मार्क्सवादी दृष्टिकोण: डी.पी. मुखर्जी, ए.आर. देसाई
- सभ्यतागत दृष्टिकोण: एन.के. बोस, सुरजीत सिन्हा
- सबाल्टर्न दृष्टिकोण: बी.आर. अंबेडकर, डेविड हार्डीमैन

इकाई IV: सामाजिक शोध पद्धति

- अर्थ और प्रकृति (सामाजिक घटनाएँ) — वैज्ञानिक जांच — वस्तुनिष्ठता और व्यक्तिपरकता — तथ्य और मूल्य)
- मात्रात्मक विधियाँ (सर्वेक्षण — शोध डिजाइन — परिकल्पना — नमूनाकरण, डेटा संग्रह की तकनीकें: अवलोकन, प्रश्नावली और साक्षात्कार)
- गुणात्मक विधियाँ (प्रतिभागी अवलोकन — केस स्टडी — सामग्री विश्लेषण — मौखिक इतिहास — जीवन इतिहास)।
- नमूनाकरण (संभावना और गैर-संभावना)

इकाई V: समकालीन बहस और चुनौतियाँ



ANJAYEYA UNIVERSITY, RAIPUR, CHHATTISGARH

- धर्मनिरपेक्षता, बहुलवाद और राष्ट्र निर्माण
- समकालीन भारत में राजनीति, अर्थव्यवस्था, स्वास्थ्य शिक्षा और पेशे: मुद्दे और चुनौतियाँ
- वैश्वीकरण और भारतीय समाज
- जनसंख्या, विकास, विस्थापन और पर्यावरण क्षरण
- भारत में सामाजिक आंदोलन
- लैंगिक अल्पसंख्यक और पहचान: समस्याएँ और संभावनाएँ
- कृषि संकट और किसानों की आत्महत्या के कारण और परिणाम।

Syllabus for Ph.D Entrance Examination in Zoology

Unit 1: Developmental biology

Basic concepts of development Potency, commitment, specification, induction, competence, determination and differentiation; morphogenetic gradients; cell fate and cell lineages; stem cells; genomic equivalence and the cytoplasmic determinants; imprinting, mutants and transgenics in analysis of development, Gametogenesis, fertilization and early development: Production of gametes, cell surface molecules in sperm-egg recognition in animals, zygote formation, cleavage, blastula formation, embryonic fields, gastrulation and formation of germ layers in animals; embryogenesis , Morphogenesis and organogenesis in animals: Cell aggregation and differentiation in Dictyostelium; axes and pattern formation in Drosophila, amphibian and chick; organogenesis - vulva formation in Caenorhabditis elegans, eye lens induction, limb development and regeneration in vertebrates; differentiation of neurons, post embryonic development- larval formation, metamorphosis; environmental regulation of normal development; sex determination.

Unit 2: Molecules and their interaction relevant to biology

Structure of atoms, molecules and chemical bonds. Composition, structure and function of bio molecules (carbohydrates, lipids, proteins, nucleic acids and vitamins. Stabilizing interactions (Van der Waals, electrostatic, hydrogen bonding, hydrophobic interaction, etc.) Principles of biophysical chemistry (pH, buffer, reaction kinetics, the Mo dynamics, colligative properties). Bioenergetics, glycolysis, oxidative ephosphorylation, coupled reaction, group transfer, biological energy transducers. Principles of catalysis, enzymes and enzyme kinetics, enzyme regulation, mechanism of enzyme catalysis, is ozymes, Conformation of proteins (Ramachandran plot, secondary structure, domains, motif and folds). Conformation of nucleic acids(helix(A,B,Z), t-RNA, micro-RNA). Stability of proteins and nucleic acids. Metabolism of carbohydrates, lipids, amino acids nucleotides and vitamins. Membrane structure and function Membrane structure and function Structure of model membrane, lipid bilayer and membrane protein diffusion, osmosis, Structural organization and function of intracellular organelles (Cell wall, nucleus, mitochondria, Golgi bodies, lysosomes, endoplasmic reticulum, peroxisomes, plastids, vacuoles, chloroplast, structure &function of cytoskeleton and its role in motility , Cell division and cell cycle (Mitosis and meiosis, their regulation, steps in cell cycle, regulation and control of cell cycle, Microbial Physiology (Growth yield and characteristics, strategies of cell division, stress response

Unit 3: Inheritance Biology

Mendelian principles: Dominance, segregation, independent assortment. Concept of gene: Allele, multiple alleles, pseudo allele, complementation tests, Extensions of Mendelian principles: Codominance, incomplete dominance, gene Interactions, pleiotropy, genomic imprinting, penetrance and expressivity, phenocopy, linkage and crossing over, sex linkage, sex limited and sex influenced characters. Gene mapping methods: Linkage maps, tetrad analysis, mapping with molecular markers, mapping by using somatic cell hybrids. Extra chromosomal inheritance: Inheritance of Mitochondrial genes, maternal inheritance. Microbial genetics: Methods of genetic transfers-transformation, conjugation, transduction and sex-duction, mapping genes by interrupted mating, fine structure analysis of genes. Human genetics: Pedigree analysis, lod score for linkage testing, karyotypes, genetic disorders. Quantitative genetics: Polygenic inheritance, heritability and its measurements, QTL mapping. Mutation: Types, causes and detection, mutant types-lethal, conditional, biochemical, loss of function, gain of function, germinal verses somatic mutants, int tional mutagenesis. Structural and numerical alterations of chromosomes: Deletion, duplication, inversion, translocation, ploidy and their genetic implications. Recombination: Homologous and non-homologous recombination including transposition.

Unit 4: Fundamental processes

DNA replication, repair and recombination (Unit of replication, enzymes involved, replication origin and replication fork, fidelity of replication, extrachromosomal replicons, DNA damage and repair mechanisms, homologous and site-specific recombination , RNA synthesis and processing (transcription factors and machinery, formation of initiation complex, transcription activator and repressor, RNA polymerases, capping, elongation, and termination, RNA processing, RNA editing, splicing, and polyadenylation, structure and function of different types of RNA, RNA transport , Protein synthesis and processing (Ribosome, formation of initiation complex, initiation factors and their regulation, elongation and elongation factors, termination, genetic code, aminoacylation of tRNA, tRNA-identity, aminoacyl tRNA synthetase, and translational proof-reading, translational inhibitors, Post- translational modification of proteins , Control of gene expression at transcription and translation level (regulating the expression of phages, viruses, prokaryotic and eukaryotic genes, role of chromatin in gene expression and gene silencing ,Cell communication and cell signaling:- Host parasite interaction Recognition and entry processes of different pathogens like bacteria, viruses into animal host cells, alteration of host cell behavior by pathogens, virus-induced cell transformation, Innate and adaptive immune system Cells and molecules

involved in innate and adaptive immunity, antigens, antigenicity and immunogenicity. B and T cell epitopes, structure and function of antibody molecules. generation of antibody diversity, monoclonal antibodies, antibody engineering, antigen-antibody interactions, MHC molecules, antigen processing and presentation, activation and differentiation of B and T cells, B and T cell receptors, humoral and cell-mediated immune responses, primary and secondary immune modulation, the complement system, Toll-like receptors, cell-mediated effector functions, inflammation, hypersensitivity and autoimmunity, immune response during bacterial (tuberculosis), parasitic (malaria) and viral (HIV) infections congenital and acquired immune deficiency, vaccines.

Unit 5

System physiology: - Blood and circulation Blood corpuscles, haemopoiesis and formed elements, plasma function, blood volume, blood volume regulation, blood groups, haemoglobin, Immunity, haemostasis. Cardiovascular System: Comparative anatomy of heart structure, myogenic heart, specialized tissue, ECG-its principle and significance, cardiac cycle, heart as a pump, blood pressure, neural and chemical regulation of all above. Respiratory system - Comparison of respiration in different species, anatomical considerations, transport of gases, exchange of gases, waste elimination, neural and chemical regulation of respiration, Nervous system Neurons, action potential, gross neuroanatomy of the brain and spinal cord, central and peripheral nervous system, neural control of muscle tone and posture. Sense Organs-Vision, hearing and tactile response. Excretory system Comparative physiology of excretion, kidney, urine formation, urine concentration, waste elimination, micturition, regulation of water balance, blood volume, blood pressure, electrolyte balance, acid-base balance. Thermoregulation Comfort zone, body temperature physical, chemical, Digestive System-Digestion, absorption, energy balance, BMR. Endocrinology and reproduction Endocrine glands, basic mechanism of hormone action, hormones and diseases; reproductive processes, gametogenesis, ovulation, neuroendocrine regulation

Syllabus for Yoga

Unit 1: Hatha Yoga and Patanjali Yoga Sutra

1. Principles of Hatha Yoga

- Historical background of Hatha Yoga
- Classical texts: Hatha Yoga Pradipika, Gheranda Samhita, and Shiva Samhita
- Key practices: Asanas, Pranayama, Mudras, Bandhas, Shatkarmas
- Concept of Prana, Nadis, Chakras, and Kundalini in Hatha Yoga
- Therapeutic applications of Hatha Yoga

2. Patanjali Yoga Sutra

- Introduction to Maharshi Patanjali and Yoga Sutras
- The Ashtanga Yoga System (Eight limbs of Yoga)
- Ethical principles: Yama and Niyama
- The role of Asana, Pranayama, Pratyahara, Dharana, Dhyana, and Samadhi
- Importance of Viveka (discrimination) and Vairagya (detachment)
- Concept of Chitta Vrittis (mental modifications) and their control

Unit 2: Allied Sciences

1. Anatomy and Physiology

- Human skeletal, muscular, and nervous systems
- Respiratory, circulatory, and digestive systems: functions and importance in yoga practices
- Endocrine system and the role of hormones in health
- Effect of yoga on various physiological systems

2. Diet & Nutrition

- Concepts of Ahara (diet) in Yoga: Sattvic, Rajasic, and Tamasic foods
- Role of diet in maintaining health and well-being
- Nutritional science: Macronutrients and Micronutrients
- Yoga and its influence on digestion, metabolism, and immunity

Unit 3: Human Consciousness

1. Concept of Consciousness in Yoga

- States of consciousness: Jagrat (waking), Swapna (dreaming), Sushupti (deep sleep), and Turiya (transcendental consciousness)
- Relation between consciousness and self-realization
- Role of meditation in expanding consciousness
- Modern neuroscience and its insights into consciousness

2. Yoga Psychology

- Understanding the mind-body connection
- The role of yoga in mental health and emotional balance
- Subconscious and superconscious mind

Unit 4: Bhagavad Gita and Yoga Upanishads

1. Bhagavad Gita

- Key teachings of the Bhagavad Gita related to Yoga
- Karma Yoga, Bhakti Yoga, Jnana Yoga, and Dhyana Yoga
- Relevance of Gita's teachings in modern life

2. Yoga Upanishads

- Important Yoga Upanishads: Ishavasya, Kena, Katha, Mandukya
- Philosophical underpinnings of Yoga in the Upanishads
- Concepts of Atman (Self) and Brahman (Universal Consciousness)
- Moksha and Liberation as explained in Yoga Upanishads

Unit 5: Indian Philosophy, Yoga & Health, and Application of Yoga

1. Indian Philosophy and Culture

- Introduction to the six classical schools of Indian philosophy: Sankhya, Yoga, Vedanta, Nyaya, Vaisheshika, Mimamsa
- Cultural influences on Yoga in ancient and modern India
- Role of Yoga in Indian spiritual and cultural traditions

2. Yoga and Health

- Benefits of Yoga in physical, mental, and spiritual health
- Role of Yoga in the prevention and management of lifestyle diseases
- Therapeutic applications of Yoga in modern healthcare (yoga therapy)

3. Application of Yoga

- Yoga as a tool for stress management and wellness
- Integration of Yoga into daily life and professional practices
- Yoga education and research: modern trends and future directions

योग पाठ्यक्रम

यूनिट 1: हठ योग और पतंजलि योगसूत्र

1. हठ योग के सिद्धांत

- हठ योग का ऐतिहासिक पृष्ठभूमि
- प्रमुख ग्रंथ: हठयोग प्रदीपिका, घेरंड संहिता, शिव संहिता
- प्रमुख अभ्यास: आसन, प्राणायाम, मुद्रा, बंध, षट्कर्म
- हठ योग में प्राण, नाड़ी, चक्र और कुंडलिनी की अवधारणा
- हठ योग के चिकित्सीय अनुप्रयोग

2. पतंजलि योगसूत्र

- महर्षि पतंजलि और योगसूत्र का परिचय
- अष्टांग योग प्रणाली (योग के आठ अंग)
- नैतिक सिद्धांत: यम और नियम
- आसन, प्राणायाम, प्रत्याहार, धारणा, ध्यान और समाधि का महत्व
- विवेक (विवेकशीलता) और वैराग्य (विरक्ति) का महत्व
- चित्त वृत्तियों (मानसिक परिवर्तनों) की अवधारणा और उनका नियंत्रण

यूनिट 2: संबद्ध विज्ञान

1. शरीर रचना और शरीर क्रिया विज्ञान

- मानव कंकाल, मांसपेशी और तंत्रिका तंत्र
- श्वसन, परिसंचरण, और पाचन तंत्र: कार्य और योग अभ्यास में महत्व
- अंतःस्रावी तंत्र और स्वास्थ्य में हार्मोन की भूमिका
- विभिन्न शारीरिक प्रणालियों पर योग का प्रभाव

2. आहार और पोषण

- योग में आहार की अवधारणा: सात्विक, राजसिक, और तामसिक भोजन
- स्वास्थ्य और कल्याण में आहार की भूमिका
- पोषण विज्ञान: मैक्रोन्यूट्रिएंट्स और माइक्रोन्यूट्रिएंट्स
- पाचन, चयापचय, और प्रतिरक्षा प्रणाली पर योग का प्रभाव

यूनिट 3: मानव चेतना

1. योग में चेतना की अवधारणा

- चेतना की अवस्थाएँ: जाग्रत (जागरण), स्वप्न (सपना), सुषुप्ति (गहन निद्रा), और तुरीय (अतिचेतना)

- आत्म-साक्षात्कार और चेतना का संबंध
- चेतना के विस्तार में ध्यान की भूमिका
- आधुनिक न्यूरोसाइंस और चेतना पर इसकी अंतर्दृष्टि

2. योग मनोविज्ञान

- मन-शरीर संबंध को समझना
- मानसिक स्वास्थ्य और भावनात्मक संतुलन में योग की भूमिका
- अवचेतन और अचेतन मन

यूनिट 4: भगवद गीता और योग उपनिषद्

1. भगवद गीता

- योग से संबंधित भगवद गीता की प्रमुख शिक्षाएँ
- कर्म योग, भक्ति योग, ज्ञान योग, और ध्यान योग
- आधुनिक जीवन में गीता की शिक्षाओं की प्रासंगिकता

2. योग उपनिषद्

- प्रमुख योग उपनिषद्: ईशावास्य, केन, कठ, माण्डूक्य
- उपनिषदों में योग का दार्शनिक आधार
- आत्मा (स्वयं) और ब्रह्म (सर्वव्यापक चेतना) की अवधारणा
- मोक्ष और उपनिषदों में मुक्ति की व्याख्या

यूनिट 5: भारतीय दर्शन, योग एवं स्वास्थ्य और योग का अनुप्रयोग

1. भारतीय दर्शन और संस्कृति

- भारतीय दर्शन के छह शास्त्रीय विद्यालयों का परिचय: सांख्य, योग, वेदांत, न्याय, वैशेषिक, मीमांसा
- प्राचीन और आधुनिक भारत में योग पर सांस्कृतिक प्रभाव
- भारतीय आध्यात्मिक और सांस्कृतिक परंपराओं में योग की भूमिका

2. योग और स्वास्थ्य

- शारीरिक, मानसिक और आध्यात्मिक स्वास्थ्य में योग के लाभ
- जीवनशैली संबंधी बीमारियों की रोकथाम और प्रबंधन में योग की भूमिका
- आधुनिक स्वास्थ्य देखभाल में योग के चिकित्सीय अनुप्रयोग (योग चिकित्सा)

3. योग का अनुप्रयोग

- तनाव प्रबंधन और कल्याण के लिए योग
- दैनिक जीवन और व्यावसायिक प्रथाओं में योग का समावेश
- योग शिक्षा और अनुसंधान: आधुनिक प्रवृत्तियाँ और भविष्य की दिशा



ANJAYEYA UNIVERSITY, RAIPUR, CHHATTISGARH

PhD Entrance Exam 2024 Syllabus

Ph.D Entrance Exam Syllabus for Psychology

Unit I:

Human Development and Interventions Developmental processes: Nature, Principles, Factors in development, Stages of Development. Theories of development: Psychoanalytical, Behavioristic, and Cognitive Various aspects of development: Sensory-motor, cognitive, language, emotional, social and moral. Psychopathology: Concept, Mental Status Examination. Therapy, Behavior therapy, REBT, CBT.

Unit II:

Research Methodology and Statistics Research:

Meaning, Purpose, and Dimensions. Research problems, Variables and Operational Definitions, Hypothesis, Sampling. Methods of research: Observation, Survey [Interview, Questionnaires], Experimental, Quasi-experimental, Field studies.

Unit III:

Psychological testing Types of tests Test construction:

Item writing, item analysis Test standardization: Reliability, validity and Norms Areas of testing: Intelligence, creativity, neuropsychological tests, aptitude, Personality assessment Likert scale. . Biological basis of behavior Sensory systems: Neurons: Structure, functions, types, neural impulse, synaptic transmission. Neurotransmitters.

Unit IV:

Attention, Perception, Learning, Memory and Forgetting Attention:

Models of attention Perception: Approaches to the Study of Perception: Gestalt and physiological approaches Perceptual Organization: Gestalt, Figure and Ground, Law of Organization Perceptual Constancy: Size, Shape, and Color; Illusions Perception of Form perception. Learning Process: Fundamental theories: Thorndike, Guthrie.



ANJAYEYA UNIVERSITY, RAIPUR, CHHATTISGARH

PhD Entrance Exam 2024 Syllabus

Unit V:

Thinking, Intelligence and Creativity Theoretical perspectives on thought processes:

Intelligence theory: Spearman; Thurstone; Jensen; Cattell; Gardner; Stenberg; Goleman; Role of concepts in thinking Types of Reasoning Language and thought Problem solving: Type, Strategies, and Obstacles Decision-making.