University of Mysore

Syllabus for Ph. D. Entrance Test AGRIBUSINESS MANAGEMENT

Unit – I

Agribusiness Management – Indian Agricultural Economy, Principles of Management, Functions of Management. Introduction to Agribusiness, Agribusiness Management, Agribusiness – importance for developing countries, Agribusiness Management – Nature, definition, scope and functions. Agribusiness input and output services, agricultural credit and foreign trade, Planning and organizing Business – Importance of small agribusiness. Entrepreneurship in agribusiness, Role of Marketing Institutions in Agribusiness. Contract farming

Unit – II

Agricultural Marketing – Definition of market and agricultural marketing, Royal Commission on Agriculture and various committee reports, classification of markets. Markets and market structure. Marketing functions and services, marketing development and planning, Agricultural Marketing Organizations, Co-operative Management, Co-operative Marketing, Cooperative Institutions. Grading and Standardization, Bureau of Indian Standards (BIS). Marketing of Agricultural Inputs – Fertilizer, seeds, pesticides, Agricultural Machinery, Production, consumption, pricing, Marketing and Subsidies, State intervention and Policy. Business Legislation – Essential Commodities Act, Food Adulteration Act, Food safety and standards, consumer protection Act.

Unit – III

Marketing Management- Introduction to Marketing Management, Market Segmentation and Targeting, Marketing Mix, Marketing Information Systems. Retail Management- Retail Marketing – Economic significance of retailing – trends in the retailing industry. Revolution in retailing – Retail formats, Multi Brand and Signal Brand retailing, Food Retailing, FDI in Retailing. Advertising Management - Advertising and Marketing Communication. Media strategy and planning, Creating effective advertising, Advertising testing, Corporate Communication, Public relations in Advertising. Supply Chain Management- Introduction to Supply Chain, evolution of supply chain, franchising role of MNC's. Information Technology and Supply Chain. Customer Services, logistics, Franchise, Super Markets, Hypermarkets.

Unit – IV

Commodity Marketing - Overview of commodity marketing system. Production pattern, regional variation in trends, marketing channels, marketing problems such as storage, transport, grading, processing and packaging, marketing costs and margins, price spread and pricing of agricultural products, Commodity Boards and Market intervention.

Unit - V

Future Trading - Commodity Markets, Physical Markets/Spot Market, Forward Contract, Futures Contract, Commodity Futures, Trading activities on Futures Market, Functions of Stock Exchange. Options in future trade strategies (Derivates Trade), FMC. Functions of National Commodity Exchanges - MCX, NCDEX, NMCX, NSE, BSE, process of trading and contracts.

Unit VI

Research Methods and QT for Agribusiness - Meaning and Significance of Research in Management, Sampling Techniques, Processing of Research Data and their Analysis and Interpretation. Uses and Limitations of the measures of Central Tendency. Correlation and Regression Analysis, Analysis of Time Series: Time series analysis and forecasting techniques. Testing of statistical hypothesis, tests of significance – Z Test, T Test, Chi-Square and F tests.

Introduction to Applied Multivariate analysis, Principle Component Analysis and Cluster analysis. Conjoint Analysis. Introduction to some basic quantitative methods packages used in agribusiness research, SPSS and Application of Statistics in Business.

Unit – VII

Human Resource Management in Agribusiness - the cultural dilemma's in Indian organizations, human resources planning, development (selection, placements, promotions). Employee development and training, legal issues compensation system, industrial relation managing change in changing organizations, Talent Management and retention, Job design, job analysis and evaluation.

Unit - VIII

Agribusiness Entrepreneurship and Project Management - Key Concepts in entrepreneurship. The entrepreneur in economic theory – Types of entrepreneur and the entrepreneurial process. Innovation and exploitation of opportunity, Innovation and entrepreneurship- Modules of innovation. Business planning process Institutions supporting entrepreneurs. Family Business. Successful Agri-business enterprises, Case Studies.

Project Management -Project planning & Appraisal – steps in planning - project cycle, project appraisal techniques - market analysis, techno economic survey - financial analysis, network analysis, priority setting methods. Prerequisites for successful implementation of projects. Project cost and benefits.

Unit - IX

Rural Marketing - Understanding rural market environment. Rural-urban divide. Rural marketing challenges and opportunities. Structure and relationships of formal and informal markets. Periodic markets, Rural markets in Karnataka. The concepts of PURA and its relevance. The future of rural markets. Role of market centers in development. Factors influencing rural consumer behavior, growing consumerism, segmentation, Targeting, positioning. Strategies for Indian rural marketing, Role of media in Rural Marketing.

Unit - X

Managerial Communication - Nature of Managerial Communication, the communication process. Effective communication and barriers to communication, business communication, introduction to communication skills; writing, reading, logic and analysis and listening. Communication for Problem Solving. Business Writing

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Syllabus for Ph. D. Entrance Exam Dr. Ambedkar Studies

Unit - 1:

Emancipatory Theory – Booker T. Washington, Martin Luther King Jr., Nelson Mandela, Gandhi and Ambedkar – their concepts of Society and State.

Unit - 2:

Comparative Study of Buddha, Basavanna, Lohia and Periyar on Caste System

Unit - 3:

Economic Thoughts of Ambedkar – Agrarian Economics, Monetary Economics, Fiscal Economics

Unit - 4:

Ambedkar and Indian National Movement – His views on nationalism and communalism. His concept of Trinity – Liberty, Equality and Fraternity

Unit - 5:

Ambedkar's views on Brahminical Hinduism, Buddhism and Marxism

Unit - 6:

Ambedkar's Contribution to the making of Indian Constitution, Fundamental Rights, Directive Principles of State Policy, Centre – State Relations, Judiciary

Unit - 7:

Dalit and Backward Classes Movements in India with special reference to Karnataka

Unit - 8:

Feminist Movement in India, Ambedkar's Contribution to the Emancipation of Women. Dalit Feminism

Unit - 9:

Dalit Literature – Meaning, Definition, kinds of Dalit Literature, Main writers and Challenges of Dalit literature with special reference to Karnataka

Unit - 10:

New Forms of Discrimination –Corporate forces in contemporary India, Caste discrimination and the role of National Commission for SC and ST.

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Syllabus for Ph. D. Entrance Exam ANCIENT HISTORY AND ARCHAEOLOGY

UNIT-I:

- a) Sources of Indian History
- b) Harappan Civilization
- c) Mauryan Empire-Chandragupta to Ashoka Political and Administrative System
- d) Guptas-Political and Cultural History

UNIT-II:

- a) Sources of South Indian History
- b) Pallavas-Cultural History-Badami Chalukya Political History
- c) Rashtrakutas-Political and Cultural History
- d) Hoysalas

UNIT-III:

- a) Three Age System
- b) Stone Tool Techniques
- c) Lower Palaeolithic to Neolithic Period
- d) Chalcolithic and Megalithic

UNIT-IV:

- a) Methods of Excavations and Explorations
- b) Relative Dating Methods
- c) Absolute Dating Methods

UNIT-V:

- a) Importance of Epigraphy to the knowledge of Indian History
- b) Types of Inscriptions
- c) Ashokan Edicts
- d) Halmidi Inscriptions, Aihole Inscription of Pulakesi-II, Uttaramerur Inscriptions of Parantaka-I and Sravanabelagola Inscription of Bukkaraya-I.

UNIT-VI:

- a) Nature of History-History is a Science or Art?
- b) Historians and Historiographers
- c) Historical Methodology
 - (i) Heuristics, (ii) Internal and External Criticism, (iii) Synthesis, (d) Exposition

UNIT-VII:

- a) Special features of Indian Art
- b) Mauryan Art and Architecture
- c) Rock-cut Architecture in India

UNIT-VIII:

- a) Three styles of Indian Artb) Badami Chalukya and Kalyana Chalukyan Architecture
- c) Pallava and Chola Architecture
- d) Hoysala and Vijayanagara Architecture

UNIT-IX:

- a) Antiquity of Coinage in India
- b) Gupta Coins
- c) Vijayanagara Coins

UNIT-X:

- a) T.Narasipura
- b) Brahmagiri
- c) Chandravalli
- d) Talakad
- e) Hampi

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Syllabus for Ph. D. Entrance Exam

Anthropology (Both for Social-cultural and Biological Anthropology)

Unit: - 1. **Introduction**

- a. Meaning and scope of social-cultural, biological Archaeological and Linguistics Anthropology
- b. History of Anthropology
- c. Relationship of anthropology with social sciences and natural sciences

Unit: - 2. Family and Marriage

- a. Family: Definitions and universality; household and domestic group; division of labour; typologies (conjugal, consanguineal, nuclear, joint, extended, patrilocal, matrilocal)
- b. Functions of family; trends of change, the changing joint family in India.
- c. Marriage: Definitions and universals, incest and incest taboo; marriage rules (endogamy and exogamy, levirate and sororate, preferential and prescriptive); marriage forms (monogamy and polygamy)
- d. Marriage: Functions of marriage; marriage payments (dowry and bride-price); marriage stability and divorce; widowhood and remarriage.

Unit: - 3 Economic, Political and Religious Organizations

- a. Folk (tribal), peasant, pastoral and urban economies distinguished
 Salient features of pre industrial economies: 'primitive communism', concepts
 of subsistence and surplus economies, principles of production, distribution and
 consumption; systems of exchange (reciprocity, redistribution, barter and trade)
- b. Types of political organizations of simple societies: egalitarian and non egalitarian, centralized and decentralized.
- c. Differences between stateless and state societies
- d. Nature of religion in simple societies: animism, animatism, fetishism, naturism and totemism.
- e. Religion, magic and science distinguished.
- f. Magico-religious functionaries in simple societies: priest, shaman, witch, sorcerer.

Unit: - 4 Research Techniques in Anthropology

- a. Interview Method
- b. Observation
- c. Genealogy and Pedigrees
- d. Use of documents
- e. Case Study
- f. Interview Schedule
- g. Questionnaire

Unit:5

- a. Methods of Dating and their relevance in prehistoric archaeology
- b. Stone tools technology and typology
- c. Meaning of civilization and main centers of civilization
- d. Rise and Fall of Indus valley civilization
- e. Megalithic cultures of South India

Unit:- 6

- a. Man's place animal kingdom
- b. Theories of organic evolution
- c. Fossil evidences for emergence of man (Australopithecus, Pithecanthropus, Neanderthal Man and Cro-Magnon

Unit:- 7

- a. Human Genetics: Mendelian Genetics in Man
- b. Methods for studies of Human Genetics in Man
- c. Race: Major races of mankind, criteria for racial classifications

Unit: - 8 Basic concepts of Medical Anthropology

- a. Health diseases, illness, healing, curing and therapy management
- b. Cultural identification of food, food classification and cultural images of body (ethno physiology and ethno-anatomy); culture and malnutrition.

Unit: - 9 Tribal Cultures of India

- a. Concept of tribe
- b. Geographical distribution of Indian tribes
- c. Social organizations of Indian tribes
- d. Religious beliefs of tribes (animism, bongaism, naturalism, totemisim, taboo, magic, ancestor-worship and polytheism).

Unit: - 10 Anthropological Theories

a. Evolutionism, infusionism, Functionalism, Structuralism, Cultural materialism and Culture and personality

References:

- 1. Ember.C.R. and M.Ember 2002 Anthropology. New Delhi: Prentice -Hall of India Pvt. Ltd.
- 2. Evans-Pritchard, E.E. 1990 Social Anthropology. New Delhi: Universal Book Stall
- 3. Fox, Robin 1967 Kinship and Marriage. Penguin book
- 4. Buettner Janusch, J 1969 Origins of man, New Delhi: Wiley Eastern Pvt Ltd
- 5. Rami Reddy, V. 1992 Physical Anthropology, Evolution and Genetics: Tirupati: V. Indira, Publisher.
- 7. Rami Reddy, V. 1987 Elements of Prehistory, New Delhi: Mittal Publishers
- 8. Sankalia, H.D. 1964 Stone Age tools. Pune: Deccan College
- 9. Bernard, H.R 1998 Research Methods in Cultural Anthropology. New Delhi: Sage Publ.
- 10. Pelto, P.J. and G.H Pelto, 1978 Anthropological research. Cambridge Univ. Press.
- 11. Young, P.V. 1994 Scientific Social Surveys and Research, New Delhi: Prentice-Hall of India.
- 12. Chambers, E. 1985 Applied Anthropology. Englewoodcliffs, N.J Prentice Hall.
- 13. Foster, G.M. 1969 Applied Anthropology. Baston: Little Brown and Co.
- 14. Agarwal, D.P. 1980 The Archaeology of India, London: Curzon Press.
- 15. Allchin, B. & Allchin, R. 1982 The Rise of Civilization in India and Pakistan: Cambridge: Cambridge University Press.
- 16. Layton ,R (1997) An Introduction to Theory in Anthropology. Cambridge: University Press.
- 17. Upadhyaya, V.S and G.Pandey (1997) History of Anthropological Thought. New Delhi: Concept publishers.
- 18. Foster.G.M and B.G. Anderson 1978 Medical Anthropology. John Wiley & sons.

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SYLLABUS FOR Ph.D. ENTRANCE EXAMINATION SUBJECT: Applied Botany

Unit 1. Seed Technology: Embryogenesis and seed development; biochemical, hormonal and physiological changes during seed development; orthodox and recalcitrant seeds; seed dormancy. Agricultural situation in India – impact of green revolution, notified varieties, seed act. International organizations – ISTA, OECD, UPOV, AOSA, APSA, CGIAR, ISHI, FIS, EPPO, NSHS. Seed production strategies - classes of seeds and maintenance, seed production requirements. Seed drying, processing, storage and marketing. Concept and testing of Seed quality – varietal purity, physical purity, numerical determination, moisture, germination, vigour and TTC test; Seed certification – domestic and international. Seed health: Definition and importance of seed borne diseases, types of disease cycle, quarantine, phytosanitary certificates, important seed borne diseases, seed borne nature and transmission, seed health testing for fungi, bacteria, viruses and nematodes.

Unit 2. Molecular plant pathology: Fundamentals of plant pathology, Fungal infection - disease development - basic concepts of necrotrophy and biotrophy, host barriers , role of toxins and enzymes; Bacterial diseases – cell wall degrading enzymes, toxins, hormones, extracellular polysaccharides, determinants of host specificity, effector proteins, quorum sensing; Viral diseases – structure and replication, infection, symptoms, transmission, short and long distance movement; Resistance mechanisms – classical concepts, preformed defences, induced defences, PR-proteins, gene-for-gene resistance, signaling mechanisms; Molecular diagnostics – classical approaches, serological tests, nucleic-based techniques; Plant disease management – conventional approaches, biotic/abiotic elicitors, biological control, PGPR.

Unit 3. Crop improvement: Basic concepts and scope of plant breeding, principles and methods of plant breeding in self, cross and asexually propagated plants; male sterility, breeding for disease resistance, polyploidy and mutation breeding, somaclonal variation, Marker assisted selection. Transgenic technology: Scope of plant transgenics, plant transformation techniques, Agrobacterium-mediated genetic transformation, Ti and Ri plasmids; viral vectors; direct gene transfer methods; selection of transformants. Transgenic traits – herbicide resistance, resistance against biotic and abiotic stress, nutritional quality, male sterility; Concerns and constraints of transgenic technology, ethical issues; Molecular farming. Intellectual Property Rights – WTO, WIPO, GATT, TRIPS, Plant breeders' Rights.

Unit 4. Cell and Tissue culture technology: Importance, Types of media and their composition, role of growth hormones/regulators; organogenesis, somatic embryogenesis, embryo rescue, somaclonal variation, cell suspension culture and its importance, synthetic seeds; Micropropagation techniques; haploid culture, protoplast culture, bioreactor systems for mass cultivation of plant cells; commercial production.

Unit 5. Molecular markers: DNA Polymorphism in plants and microbes, molecular taxonomy, DNA fingerprinting, Genetic markers – RAPD, SCAR, RFLP, AFLP, SSR, SNP, SSCP, ISSR, DGGC; cDNA library, PCR techniques, quantitative PCR; genome sequencing techniques.

Unit 6. Molecular medicine: Natural products as modern drug targets, ethnobotanical approach and screening, plants and microbes as sources of natural metabolites; extraction, purification and characterization of natural metabolites, establishing bioactive potential and screening against different targets, assay-guided fractionation, high throughput screening, clinical trials; use of softwares in drug development.

Unit 7. Biodiversity: Introduction to basic concepts – organization of life, hierarchy of interaction, levels of ecological organization; genetics, species and ecosystems, values of biodiversity, problems and threats to biodiversity; evolution and speciation, evolutionary theory, genetic basis of evolutionary mechanism, speciation, extinction; agricultural ecology, centres of origin/diversity, domestication of species, agro-ecosystem characteristics, sustainable agriculture, agricultural biodiversity; conservation of genetic resources for food and agriculture, *in situ* and *ex situ* conservation; gene flow – vertical and horizontal gene transfer; ecology of GM crops, environmental effects, potential risks and benefits of GMOs.

Ph.D. ENTRANCE EXAM IN AUDIOLOGY

UNIT 1

AUDITORY PHYSIOLOGY

- External ear: Anatomy & Physiology, age related changes and its application
- Middle ear: Anatomy & Physiology, impedance concept and its application
- Cochlea: Anatomy and Physiology, theories of hearing
- Auditory nerve and Vestibular system: anatomy and physiology, Anatomy of other cranial nerve
- Central auditory pathway: anatomy and physiology of brainstem, subcortical and cortical auditory areas.

UNIT 2

BASICS IN AUDITORY PERCEPTION

- ➤ Loudness: MAP and MAF, measurement and factors affecting
- Pitch: theories, measurement and factors affecting
- > Temporal processing: measurement and factors affecting
- Object perception: auditory pattern perception
- Masking: Types, physiology and application

UNIT 3

PSYCHOPHYSICS OF AUDITION

- Loudness perception in auditory disorders: adaptation, fatigue and recruitment
- Pitch perception in auditory disorders:
- Temporal perception auditory disorders
- ➤ Binaural Hearing: Localization and lateralization, physiology and factors affecting binaural hearing
- Perception of music: scales, notes and factors affecting music perception

UNIT 4

IMPLANTABLE DEVICES FOR INDIVIDUALS WITH HEARING IMPAIRMENT

- ➤ Bone anchored hearing aids (BAHA) and middle ear implants: instrumentation, candidacy and benefit
- > Cochlear implants: design and features, candidacy, factors affecting benefit
- Psychophysics of cochlear implants
- ➤ Habilitation of individuals with cochlear implants: adults and children
- Brainstem implant and mid brain implants: design and features, candidacy, factors affecting benefit

UNIT 5

PHYSIOLOGICAL ASSESSMENT OF THE AUDITORY SYSTEM

- > Tympanometry and reflexometry: Principle, instrumentation, procedure
- ➤ Application of Immitance: tympanometry and reflexometry
- Non Audiological tests: MRI, fMRI, MEG, X-Ray, CT, PET, SPECT, lab tests,.
- ➤ Oto acoustic emissions classification, generation and instrumentation
- Oto acoustic emissions Clinical application

UNIT 6

SPEECH PERCEPTION

- ➤ Theories of speech perception:
- Perception of vowels and consonants: cues for perception, relation between production and perception cues, role of co articulation
- Dichotic listening: Factors affecting and application
- Memory and speech perception
- > Infant speech perception

UNIT 7

ELECTROPHYSIOLOGICAL ASSESSMENT OF THE AUDITORY SYSTEM

- Classification, instrumentation, methods of analysis & generators of auditory evoked potentials:
- ➤ Early and middle latency potentials: factors affecting recording and interpretation; application
- Late latency potentials: factors affecting recording and interpretation; application
- Steady state evoked potentials: factors affecting recording and interpretation; application
- > Vestibular assessment: factors affecting recording and interpretation; application

UNIT 8

REHABILITATIVE AUDIOLOGY

- > Digital technology in hearing instruments: design and features, electro acoustic performance
- ➤ Hearing device selection procedures: subjective and objective techniques
- Assessment and Management of individuals with special listening needs: Individuals with deaf blindness, MR, autism, cerebral palsy, LD, multiple disability
- > Tinnitus and Hyperacusis: Theories, assessment and management
- Audiology in practice: National and international standards, acts and legislations, medico legal aspects

UNIT 9

CENTRAL AUDITORY PROCESSING DISORDERS

- ➤ Theoretical basis and classification of (C)APD
- ➤ Behavioral tests in the assessment of (C)APD: Screening and diagnostic tests for children and adults
- Objective test in the assessment of (C)APD: Screening and diagnostic tests for children and adults
- Management of (C)APD: Deficit based strategies and management
- Factors affecting assessment and management of (C)APD

UNIT 10

SPEECH PERCEPTION IN CLINICAL POPULATION

- Perception of vowels, consonants, coarticulation and suprasegmentals in individuals with different degrees, types and audiogram configuration
- Perception of speech through other modalities: segmental and supra segmental perception through visual and tactile modalities
- > Speech perception in cochlear implantees: Factors affecting perception
- > Speech intelligibility: subjective and objective methods and factors influencing
- > Speech perception in adverse listening condition: affect of noise reverberation

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Syllabus for Ph. D. Entrance Exam . Biochemistry

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Unit 1: Techniques

Chromatographic techniques: Ion exchange, gel filtration, affinity, GLC, chromatofocusing, HPLC and FPLC.

Electrophoretic techniques: Polyacrylamide gel electrophoresis, SDS-PAGE, 2D-electrophoresis, agarose gel electrophoresis, isoelectric focusing, pulsed field electrophoresis, Separation of proteins, lipoproteins and nucleic acids. Visualizing separated components; staining, fluorescence, PAS staining, zymogram and reverse zymogram.

Spectroscopic techniques: Fluorimeter. Beer-Lambert's Law and its limitations. Extinction coefficient, fluorescent probes and their applications.

Physical methods of determining size, shape and structure of molecules:

NMR and IR: Principles and applications. CD and its applications to proteins.

Isotopic tracers: Heavy isotopes and radio isotopes, Mass spectrometer. Ionization, fragmentation, m/e, time of flight, MALDI and ESI.

Radioisotopes in Biology: Concept of half-life, decay constant, detection and quantitation - GM counter and solid and liquid scintillation counter, autoradiography and their applications.

Microscopic techniques: Scanning and transmission electron microscopes, freeze-etch and freeze-fracture methods for EM, Confocal microscopy.

Unit 2: Biomolecules:

Carbohydrates: Structure elucidation, degradation, graded acid hydrolysis, periodate oxidation, degradation of oxopolysaccharides, methylation, acetylation, GC-MS.

Glycobiology: Glycoproteins; N- and O-glycosylation, lectins, carbohydrates in tissue engineering. Proteoglycans; Structural polysaccharides; hyaluronan, chitin, chondroitin and pectin. Determination of site of glycosylation and type of linkage (O-glycosyl and N-glycosyl).

Proteins: Determination of primary structure: Sequencing strategies; N-terminal and C-terminal, sequencing methods. Automated sequanators. Determination of s-s-bond position. Secondary structure of protein; α , β sheet, β bend, β turn and super secondary structures. Secondary structure prediction methods; Ramachandran plot, Chou and Fasman algorithm. Tertiary and quaternary structures.

Lipids: Oils, fats, and waxes, cholesterol, phosopholipids, glycolipids, sphingolipids, cerebrosides and gangliosides.

Nucleic Acids: Physiochemical properties of nucleic acids, melting of DNA, Tm; factors affecting Tm, Cot curve, classification of DNA based on cot curve. Chemical reactions of DNA and RNA.

Sequencing of DNA: Dideoxy method. Chargaff's rule, secondary structure of DNA. Watson and Crick model; B and Z DNA, other models of DNA structure. Secondary structure of tRNA and clover leaf model. Other secondary structural features in DNA, stem loop structure, palindromic sequences, cruciforms. DNA protein interaction; zinc finger leucinc zipper, helix-turn-helix, other motifs.

Unit 3: Enzymology:

General aspects: Nomenclature and IUB classification of enzymes. Enzyme specificity, specific activity, assay methods; coupled enzyme assays, continuous, end point and kinetic assay. Units of enzyme activity, IU and Katal.

Enzyme Kinetics: Michaelis-Menten equation, steady state approach. Vmax, Km and their significance. Linear transformation of Michaelis-Menten equation; Lineweaver-Burk plot, Eadie-Hofstee, Haynes-Wolf and Cornish-Bowden.

Inhibition: Reversible and irreversible inhibition; competitive, non competitive, uncompetitive product inhibition and suicide inhibition. Determination of Ki and Kd.

Cooperativity: Binding of ligands to macromolecules; Scatchard plot, cooperativity, positive and negative cooperativity. Oxygen binding to hemoglobin, homotropic and heterotropic effectors, aspartyltranscarbamylase as an allosteric enzyme.

Mechanisms of action of specific enzyme: Factors influencing enzyme catalysis, Chymotrypsin, zymogen activation, acid-base catalysis, charge relay network, Lysozyme, RNA as an enzyme, coenzymic action of NAD⁺, FAD, TPP, PLP, Biotin, CoA, folic acid and lipoic acid.

Metabolic regulation of enzyme activity: Feed back regulation, fine control of enzyme activity.

Fast reactions - Stopped flow, temperature jump method.

Unit 4: Metabolism:

Carbohydrate metabolism: Gluconeogenesis, regulation, Cori cycle, citric acid cycle and their regulation, energetics, anaplerosis, glyoxylate cycle. HMP shunt pathway, interconversion of hexoses. Utilization of non glucose sugars.

Metabolic disorders: Disorders of carbohydrate metabolism; diabetes mellitus, classification.

Lipids: Degradation of triacylglycerols, phospholipids, sphingolipids and regulations; lipase, hormone sensitive lipase, phospholipases and sphingomyelinase. Energetics of fatty acid degradation, chain elongation and desaturation. Metabolism of circulating lipids; chylomicrons, HDL, LDL and VLDL. Reverse cholesterol transport by HDL, Foam cell formation. Regulation of blood cholesterol, triglycerides, LDL and HDL. Obesity. Phospholipids: Inter conversion of phospholipids, Biosynthesis of prostaglandins, thromboxanes leukotrienes and ether lipids.

Integration of metabolic pathways: Integration of carbohydrate and lipid metabolism, and their regulation and manipulation. Hormonal regulation of glucose metabolism, Effect of insulin and glucagon, catecholamines, growth hormones and corticosteroids on carbohydrate and lipid metabolism in different tissues.

Proteins: General mechanisms of degradation in cells; ubiquitin-proteosome pathway, lysosomal pathway. Non ribosomal peptide synthesis: glutathione, gramicidine. Biosynthesis of creatin, polyamines.

General mechanisms of amino acid metabolism and regulations: Deamination, transamination, decarboxylation desulphuration. Ketogenic and glucogenic amino acids. Regulation of amino acid biosynthesis; transglutaminase cycle, urea cycle. In born errors of amino acid metabolism; Phenyl Ketonuria, alkaptonuria, maple syrup urine.

Purines and pyrimidines: Uric acid formation. Salvage pathways, Gout and Lysch-Nyhan syndrome. Conversion of nucleotides to deoxynuclotides. Mechanisms of action of methotrexate, 5-fluorouridine, azathymidine.

Biosynthesis of cofactors: NAD⁺, FAD and coenzyme A, polyamine biosynthesis and their metabolic role.

Unit 5: Molecular Biology:

Introduction: Central dogma of molecular biology.

DNA-antiparallel nature: Nearest neighbour base frequency analysis. Replication of DNA, semi conservative nature; Messelson and Stahl experiment. Replication of double stranded DNA, direction of replication, discontinuous replication, Okazaki fragements. DNA polymerase I, II and III, DNA ligase, DNA topoisomerases. Fidelity of replication, replication in viruses, rolling circle model, Trombone model, translesion synthesis (DNA pol IV and V).

Transcription: Colinerity of genes and proteins, RNA polymerase I, II and III. RNA biosynthesis in prokaryotes and eukaryotes; initiation, elongation and termination. RNA dependent RNA synthesis, RNA replicase of Q β virus. Processing of eukaryotic RNA, cap addition, poly A tail addition, RNA editing. Processing of tRNA and mRNA transcripts.

Translation: Universality features of the genetic code and degeneracy of codons. 3D structure of prokaryotic and eukaryotic ribosomes, ribosomal protein systhesis; initiation,

elongation and termination. Aminoacyl tRNA synthetases and their role in translation accuracy.

Regulation of gene expression in prokaryotes: Operon model; lac operon, structure and regulation. Galactose operon; role of two promoters. Arabinose operon; positive control. Tryptophan operon; attenuation control.

Eukaryotic gene regulation: DNA methylation, Chromatin structure, chromatin remodeling, Swi/Snf, remodeling assay, ChIP.

Regulation at the level of translation: Secondary structure in the 5' and 3' untranslated region; regulation of ferretin and transferring mRNA. Role of upstream AUG codons (GCN 4 gene regulation), protein splicing inteins.

Post translational modification of proteins, signal cleavage disulphide bond formation, O and N-glycosylation, folding of nascent protein, role of chaperones, attachment of glycosyl anchor and other modifications.

Enzymes in DNA and RNA degradation: Nucleases, ribonucleases, classification and role.

Unit 6: Immunology:

Introduction: Definitions; antigenicity, immunogenicity, innate and acquired immunity. Primary and secondary lymphoid organs, self and non self discrimination. Antigens and antibodies; haptens, epitopes and paratopes. Valency of antigen, epitope analysis. Structure of immunoglobulins, hyper variable region, isotypic, allotypic and idiotypic variations.

Cellulcar Basis of Immunity: Primary and secondary immune response. Reticuloendothelial system, T, B and accessory cells. Development of T and B cells. Sub sets of T and B cells. Thelper cells, T-killer cells, T-suppressor cells. T and B cell receptors, antigen processing and presentation. T and B interaction. Cytokines and co-stimulatory molecules; lymphokines, interleukins, structure and function of IL-l β , IL-2, TNF α . Suppression of immune response, immunoglobulin genes, generation of immunoglobulin diversity, gene rearrangement, clonal selection theory of Burnet.

MHC: Role of MHC in immune response.

In vitro antigen-antibody reaction: Precipitation, agglutination, complement fixation, immuno diffusion, immunoelectrophoresis, immunofluorescence, RIA, ELISA.

Defense system in plants: Host parasite interaction in plants.

Unit 7: Genetic engineering and biotechnology:

Genetic Engineering: Restriction-modification systems, restriction enzymes; type I, II and III, specificity, sticky ends and blunt ends, isoschizomers. Gene cloning; genomic cloning, shot gun cloning, cDNA cloning.

Vectors: Plasmids, phage, cosmids and phagemid. Yeast cloning vectors, plant vectors, bacterial artificial chromosome, SV40, shuttle vectors, construction of expression vectors.

Ligation: Blunt end and sticky end ligation, use of linkers and adopters, homo polymer tailing, colony hybridization, plaque hybridization.

Transformation: Micro injection, electroporation, lipofection, calcium phosphate method, protoplast fusion/somatic cell hybridization and biolistic methods.

Transgenic plants and animals, gene knock out.

Techniques: PCR; nested PCR and their applications in cloning, agriculture and medicine. RT-PCR and Real time PCR technique and their applications.

Identifying the right clones: Direct screening; insertional inactivation of marker gene, visual screening, plaque phenotype. Indirect screening; immunological techniques, hybrid arrest translation and hybrid select translation. Screening using probes; construction of gene probes, hybridization and labeling.

Blotting techniques: Dot blot, Southern, Northern, Western blot, DNA foot print assay, DNA finger print assay, gel retardation assay, nuclease protection assay. RFLP, RAPD,

Applications: Gene therapy, applications in agriculture medicine, industry. GM foods, terminator gene, negative impact of genetic engineering.

Unit 8: Hormones and cell signaling:

Endocrine System: Chemistry of hormones, hormones produced by hypothalamus, pituitary, thyroid, parathyroid, pancreas, adrenals, gonads and intestine.

Regulation of hormone production and release: hypothalamus-pituitary-target organ axis and regulation by feed back mechanism.

Cell Signaling: Autocrine, paracrine, juxtacrine and endocrine signaling.

Peptide hormones: General mechanisms of cell signaling by hydrophilic factors, transmembrane receptors, G protein coupled receptors, receptor tyrosine kinase, eicosanoid receptors.

Second messengers: IP₃, DAG, cAMP, protein kinases. Nitric oxide signaling; generation and action.

Steroid hormones: General mechanism of action, Receptor down regulation, desensitization and up regulation.

Cell cyle and its regulation; CDKs, apoptosis.

Insect hormones: Moulting hormone, ecdysone and juvenile hormones. Pheromones – Mechanism of perception, action and use in pest control.

Unit 9: Membrane Biology

Biomembranes: Physicochemical properties of biological membranes; compositions, supra molecular organization. Singer and Nicholson's model. Newer models.

Membrane asymmetry; lipids, proteins and carbohydrates and their dynamics. Biogenesis of lipids and proteins, polarized cells, membrane domains; caveolae, rafts, membrane lipid and protein turnover, intracellular targeting of proteins. Biogenesis of sub cellular organelles.

Methods to study the membrane structure: Lipid transfer proteins, phospholipases, chemical methods, amino-phospholipid translocation, TNBS reagent, freeze fracture and freeze etching. Lipid vesicles; liposome preparations and application, function of sterols in membranes.FRET, FRAP, single particle tracking.

Membrane transport: Laws of diffusion across membranes, simple diffusion, facilitated diffusion and active transport. Glucose transporters, Ca²⁺ ATPase, Na⁺-K⁺ ATPase, bacterial phosphotransferase system. Endocytosis, receptor mediated endocytosis, exocytosis, ion channels; gated and non gated, aquaporin channel.

Nerve transmission: Acetylcholine receptor and neurotransmitters, mechanisms of nerve conduction, resting and action potential, ion channels, ionophores, patch clamp technique. Synaptic transmission, GABA, NMDA, structure and function.

Muscle contraction: Mechanisms, role of calcium, calmodulin, phospholamban.

Unit 10: Bioenergetics

Thermodynamics: I, II and III laws of thermodynamics. Enthalpy, entropy, free energy and chemical equilibrium.

High energy compounds: Energy currency, ATP, ADP, creatine phosphate, phosphoenol pyruvate as energy rich compound.

Photosynthesis: Photosynthetic apparatus in plants, photosystems I and II, light harvesting antenna complex. Electron flow and phosphorylation; cyclic and noncyclic, oxygen evolution, Calvin cycle. C3, C4 and CAM cycle. Photorespiration, bacterial photosynthesis.

Respiration: Plant mitochondrial electron transport and ATP synthesis.

Nitrogen metabolism: Importance of nitrogen in biological systems, nitrogen cycle. Nitrogen fixation; symbiotic and non-symbiotic, nitrogenase complex, energetics and regulation.

Mitochondrial electron transport: Entry of reducing equivalents for oxidation; malate-aspartate shuttle, glycerol phosphate shuttle.

Organization of respiratory chain complexes, structure and function of the components; Fe-S proteins, cytochromes, Q cycle, proton transfer, P/O ratio, respiratory control, oxidative phosphorylation, uncouplers and inhibitors

ATP synthesis, ATP synthase complex, binding change mechanism, proton motive force, Mitchell's hypothesis.

Substrate level phosphorylation, futile cycles and their application.

Biochemical calculations: Specific gravity, percent solution, dilution and dilution factors, ionic strength; molarity, normality, mole concept, Avogadro principles. Acids and bases, buffers, pH, pKa, Henderson-Hasselbach equation, buffer capacity, buffering capacity of amino acids.

Determination of LD₅₀, ED₅₀, IC₅₀

University of Mysore

Syllabus for Ph. D. Entrance Exam

Bioscience

- Unit-1 BIOMOLECULES: Structure of atoms, molecules and chemical bonds Classification, Structure,, Properties, Functions of Carbohydrates, Proteins and Lipids, Characteristics & Physico-Chemical properties of nucleic acids, Conformation of nucleic acids, vitamins.
- Unit-2 PLANT PHYSIOLOGY: Photochemistry and Photosynthesis, Photosynthetic Pigments, Light harvesting complexes, Photo Oxidation of Water, mechanism of electron &Proton transfer, Carbon assimilation, Calvin cycle, Photorespiration and its significance, C4cycle and CAM Pathway, Plant hormones, Phytochromes
- Unit-3 ANIMAL PHYSIOLOGY AND HORMONES: Digestion, Excretion, respiration, circulation, sensory physiology, muscle contraction, Thermoregulation, Endocrine & its regulation in man.
- Unit-4 BIOPHYSICS & BIOCHEMICAL TECHNICS: Principles and techniques of Chromatography, Electrophoresis, Spectroscopy (Visible, UV, NMR, ESR, IR, Mass Spectroscopy), Centrifugation, Biological Solutions, X-ray Diffraction, Radiation Biology (Radioisotopes detection & measurement).

Unit-5 ADVANCED CELL BIOLOGY&CELL BIOLOGY TECHNIQUES

Origin of Life & evolution of cell, cell cycle& its regulation, ultra structure of eukaryotic chromosome, cell-cell interaction, transport across membranes, cytoskeleton, and microscopy. Mitotic and meiotic chromosome preparations, karyotyping, ideogram, camera Lucida, flow cytometry, FISH, chromosome painting.

Unit-6 GENETICS: Drosophila & mouse as model organisms, Mendelian principles, deviations from Mendelism, extra nuclear inheritance, Molecular mechanism of Sex-determination, Transposable elements, mutations & genotoxicity screening in different organisms, genetic repair mechanisms. Syndromes and genetic diseases of human.

- Unit-7 MOLECULAR BIOLOGY: Central dogma, DNA replication, Transcription, Translation, Post transcription & translation modification, gene regulation, Oncogenes & proto-oncogenes. Cancer therapy.
- Unit-8 GENETIC ENGINEERING & BIOTECHNOLOGY: Enzymes in genetic Engineering, Plasmids, Vectors, Recombinant DNA Technology, Screening of clones & its application, Transgenetic plants and animals and their applications, IPR, Biosafety regulation, Biofertilizers & biopesticides. Applications of biotechnology.
- Unit-9 MICROBIOLOGY & CELL CULTURE: Microbial diversity, Classification & general account of microbes Fermentation technology and industrial applications. Food spoilage and preservation, food borne diseases, bacterial and fungal toxins, Diary microbiology, production of milk products. Microbial, Plant and animal cell culture and their application is biology
- Unit-10 BIOSTATISTICS & COMPUTER APPLICATIONS: Mathematical Principles & their applications, measure of central tendency and dispersion, Probability distribution, sampling distribution, Hypothesis test. Parametric & nonparametric tests, regression and correlation. Generation of computers, computer hardware & soft ware, input & output devices, Bits & bytes, Memory, Languages, Logical and Boolean operations, Search Engines, Applications of computers in Biology.

UNIVERSITY OF MYSORE

Syllabus for Ph.D. Entrance Examination . Biotechnology

Unit 1: Biochemistry and Biophysics

Composition, structure, conformation and function of biomolecules -carbohydrates, lipids, proteins, nucleic acids and vitamins.

Principles of biophysical chemistry (pH, buffer, reaction kinetics).

Bioenergetics, glycolysis, oxidative phosphorylation, coupled reaction, group transfer, biological energy transducers.

Principles of catalysis and enzymes, enzyme kinetics, enzyme regulation, inhibition, isozymes.

Conformation of proteins (Ramachandran plot, secondary structure, domains, motif and folds).

Unit 2: Methods in Biology

Centrifugation Techniques

Chromatographic Techniques- General principles, TLC, column chromatography, HPLC, Adsorption chromatography, Partition chromatography, Ion exchange chromatography, Exclusion chromatography, GLC, Affinity chromatography.

Electrophoretic Techniques: General principles, Native gels, SDS-PAGE, IEF, 2D gel electrophoresis, Agarose gel electrophoresis, Pulse field gel electrophoresis, Capillary electrophoresis. **Spectroscopic techniques:** UV/visible, fluorescence, circular dichroism, NMR, ESR spectroscopy, X-ray diffraction, mass spectrometry.

Radiolabeling techniques: Detection and measurement of radioisotopes, molecular imaging of radioactive material, safety guidelines.

Microscopic techniques: Light microscopy, scanning and transmission electron microscopy, fluorescent and confocal microscopy.

Statistical Methods: Measures of central tendency and dispersion; probability distributions (Binomial, Poisson and normal); Sampling distribution; parametric and non-parametric statistics; Confidence Interval; Errors; Levels of significance; Regression and Correlation; t-test; Analysis of variance and multiple range tests, chi-square test, experimental design, data transformation

Unit 3: Microbiology

Historical perspectives; Pure culture techniques.

General outline and classification of viruses, fungi, bacteria and molecular taxonomy.

Archaea: Halophiles, methanogens, thermophiles.

Microbial growth: Growth curve, measurement of growth, continuous culture, factors affecting growth; culture collection and maintenance of cultures.

Microbial nutrition and metabolism: Metabolic diversity among microorganisms; chemolithotrophy; hydrogen-iron-nitrite-oxidizing bacteria; methanogenesis; fermentation.

Microbes and environment: Nutrient cycles; quorum sensing; biofuels; prebiotics and probiotics.

Microbial diseases: Tuberculosis, AIDS, candiasis, malaria.

Important diseases of plants: Downy mildew of pearl millet, panama wilt of banana, bacterial leaf blight of rice, TMV.

Antibiotics: Types, mode of action and resistance.

Unit 4: Cell Biology

Membrane structure and function: Structure of fluid mosaic model of membrane, lipid bilayer, transport across membrane, mechanism of sorting and regulation of intracellular transport.

Structural organization and function of intracellular organelles.

Organization of chromosomes: Structure of chromatin and nucleosome, heterochromatin, euchromatin.

Cell division and cell cycle: Mitosis and meiosis, cell cycle and regulation.

Cell signaling: Peptide and steroid hormones and their receptors, signal transduction pathways, secondary messengers, regulation of signaling pathways.

Cellular communication: Cytoskeletal elements, cell adhesion molecules, extracellular matrix, neurotransmission and its regulation.

Cancer: Oncogenes, tumor suppressor genes, cancer and cell cycle, virus-induced cancer, metastasis, interaction of cancer cells with normal cells, apoptosis, chemotherapy.

Unit 5: Molecular Biology and Genetics

DNA replication, repair and recombination in prokaryotes and eukaryotes: Mechanism of replications, enzymes, fidelity of replication, DNA damage and repair mechanisms, homologous and site-specific recombination.

RNA synthesis and processing in prokaryotes and eukaryotes: 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.

Protein synthesis and processing in prokaryotes and eukaryotes: Ribosome, formation of initiation complex, initiation factors, elongation, termination, genetic code, aminoacylation of tRNA, translational inhibitors, Post-translational modification of proteins.

Control of gene expression at transcription and translation level: regulating the expression of prokaryotic and eukaryotic genes, role of chromatin in gene expression, DNA methylation, gene silencing.

Gene mapping methods: Linkage maps, tetrad analysis, mapping with molecular markers, mapping by using somatic cell hybrids, development of mapping population in plants.

Microbial genetics: transformation, conjugation, transduction, fine structure analysis of genes.

Human genetics: Pedigree analysis, 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, insertional mutagenesis.

Structural and numerical alterations of chromosomes: Deletion, duplication, inversion, translocation, ploidy and their genetic implications.

Unit 6: Gene Technology and Bioinformatics

Isolation, purification, analysis of RNA and DNA (genomic and plasmid).

Molecular cloning of DNA and RNA fragments in cloning vectors and expression.

Construction of genomic and cDNA libraries and screening.

DNA sequencing methods, strategies for genome sequencing.

Methods for analysis of gene expression at RNA and protein level, micro array, DNA chips.

PCR, RFLP, Southern and Northern blotting, AFLP techniques, Real-time PCR.

In situ localization, FISH and GISH.

Bioinformatics

Biological Databases: Types, importance and management.

Sequence Database: Nucleotide and Protein.

Bioinformatics Softwares: Clustal V Multiple Sequence Alignments, ClustalW Version 1.7, RasMol, Oligo, MolScript, TREEVIEW, ALSCRIPT, Genetic Analysis Software, Phylip.

Computational Biology: Datamining and Sequence Analysis, Database Similarities Searches, Multiple Sequence Alignment, Phylogenetic Analysis, Predictive methods using Nucleic acid and Protein Sequences, Submitting DNA Sequences to the Databases.

Unit 7: Immunology and Immunotechnology

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, cell-mediated effector functions, inflammation, hypersensitivity and autoimmunity.

Immunological techniques: ODD, immunoelectrophoresis, RIA, ELISA, Immunofluorescence, Western blot.

Tumor immunology: Neoplasms, tumor-associated antigens, immune response to tumor antigens, immunologic factors favouring tumor growth, immunotherapy.

Unit 8: Bioprocess and Microbial Technology

Primary and secondary metabolites, Batch culture, the growth cycle, effect of nutrients, energetics of growth.

Design of bioreactors: Biosensors, scale up of bioreactors

Transport phenomena in bioprocess: Mass transfer resistance, oxygen transfer coefficients, biological heat transfer, heat transfer coefficients.

Downstream processing of biologicals: Separation of cells, foam separation, flocculation, filtration, plate filters, rotary vacuum filter, centrifugation, Stokes law, basket centrifuge, bowl centrifuge, disintegration of microorganisms, mechanical and non-mechanical methods, membrane filtration, ultra filtration and reverse osmosis, chromatographic techniques, absorption, spray drier, drum dryers, freeze dryers.

Microbial products: Microbial production of vitamins, enzymes, organic acids, amino acids, antibiotics, ethanol.

Microbes for sustainable agriculture: Biological nitrogen fixation, Biofertilizers, Biological control, Biopesticides.

Unit 9: Plant Biotechnology

Cell and Tissue Culture Technology

Role of hormones in Callus Induction, Organogenesis, Somatic embryogenesis and synthetic seeds.

Micropropagation: Stages and applications.

Germplasm preservation: Short and long-term storages, gene banks, applications.

Haploid Technology: Methods of haploid culture and applications.

Protoplast Technology: Isolation, purification and culture of protoplasts, protoplast fusion and somatic hybridization, applications of somatic hybrids.

Secondary metabolite production: Induction of secondary metabolites by plant cell culture; Bioreactor systems for mass cultivation of plant cells.

Seed Biotechnology

Seed development and structure, Hybrid seed production technology: Genetic determinants of flowering, seed development and germination, male sterility and apomixes.

Transgenics

Plant transformation techniques: Methods of gene transfer in plants, *Agrobacterium*-mediated gene transfer, direct gene transfer methods- electroporation, microinjection, particle bombardment, selection of transformants.

Transgenic plants: Herbicide resistance, resistance against biotic stress- bacterial, viral, fungal and insect resistance, abiotic stress, improved crop productivity, improved nutritional quality.

Molecular pharming

Intellectual Property Rights (IPR): IPRs and agricultural technology- implications for India, WTO, WIPO, GATT, TRIPS. Plant Breeder's Rights, legal implications. Ethical issues associated with consumption of GM food, labelling of GM crops and foods.

Unit 10: Animal Biotechnology

Culture of animal cells: Primary culture: Isolation of mouse and chick embryos, human biopsies, methods for primary culture, nomenclature of cell lines, sub culture and propagation and routine maintenance.

Cell characterization: cytotoxicity assays, cell quantitation, cell culture contamination: monitoring and eradication, cryopreservation, confocal microscopy. Stem cell culture and its applications

Cell and Tissue engineering: Growth factors for *in situ* tissue regeneration, biomaterials in tissue engineering, approaches for tissue engineering of skin, bone grafts, nerve grafts. Haemoglobin-based blood substitutes, bio artificial or biohybrid organs. Limitations and possibilities of tissue engineering. *In vitro* fertilization and Embryo transfer: *In vitro* fertilization in Humans, Embryo transfer in Humans, Super ovulation and embryo transfer in farm animals e.g.: Cow.

Cloning of Animals: Methods and uses. Introduction, nuclear transfer for cloning, cloning fromembryonic cells, adult and fetal cells. Cloning from short-term and long-term cultured cells: cloning of sheep, Cloning of cows from aged animals. human cloning: ethical issues and risks.

Transgenic animals: Transgenic animals and applications: mice and other animals,

Biosafety regulations- guidelines for research in transgenic animals, public awareness of the processes of producing transgenic organisms.

University of Mysore Syllabus for Ph. D. Entrance Exam

BOTANY

- **UNIT 1:** Microbial diversity, Concept, Significance and important contributions. General characteristics, distribution, classification, structure, reproduction, evolutionary trends and importance of viruses, mycoplasmas, bacteria, fungi and algae. Brief account of viroid's and prions.
- **UNIT 2:** General characteristics, distribution, classification, structure, reproduction, evolutionary trends and economic importance of Bryophytes, Pteridophytes and Gymnosperms. Structure and evolution of gametophytes and sporophytes. Stelar evolution ptreidophytes. Heterospory and seed habit. Brief account of fossil bryophytes, fossil pteridophytes and fossil gymnosperms.
- **UNIT 3:** History and scope of Taxonomy, Major and minor categories of classification, Nomenclature, ICBN. Salient features, morphological peculiarities, systematic position and affinities of Magnoliaceae, Casuarinaceae, Aizoaceace, Polygonaceae, Dioscoreaceae, Podostemaceae, Loranthaceae, Santalaceae, Alismataceae, Orchidaceae, Burmaniaceae, Arecaceae. Herbarium and importance, IUCN. Economic importance of cereals, pulses, oil yielding crops, fiber yielding crops, spices, beverages and forest products. Ethno botany and IPR, Medicinal plants and their importance.
- **UNIT 4:** Reproductive Biology of Angiosperms: Historical development, microsporogenesis, megasporogenesis, fertilization, endosperm and embryo development, polyembryony and apomixis, experimental embryology. Plant morphogenesis and tissue culture: History of Morphogenesis, Totipotency, plant growth and development, polarity, photo morphogenesis, cellular basis, relative and abnormal growth, differentiation and regeneration. History of tissue culture and importance, methodology and applications of embryo, endosperm and meristematic tip, anther, protoplast and suspension culture, micro propagation, secondary metabolite production.
- **UNIT 5:** <u>Plant anatomy</u>: Structural diversity of leaf, stem and root, simple tissues and their functions, xylem and phloem, vascular cambium, secretary cells. Classification and cytological characteristics of meristems, secondary growth, ecological anatomy, nodal anatomy, seed anatomy and pathological anatomy. <u>Plant propagation</u>: Techniques of plant propagation and their advantages and limitation. <u>Plant Breeding</u>: Methods of plant breeding and their importance, hybridization technique, hybrid vigor, applications of plant breeding for crop improvement.
- **UNIT 6:** Structure, functions and importance of Biomolecules. Solute transport, Plant growth hormones, Phytochrome, Photosynthesis in higher plants, Respiration, Lipid metabolism, Nitrogen metabolism, Physiology of flowering, seed germination, senescence, stress physiology.
- **UNIT 7:** Nature, structure and function of cell and its organelles, Organization of genetic material and concept of gene. Mechanism of replication, mutation, repair, recombination, transposition, expression of genome and its regulation. Mendelian genetics and its variations, sex determination and dosage compensation.

UNIT 8: Types and concepts of ecosystem, environmental factors, bio-geochemical cycles, energy flow, a brief account of population ecology and community ecology, Ecological niche and biome Environmental pollution, types of pollutants, effect of pollution on ecosystems. Natural resources and their management, environmental awareness, law and acts, bioremediation. Phytogeography: Physical feature of the world, climatic zones, tectonics and continental movements, Discontinuous and Continuous plant distribution, Floristic regions of the world. Origin, distribution and acclimatization of cultivated plants. Remote sensing and GIS. Evolution: Theories of origin of Universe and earth. Origin of life, theories and evidences of organic evolution. Natural Selection, Variations, Molecular basis of evolution and Neo- Darwinian evolution.

UNIT 9: Applied microbiology: Microbiology of milk, water and food, methods of food preservation, food poisoning and toxicity. Industrial uses of microorganisms, microbes in mining, industrial production of ethanol, wine, citric acid and penicillin. Plant pathology: Classification of plant diseases, parasitism and disease development, Host-pathogen interaction, plant disease epidemiology, methods of plant disease management. Symptoms, etiology, epidemiology and management of important crop diseases. Biotechnology and human welfare: Scope and importance of biotechnology, Cloning and expression of vectors, chimeric DNA, molecular probes, gene libraries, DNA finger printing, sequencing and foot printing. Brief account of Proteomics and Genomics. Industrial production of SCP's: Spirulina, Chlorella, industrial production of bio fertilizers: Azatobacter, Rhizobium, industrial production of bioinsecticides: Bacillus thurengensis and NPV. Industrial production of amylases, proteases, lipases.

UNIT 10: Methods In Plant Sciences: Microscopy: Principles and construction of light microscope, phase contrast microscope, fluorescent microscope, scanning and transmission electron microscope. Microtome, Sample preparation and staining techniques, Principles, types and applications of Chromatography, Spectroscopy, Electrophoresis, Centrifugation, Autoradiography and image cytometry, flow cytometry, chromosome banding and electrophoretic karyotyping. Isolation and purification of DNA and RNA, blotting techniques, PCR, RFLP, AFLP, RAPD and ELISA.

Syllabus for Ph.D. Entrance Test in Chemistry

UNIT – I

Errors in Analytical Measurements: Measurement errors, absolute and relative error, determinate and indeterminate errors. Assessment of accuracy and precision. Significance testing-t-F-and Q-tests, Calibration and linear regression. Acid-base titrations - indicators and applications. Complexation, precipitation and redox titrations. Gravimetry - conditions of precipitation, co-precipitation and post-precipitation, PFHS, Organic precipitating agents, Examples of gravimetric analysis.

Potentiometric Electrodes and Potentiometry: Indicator and reference electrodes, glass pH electrode, Ion-selective electrodes, Solid-state ISFET electrodes, Direct potentiometry and potentiometric titrations.

Electrogravimetry and Coulometry: Effect of current on cell potential, Ohmic potentials; IR drop, Polarization effects. Electrogravimetric methods - Electrogravimetry without potential control, controlled potential electrogravimetry, Instrumentation and applications. Coulometric methods - Controlled potential coulometry and coulometric titrations, Principles, Instrumentation and applications.

Voltammetry: Excitation signals, linear sweep voltammetry, Voltammetric instruments, Voltammetric electrodes, Voltammograms, Hydrodynamic voltammetry, Voltammetric detectors, Amperometric sensors, Amperometric titrations. Polarography, Pulse polarographic and voltammetric methods, Cyclic voltammetry and stripping methods.

Thermal Methods of Analysis: Thermogravimetry, Differential thermal analysis and differential scanning calorimetry, Thermomechanical analysis, Evolved gas analysis and Thermometric titrations.

UNIT – II

Molecular Fluorescence Spectroscopy: Theory - relaxation processes, Factors affecting fluorescence, Effect of concentration on fluorescence intensity, Fluorescence instruments, Applications of fluorescence methods. Molecular phosphorescence spectroscopy, Chemiluminescence methods.

Atomic Spectrometric Methods: Flame emission spectrometry and Atomic absorption spectrometry.

Analytical Separations: Solvent extraction - Distribution co-efficient, Distribution ratio, Percent extracts, Solvent extraction of metals.

Chromatography: Principles, Classification of chromatographic techniques, Theory of column efficiency in chromatography.

Gas Chromatography: Performing GC separations, GC columns and detectors, temperature selection, Quantitative measurements, Headspace analysis, Thermal desorption, purging and trapping, GC-MS.

Liquid Chromatography: HPLC - Principles, Stationary phases, Equipment for HPLC. HPLC method development, Fast liquid chromatography, LC-MS.

Ion-exchange Chromatography: Cation and anion resins, Ion-chromatography.

Size-exclusion chromatography and Affinity chromatography.

Thin Layer Chromatography: Principles, methodology, instrumentation and applications. Capillary chromatography and Capillary gel electrophoresis.

<u>UNIT – III</u>

Chemical Periodicity: Important periodic properties of the elements, covalent radii, ionic radii, ionization potential, electron affinity and electronegativity.

Structure and Bonding: Properties of ionic compounds, structure of crystal lattices (NaCl, CsCl, ZnS, Wurtzite and rutile), Lattice energy, Born-Haber Cycle, radius ratio rules and their limitations. MO treatment for homo- and heteronuclear molecules. VSEPR model to simple molecules.

Concepts of Acids and Bases: Lux-Flood and solvent system concepts. Hard-soft acids and bases.

Non-aqueous Solvents: Protic solvents (anhydrous H_2SO_4 , HF and glacial acetic acid), aprotic solvents (liquid SO_2 and N_2O_4).

d-block and f-block Elements: General properties, comparison of 3d, 4d and 5d elements. Spectral and magnetic properties of compounds of actinides in comparison with those of lanthanides and d-block elements.

<u>UNIT – IV</u>

Coordination Compounds: Preparation of complex compounds, Stability of complex ions in solution, Coordination number and geometry, Bonding in coordination compounds, Electronic spectra and magnetic properties. Reactions of coordination compounds.

Organometallic Compounds: Fundamental concepts, Preparation, structure and bonding in metal carbonyls (nickel, cobalt, iron and manganese), nitrosyls, alkene and ferrocene.

Homogeneous and Heterogeneous Catalysis: Alkene hydrogenation, the Wacker process, Monsanto acetic acid process and water-gas shift reaction and Ziegler-Natta catalysis.

Bio-inorganic Chemistry: Survey of essential and trace elements in biological system, Porphyrin system, Function of haemoglobin and myoglobin, Model compounds for oxygen carriers (cobalt and iridium). Photosystem and nitrogen fixation. Bio-inorganic aspects of cisplatin and auranofin. *Treatment of toxicity due to inorganics:* arsenic, lead, iron, cyanide and carbon monoxide.

Electron Transport Proteins and Metalloenzymes: Iron-sulfur proteins and cytochromes, catalase and peroxidase, superoxide dismutase, xanthine oxidase, aldehyde oxidase, carboxy peptidase-A and alcohol dehydrogenase.

UNIT - V

IUPAC nomenclature of organic compounds, **Structure and Reactivity:** Acids and bases, Structural effects on acidity and basicity, Hydrogen bonding, Resonance, Inductive and hyperconjugation effects, Concepts of aromaticity

Reaction Intermediates: Carbocations, Carbanions, Free radicals, Carbenes, Nitrenes, Nitrogen, sulphur and phosphorous ylides

Stereochemistry: Principles, Conformational analysis, Isomerism, Chirality

Reaction Mechanisms: Mechanism of aliphatic and aromatic nucleophilic and electrophilic substitution reactions, Elimination reactions, Addition reactions and mechanisms of reactions of carboxylic acids and their derivatives

Photochemistry and Pericyclic Reactions: Jablonski diagram, Sensitizers, Quenchers, Photochemistry of olefins, conjugated dienes, aromatic compounds, ketones, enones, Paterno-Buchi reaction, Di-pi-methane rearrangement, Electrocyclic, Cycloaddition and Sigmatropic reactions

Heterocyclic Chemistry: Synthesis, typical reactions and applications of 3-, 4-, 5-, 6-membered and fused ring systems

UNIT - VI

Oxidation and Reduction: Oxidation with chromium and manganese compounds, Peroxides, Peracids, Lead tetraacetate, Periodic acid, OsO₄, SeO₂, NBS, Chloramine-T, Sommelet oxidation, Oppenauer oxidation; Catalytic hydrogenations, Wilkinson's catalyst, Bakers yeast, LiAlH₄, NaBH₄, Birch reduction, Leukart reaction, Hydroboration, Meerwein-Ponndorf-Verley reduction, Wolf-Kishner reduction, Clemenson reduction

Molecular Rearrangements: involving carbon to carbon, carbon to nitrogen and miscellaneous rearrangements

Reagents: Gilmann reagent, DCC, DDQ, trimethyl silyl halides, PTC, Crown ethers, LDA, Tri-butyl tin hydride, Ziegler-Natta catalyst, Diazomethane, Stannous chloride, Sharpless epoxidation, Woodward and Prevost hydroxylation, Peterson reaction, Reformatsky reaction, dithiane, Wittig reaction

Introduction to Disconnection Approach: Basic principles and terminologies used, Synthons and Synthetic equivalents, One group C-X and two group C-X disconnections and applications to simple organic molecules

Named Reactions: Mechanism and synthetic applications of aldol condensation, Claisen-Schmidt, Perkin, Knoevenagel, Stobbe, Darzens glycidic ester condensation, Cannizaro's, Tishchenko, Michael addition and Robinson's annulation reactions

UNIT - VII

Quantum Chemistry: deBroglie equation, Heisenberg Uncertainty principle, operators, Schrodinger wave equation for particles, Application to a particle in 1D & 3D-box systems, H-atom, Rigid rotator and Harmonic oscillator.

Nuclear Chemistry: Radioactive decay, Half life, Liquid drop nuclear model, Definition of curie, Magic number, alpha and beta decay, Binding energy, Oppenheimer-Phillips process, Spallation reactions, Bethe's notation, Nuclear reactions.

Photochemistry: Laws of photochemistry, Quantum yield and its determination, Actinometry, Photosensitization, Photodimerization, Photo catalyst/ZnO, - its application in photo degradation, Photochemical kinetics, Photophysical properties.

Units in radiation chemistry, G-value, Fricke dosimeter, Radioisotopes as tracers, Isotope exchange reactions, Radiometric titration, ¹⁴C dating.

Crystallography: X-ray crystallography, Miller indices, Bragg equation, Powder and rotating crystal technique, Fourier series, Electron diffraction, Wierl equation.

Nano particle, nano wires and nano rods, Sol-gel and electrochemical methods.

UNIT – VIII

Electrochemistry: Debye-Huckel theory of strong electrolytes, Debye-Huckel-Onsager equation, Debye-Huckel limiting law, Theories of electrical double layer, Concentration cells, Liquid junction potential, Over voltage, Conductometric and potentiometric titrations, Electrophoresis and zeta potential, True, apparent and abnormal transport numbers, Corrosion inhibition & prevention, Polarography.

Chemical Kinetics: Arrhenius equation, Energy of activation & its determination, Order of reaction, parallel, consecutive & reversible reactions. Simple collision and activated complex theory, Salt effects, Effect of pressure on rates of reactions, Langmuir's theory of surface reactions. Experimental techniques of fast reaction kinetics, Chain reactions, Linear free energy relationship, Hammett & Taft equations, Swain-Scott and Edward equation, Kinetic isotope effect.

Thermodynamics: Concept of entropy & free energy, Helmholtz and Gibbs free energies, Maxwell relations, Third law of thermodynamics, Partial molar properties, Chemical potential, Gibb's Duhem equation, Fugacity, Raoult's law & Henry's law, Heat capacity of solids, Phase rule & its applications, Principle of equipartition of energy, Relation between thermodynamic probability & entropy, Maxwell-Boltzman distribution equation, partition function.

Polymers: Classification and determination of molecular weights, condensation and addition polymers, Polydispersity of polymers, degree of polymerization, co-polymers.

Bio-physical Chemistry: Pharmaco kinetics – Drug-plasma time kinetics, Bio-availability of a drug and first order kinetics.

UNIT – IX

Basic Concepts of Molecular Symmetry and Group Theory: Symmetry elements and symmetry operations, Correlation of Schoenflies and Hermann-Maugin symbols for symmetry elements, Multiplication tables for the symmetry operations of simple molecules, Properties and definition of group theory, Point groups of simple molecules

Basic Principles and Application of Spectroscopy: Electromagnetic radiation, Types of molecular spectra

Microwave Spectroscopy: Rotation spectra of diatomic molecules (rigid and non-rigid rotators), their moment of inertia and bond lengths determination, Classification of polyatomic molecules

Vibration Spectroscopy: Harmonic and anharmonic oscillator, Vibration-rotation of diatomic molecules, Vibration of polyatomic molecules, Fermi resonance, Force constant

Raman Spectroscopy: Stokes and anti-stokes lines, theories of Raman spectra (classical and quantum), Rotation and vibration Raman spectra, Advantages of Raman spectra

Physical characterization of inorganic compounds by NQR, ESR and Mossbauer Spectroscopy

UNIT – X

UV-Vis Spectroscopy: Beer's law, Types of absorption bands $(n-\pi^*, \pi-\pi^*, n-\sigma^*, \sigma-\sigma^*)$, Instrumentation (single and double beam), Qualitative and quantitative applications, Chromophores, Auxochromes, Solvent effect, Effect of polarity on various type of bonds, Predicting λ_{max} using Woodward's empirical rules of simple compounds

IR Spectroscopy: Instrumentation of IR spectrometers (single and double beam), Characteristic group frequencies, Finger print region, Identification of functional groups, Tautomerism, Cis-trans isomerism, Applications

Mass Spectroscopy: Principle, Instrumentation, Molecular ion, Base peak, Meta-stable peak, Nitrogen rule, Mclafferty rearrangement, Mass spectral fragmentation of some simple organic compounds

NMR Spectroscopy: Principle, Relaxation processes, Chemical shift and factors affecting it, Spin-spin coupling, Simplification of complex spectra, Contact shift reagents, Double resonance, NOE; ¹³C NMR spectroscopy and its comparison with ¹H NMR, Multiplicity, Proton decoupling, Application of ¹³C NMR, NMR of ¹⁹F, ³¹P, ¹¹B and ¹⁵N, Two-dimensional NMR spectroscopy, Composite problems involving UV-Vis, IR, NMR and mass for structural elucidation of simple organic compounds

. University of Mysore

Syllabus for Ph. D. Entrance Exam

. CHRISTIANTY

UNIT I Study of the Old Testament

- 1. Introduction to the Old Testament
- 2. Book of Genesis
- 3. Book of Exodus
- 4. Covenant Theology
- 5. History of Prophetic Traditions and Books
- 6. Prophetic Literature
- 7. Wisdom Literature
- 8. Books of Psalms

UNIT II Study of the New Testament

- 1. General Introduction to the Gospels
- 2. The Geography and Provinces of Palestine at the time of Jesus
- 3. The Gospel according to Mark
- 4. The Gospel according to Matthew.
- 5. The Gospel according to Luke
- 6. The Gospel according to John
- 7. Titles of Jesus and their Old Testament Background
- 8. St. Paul Life and Teachings
- 9. Pauline Theologies and Pauline Spirituality

UNIT III Comparative Study of Religions

- 1. The Nature, Scope, Aim, Approaches and Goals of the Comparative Study of Religions
- 2. The Basic Features of Religions
- 3. The Holy Scriptures and Sacred Writings of Religions
- 4. The Beliefs, Rituals, Practices and Festivals in Religions
- 5. Broad outlines of World's Major Religious Traditions

UNIT IV Indian Christian Theology

- 1. Theology in the History of the Church
- 2. Indian Christian Theology
- 3. Sources of Theological Tradition
- 4. Essential Requirements in the Formulation of Indian Christian Theology.
- 5. Indian Acharyas and their teachings in the context of Renascent India.
- 6. Theology in the context of secular ideologies in India.
- 7. Jesus vision of a new Society in the Indian Context

UNIT V Indian Christian Spirituality

- 1. Introduction to Biblical Spirituality.
- 2. History of Christian Spirituality
- 3. Hinduism and its Important Elements for Indian Christian Spirituality
- 4. Jainism, Buddhism, Sikhism, and their Elements for Christian Spirituality
- 5. Spirituality of Bhagavad- Gita and New Testament

UNIT VI The Church and Social Teachings

- 1. General Understanding of the Church
- 2. Models of the Church in History
- 3. Church of the Poor and with the Poor
- 4. Social Teachings before II Vatican Council
- 5. Social Teachings after the II Vatican Council
- 6. General Introduction to Oriental Churches
- 7. General Characteristics of the Eastern Churches and Spirituality

UNIT VII Christian Mysticism in the Indian Context

- 1. Introduction to Mysticism: Its Definition Characteristics, Scope and Methods
- 2. Universal Call to Mysticism
- 3. Hindu- Christian Meeting Point in Mysticism
- 4. The Mystical Dimensions of Contemporary Christian Mystics.
- 5. Contemporary Indian Mystics.

UNIT VIII- Inter-Religious Dialogue

- 1. Harmony of Religions and interfaith dialogue.
- 2. The Emerging Christian Theology of Inter-Religions Dialogue.
- 3. The Uniqueness and Universality of Jesus Christ in the Context of Inter- Religions Dialogue.
- 4. The Christian Understanding of Other Religions.
- 5. The Post-Council Praxis of Dialogue at Christian Ashrams and Inter-Religious Centers

UNIT IX Sacraments

- 1. The nature and meaning of Sacraments
- 2. Sacraments of Initiation and related Samskaras of Other Indian Religions
- 3. Sacraments of Reconciliation and related Samskaras in Other Indian Religions
- 4. Marriage and Family Life in Christianity and in Other Indian Religions
- 5. Anointing of the Sick and the Healing Power of Listening

UNIT X Enculturation in India

- 1. Origin and Development of the Concept of Culture
- 2. Basic Components of Culture
- 3. Introduction to Enculturation
- 4. Bases of Enculturation
- 5. Enculturation in Liturgy
- 6. Enculturation in Spirituality

University of Mysore

Syllabus for Ph. D. Entrance Exam COMMERCE

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Unit-I

Business Environment

Meaning and elements of Business Environment. Economic environment. Economic Policies,

Economic Planning.

Legal environment of business in India.

Competition policy. Consumer protection, Environment protection.

Policy Environment: Liberalization, privatisation and globalisation. Second generation reforms,

Industrial policy and implementation, Industrial growth and structural changes.

Unit-II

Financial & Management Accounting

Basic Accounting Concepts, Capital and Revenue, Financial Statements.

Valuation of shares, Amalgamation, Absorption and Reconstruciton, Holding Company Accounts.

Accounting standards - objectives of financial reporting - users of financial statements and their needs. I A S B framework preparation and presentation of financial statements - human resume accounting - social and entvironmental accounting.

Cost and Management Accounting: Ratio Analysis, Funds Flow Analysis, Cash Flow Analysis,

Marginal Costing and Break-even analysis. Standard Costing, Budgetary Control. Costing for Decisionmaking. Responsibility Accounting.

II Financial Accounting

Unit-III

Business Economics

Nature and uses of Business Economics. Concept of Profit and Wealth Maximization.

Demand

Analysis and Elasticity of Demand. Curve Analysis Law.

Utility Analysis and Indifference of Returns and Law of variable proportions cost.

Revenue.

Price determination in different market situations. Perfect competition, Monopolistic competition.

Monopoly. Price discrimination and oligopoly, Pricing strategies.

Unit—IV

Business Statistics & Data Processing

Data types, Data collection and analysis, sampling, need, errors and methods of sampling.

Normal distribution. Hypothesis testing. Analysis and Interpretation of Data.

Correlation and Regression. small sample tests- t-test f-test and chi-square test.

Data Processing—Elements. Data entry, Data processing and Computer applications.

Computer Application to Functional Areas—Accounting. Inventory control. Marketing.

Unit-V

Business Management

Principles of Management

Planning—Objectives, Strategies, Planning Process, Decision-making.

Organising, Organisational Structure, Formal and Informal Organisations.

Organisational Culture.

Staffing

Leading: Motivation, Leadership, Committees, Communication Controlling.

Corporate Governance and Business Ehtics.

Unit-VI

Marketing Management

The evolution of marketing. Concepts. Concept of marketing, Marketing mix. Marketing environment.

Elements of consumer behaviour, Market segmentation.

Product decisions.

Pricing decisions.

Distribution decisions.

Promotion decisions.

Marketing planning. Organising and Control.

International Marketing

Advertisement Management

Supply Chain Management

Unit-VII

<u>Financial Management</u>

Capital Structure. Financial and Operating leverage.

Cost of Capital. Capital budgeting.

Working Capital Management.

Dividend Policy.

Unit-VIII

HUMAN RESOURCE MANAGEMENT

HRM- Introduction, meaning, definition, nature and scope of HRM and HRD, evolution of HRM, features of HRM, HRM functions, objectives of HRM, Opportunities and Challenges in Human Resource Management.

Job design, Job analysis, HR planning: introduction, objectives of HRP, linkage of HRP to other plans.

Recruitment: definition, objectives, subsystems, factors affecting, recruitment policy.

Selection, placement and Induction

Performance management: Introduction, meaning, need, purpose, -objectives, contents of PAS, Appraisers and different methods of appraisal, uses of performance appraisal.

Human Resource Development: Introduction, definition, concepts, activities **Training and development**: meaning of T & D, importance of training, benefits of training.

Internal mobility: Introduction, meaning, Promotion, Transfer, Demotion.

Career planning and Development: meaning, need, career development, actions.

Compensation & Benefits Administration: Compensation Management: - salary structure, salary fixation, incentives, profit sharing, bonus concepts, ESOPs, pay for performance, Benefits administration, employee welfare and working conditions-statutory and voluntary measures.

Industrial peace and harmony: Discipline maintenance, Grievance Handling, Workers participation in management, maintaining good human and industrial relations, benefits accrued by the organization due to the development of congenial environment.

CRM

E-CRM

Unit-IX

Banking and Finance

Importance of Banking to Business, Types of Banks and Their Functions.

Reserve Bank of India and its functions. NABARD and Rural Banking.

Banking Sector Reforms in India, NPA, Capital Adequacy Norms.

E-banking.

Development Banking: IDBI, IFCI, SFCs, UTI, SIDBI.

International liquidity, International Economic Institutions—IMF, World Bank, IFC, IDA, ADB.

World Trade Organisation—Its functions and policies.

Unit-X

Business Taxation:

Direct Taxes:

- Basic Concepts
- Heads of Income
- Computation of total income
- Corporate income taxation and planning
- Wealth tux

Indirect Taxes

- Theoretical Framework
- Excise Duty
- Customs duty
- VAT and Service Tax
- Proposed GST

University of Mysore Syllabus for Ph.D. Entrance Exam COMMUNICATION AND JOURNALISM

Unit-I: Introduction to Communication and Journalism

- a) Origin, growth and development of communications media print, film, radio and television
- b) Communication Theories Four Theories of Press and other Theories
- c) Fundamentals of Communication Definition, Nature, Scope, Types and Functions
- d) Communication Models
- e) Fundamentals of Journalism Definition, Nature, Scope and Functions

Unit-II: Media Management

- a) Fundamentals of Management Definition, Nature, Scope, Principles and Significance
- b) Types of Media Ownership Print and Electronic
- c) Organisational Structure, Different Departments and Functions of News Papers, Radio and Television
- d) Basics of Newspaper Circulation Management
- e) Economics of Media

Unit-III: Media Laws and Ethics

- a) Salient Features of Indian Constitution Preamble, Directive Principles of State Policy, Fundamental Rights and Duties
- b) Freedom of Speech and Expression in India
- c) Major Media Laws of India
- d) Press Council of India and Press Commissions
- e) Media Ethics and Code of Conduct for Media Professionals

Unit-IV: Advertising and Public Relations

- a) Fundamentals of Advertising Concept, Nature, Scope, Types, Functions and Significance
- b) Fundamentals of Public Relations Concept, Nature, Scope, Types, Functions and Significance
- c) Advertising Agency Structure, Resources, Functions and Significance
- d) Public Relations Management Types of Publics and Art of Management of Different Public Relations (Investor Relations, Employee Relations, Supplier Relations, Distributor Relations, Customer Relations, Media Relations, Government Relations, Community Relations etc.
- e) Corporate Communication Role of Communication in Corporate Houses, Corporate Communication Principles and Practices

Unit V: Communication Research

- a) Fundamentals of Communication Research Meaning, Nature, Significance and Functions
- b) The Process of Media Research Defining Research Problem, Review of Literature, Research Design, Primary Data Collection, Statistical Analysis, Results and Discussion, Testing of Hypothesis, Drawing of Inferences etc.
- Types of Media Research Historical Research, Survey Research, Content Analysis, Experimental Research, Observation, Case Study, Ratings Research, Non-Ratings Research
- d) Data Collection and Analysis Procedures, SPSS
- e) Principles and Techniques of Writing Research Report

Unit VI: Media and Current Affairs

- a) Media and Human Rights
- b) Media and Gender Issues
- c) Media and Social Justice
- d) Media and Globalisation
- e) News and Analysis of Current Issues

Unit VII: Intercultural and International Communications

- a) Cultural Aspects Definition, Value System, Eastern and Western Perspectives
- b) Inter-Cultural Communication Definition, Nature, Process, Philosophical and Functional Dimensions
- c) International Communication Definition, Nature, Scope, Significance and Recent Trends
- d) International Communication Agencies McBride Commission, NAM Summit, SAARC and Cultural Imperialism
- e) Media as Cultural Industry, Communication Policies and World Communication Order, Communication in Balances

Unit VIII: Media Production

- a) Writing for Print Media Principles and Techniques
- b) Writing for Electronic Media Principles and Techniques
- c) News Papers and Magazine Production
- d) Programme Production for Radio and Television
- e) Production of Multi-Media Contents

Unit IX: Reporting and Editing

- a) Qualifications, Duties and Responsibilities of Journalists
- b) Principles and Practices of Editing and Designing
- c) Basics of News Concept, Elements, News Sources, Structure of News, Principles of News Writing

- d) Feature Writing Concept, Sources, Types and Feature Writing Techniques
- e) Specialised Reporting Development Reporting, Business Reporting, Political Reporting, Legislative Reporting, Judicial Reporting, Social Reporting and Sports Reporting

Unit X: New Media

- a) New Media Definition, Nature, Scope and Significance
- b) Information Society Definition, Nature, Scope and Significance
- c) Types of New Media Computer, Internet, E-mail, Mobile Phone, Video Streaming, Video Conferencing etc.
- c) Web Designing Concept, Nature, Scope, Web Language, Presentation, Multi-Media Production
- d) Cyber Laws and Ethics

University of Mysore

Syllabus for Ph. D. Entrance Exam

Computer Science

Unit 1. Discrete Structures

Sets, Relations, Functions, Pigeonhole Principle, Inclusion-Exclusion Principle. Equivalence and partial Orderings, Elementary Counting Techniques

Probability: Elements of probability, Bayes theorem.

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

Graph: Definition, walks, paths, trails, connected graphs, regular and bipartite graphs, cycles and circuits. Tree and rooted tree. Spanning trees, Eccentricity of a vertex radius and diameter of a graph. Central graphs. Centre(s) of a tree. Hamiltonian and Eulerian graphs. Planar graphs.

Groups: Finite fields and Error correcting/detecting codes.

Logic: Propositional logic, predicate logic, well formed formulae, Satisfiability and tautology.

Unit 2 Computer Organization and Architecture

Boolean algebra and Minimization of Boolean functions, Flip-flops-types, Race condition and comparison. Design of combinational and sequential circuits.

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

Combinational Circuit Design, Sequential Circuit Design. Hardwired and Microprogrammed processor design, Instruction formats, Addressing modes, memory types and organizations, Interfacing peripheral devices, Interrupts.

Microprocessor architecture, Instruction set and Programming (8085, P-III/P-IV). Microprocessor applications.

Unit 3. Programming in C and C++

Programming language concepts, paradigms and models.

Programming in C: Elements of C-Tokens, identifiers, data types, operators in C. Control structures in C. Sequence, Selection and iterations (s). Structured data types in C-arrays, struct, union, String and pointers. I/O statements, User defined and built in functions, Parameter passing.

C++ Programming: Elements of C++- Tokens, identifiers, Variables and constants. Data types. Operators, Control statements, Functions parameter passing, Class and objects. Constructors and destructors. Overloading, Inheritance, Templates, Exception handling.

Object Oriented Programming Concepts: Class, Object, Instantiation, Inheritance, polymorphism and overloading, dynamic biding, reference semantics and their implementation.

Unit 4. Relational Database Design and SQL

Database, E-R diagram, Relational model, Relational Algebra, Relational Calculus, Relational design, Normalization, 1NF, 2NF, 3NF, BCNF and 4NF.

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

Unit 5. Data, File Structures

Data, Information, Definition of data structure. Arrays, stacks, Queues, Linked lists, Trees, Binary trees and traversal, Graphs, priority queues and heaps and assimilated algorithms. File structures: Fields, Records and files. Sequential, Direct, index-sequential and relative files. Hashing, Inverted lists and multi-lists, B trees and B⁺ trees.

Unit 6. Computer Networks

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

Topologies, Networking Devices. The OSI model, TCP/IP model. Protocols for –(i) Data link layer, (ii) Network layer, and (iii) Transport layer, TCP/IP protocols, Networks security, Network administration.

Unit 7. System Software and Compilers

Assembly language fundamentals (8085 based assembly language programming). Assemblers -2-pass and single-pass. Macros and macroprocessors.

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

Text editors. Programming environments. Debuggers and program generators.

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

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

Topdown parsers-left recursion and its removal. Recursive descent parser. Predictive parser. Intermediate codes-Quadruples, Triples, Intermediate code generation, Code generation, Code optimization.

Unit 8. Operating Systems (with case study of Unix)

Main features and functions of operating systems. Multiprogramming and Multiprocessing and multi tasking.

Memory Management: Virtual memory, paging, fragmentation.

Concurrent Processing: Mutual exclusion, Critical regions, Semaphores.

Scheduling: CPU scheduling, I/O scheduling, resource scheduling, Deadlock and scheduling algorithms. Banker's algorithm for deadlock handling.

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

Filters and Commands: pr, head, tail, cut, paste, sort, uniq, tr, join, grap, egrap, fgrep, sed, awk, etc.

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

Unit 9. Software Engineering and Computer Graphics

System Development Life Cycle (SDLC) : Steps, Waterfall model, Prototypes, Spiral model.

Software Metrics: Software Project Management.

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

Coding and Testing: Testing Level Metrics. Software quality and reliability. Clean room approach, Software reengineering.

Concepts: Display systems, Storage Devices, Input devices, Output devices, 2D transformation, Windows and view port, Elements of 3D graphics, drawing, shading, clipping, drawing lines and shapes and algorithms, B-Spline curve, Bezier curves, Animation Graphics Standard, Fractals.

Unit 10. Algorithmics

Sorting and searching algorithms. Analysis of algorithms, Interpolation and Binary search, Asymptotic notations – big ohm, mega and theta, Average case analysis of simple programs like finding of a maximum of n elements. Recursion and its systematic removal. Quicksort-non-recursive implementation with minimal stack storage. Design of Algorithms (Divide and Conquer, Greedy method, Dynamic programming, Back tracking, Branch and Bound). Lower bound theory, non-deterministic algorithm,-non-deterministic programming constructs. NP-hard and NP-complete problems.

University of Mysore

Syllabus for Ph. D. Entrance Exam (COOPERATION)

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Module I- Theory of Co-operation

Definitions: Basic values and objectives of Co-operation – Principles of Co-operation, Co-operation versus Capitalism and Socialism, Co-operative Common Wealth School, Co-operation and Theory of Distribution – Wages, Rent, Interest and Profit.

Module II- Co-operation legislation

Evolution of co-operation legislation in India – Recent trends in Co-operative Legislation – Model Co-operative Society Act 1991 –The Karnataka Souharadha Sahakar Act 1997.

Module III – Co-operative Movement in India

Co-operative Movement in India; Origin and Development of Cooperative Movement 1904 onwards – Cooperative Rural credit – Principles and policies, Short- Term and medium term credit long – term credit.

Module IV- Co-operative Management

Management – Definitions, Principles, Functions of Management: Co-operative Management – Definition, Function of cooperative Management.

Module V- Cooperative Accounting & Audit

Accounting Principles – Definitions of Accounting – Book keeping and accountancy single entry accounting system – Double entry accounting system- Cooperative Accounting in PACS – DCCBS State cooperative Banks- Co-operative Auditing: Basic Auditing Standards-Nature of Audit, Definitions objectives of Audit, Auditing Standards, Audit Report

Module VI- Indian Economy

National accounting – performance of different sectors – Institutional and technological aspects in agriculture – Liberalisation policy –concepts of money supply – Inflation – Monetary policy – Financial sector reforms – Trends in revenue and expenditure of the central government – Trends in India's foreign trade – poverty , unemployment and environment.

Module VII- Research Methodology

Types of research, Sampling techniques, Steps in data analysis, Probability distributions, Hypothesis testing, use of 't', F and chi-square tests, Data types and data collection methods and tools.

Module VIII- Quantitative techniques

Quantitative techniques: Maximisation and minimization techniques (differentiation), Measures of central tendencies and Dispersion, Graphical representation of data. Correlation , Regression and Trend analysis.

Module IX- Managerial Economics

Forms of Organisation: Sole proprietorship, Partnership, Joint-stock company, corporation, cooperatives, Demand Forecasting: purpose, scope, methods of demand forecasting – survey method, statistical method, price practices and strategies, break-even analysis, capital budgeting-meaning, importance, cost-benefit analysis, steps for capital project evaluation.

Module X- Rural Development and Panchayat Raj

Rural development – objectives – strategies – Rural development theories – size, growth and occupational structure of rural population – Rural development under five year plans – Rural Employment Guarantee Programme – Agriculture and the Rural Economy – Rural Industries – Rural Infrastructure – Panchayath Raj system and rural economy.

University of Mysore

Syllabus for Ph. D. Entrance Exam . Criminology and Forensic Science

UNIT: I CRIMINOLOGY AND CORRECTIONAL ADMINISTRATION:

Definitions, scope and importance; Juvenile Delinquency, White Collar Crime, Professional Criminal, Organised Crime and J.J.Act 2006; Criminological Thoughts-Classical, Cartographic, Positive schools; Sociological Theories-Social Structure, Social Learning, Labeling Theory, Sub-Cultural Deviance Theory, Economic, Psychoanalytical and Biological Theories.

History and Theories of Punishment; Types of Punishments; Prison System in India and Abroad; Open-Air Prisons; Probation, Parole and After Care Services. Reports of Justice A.N.Mulla, Krishna Iyer and Malimath Committees.

Unit II: FORENSIC SCIENCE AND FORENSIC PRINTS AND IMPRESSIONS.

Criminalistics- Principles and Forensic Science Laboratories, Ballistics and Explosives- Classification and Identification, Tool Marks- Types and Examinations, Photography- Portrait Building, Finger Prints-Recording, Classification and Development, Foot Prints- Types and Methods of Recording

Unit III: POLICE ADMINISTRATION AND POLICE SCIENCE:

Historical Development of policing. Central Police Organisations. General Police organisational hierarchy of the State Police, Ranges, Commissionerates, District police and Special units of the state police. Police station Management and role of police in human rights protection. Application of Science and Technology in police work. Investigation of crimes, procedure of recording the crime scene, collection of physical clues, interrogation of suspects and examination of witnesses.

Unit IV: FORENSIC MEDICINE AND TOXICOLOGY

Forensic Medicine- Personal Identification, Inquest and Human Anatomy, Wounds and Injuries, Death-Modes and Changes, Body Fluids- Identification and Laboratory Examinations, Poisons- Classification and Identification.

Unit V: FORENSIC PSYCHOLOGY AND CORRECTIONAL PSYCHOLOGY

Introduction, evaluation, Scope and its importance. relationship with Psychology, Criminology and Medical Psychiatry. Concept of Normal and Abnormality, Mental Mechanism and its relevance to Crime. Mental Deficiency and Crime, Mental Disorders and Crime. Personality traits. Psychotherapy – Types and its importance in the reformation of offenders. Community and correction of offenders. Psychological profiles of Criminals- Serial killers, Rapists, habitual criminals and professional criminals. Role of Forensic Psychology in crisis management, mob mentality, hostage negotiation and stock home syndrome.

Unit VI: RESEARCH AND STATISTICAL METHODS IN CRIMINOLOGY AND FORENSIC SCIENCE:

Concepts of Research; Formation of Hypothesis; Research Design; Preparation of Questionnaire, Interview Schedule, Sampling Techniques; Data Collection, analysis, interpretation and report writing. Statistical application in researches; T-test, Chi-Square and ANNOVA, Sources of Crime statistics in India; Mean, Mode, Median, Standard Deviation, Regression, Co-relation and graphical representation. Use of computers in researches.

Unit VII: CYBER CRIME AND CYBER FORENSICS:

Concept of Cyberspace, Cyber Crime, characteristics, liabilities and types and classification. General understanding of the Information Technology Amendment Act 2008. Investigation of Cyber Crime and Application of Forensics in detection. Elementary aspects of Cyber Security.

Unit VIII: VICTIMOLOGY AND HUMAN RIGHTS:

Concept and historical development of Victimology; UN declaration on crime victims, theories, Typology of victims, etiology; Problems of victims and compensation; Victim welfare programs, Role of Victims in the CJS; Victimological Researches. Human Rights- Concepts, Historical Development-*Magna Carta* UN Conventions, Declarations and Covenants; Human Rights Protection Act; Human Rights Commissions, organisation and functions.

Unit IX: CRIMINAL MAJOR ACTS

Section 76 to 106 IPC, Section 299 to 304, Section 304 A & B and 307, Section 359 to 363, Section 378 to 384, Section 390, 391-395, Police powers of arrest and powers to investigate, Section 5, 10, 14 and 15 and 118 and 119 Indian Evidence Act.

UNIT X: SECURITY AND VIGILANCE.

Concept, importance and purpose; Types of Security organisations-Transport, Financial institutions, Industries, Multistoried Buildings and supermarkets. Vigilance Commission- Central and State/Lokayukta. Vigilance in public and private sectors; Frauds-meaning, modus operandi and preventive measures. Disaster Management and role of Security personnel. Application of science and technology in maintenance of security and vigilance functions.

UNIVERSITY OF MYSORE

Ph.D. Entrance Test Syllabus DANCE

Unit 1.	Study of Indian Classical dance forms				
Unit 2.	A Study on Nritta Nrity and Natya.				
Unit 3.	Taladasha prana and 175 Talas				
Unit 4.	Detail Knowledge of Chatuvidha Abhinaya.				
Unit 5.	Hasta Prakarana:- All Hasta Mudras according to Natyashastra & Abhinaya darpana.				
Unit 6.	Pada bhedas:- All Pada bhedas according to Natya shastra and Abhinaya darpana.				
Unit 7. Unit 8. rupaka)	Chaturvidha Vadhyas (4 types of Instruments), Ancient, Medival, present Nayaka Nayaki and Rasa Prakarana (according to Natyashastra and Dasha				
Unit 9.	Technical terms:- 1)Angahara 2) Natyapatra guna dosha				
	3)Tandava and Lasya 4)Sabhalaksha, Kinkini, Natyakrma, Pushpanjali, Ranga pravesha, Angashuddha, Adavu and its Charactristics, Marga of Bharatanatya, Jati, Jati, Korvai, Solkattu, Teermana.				
Unit 10.	Detail Knowledge of the following				
	a) Folk dances of India				
	b) Ragalakshanas, Nata, Arabhi, Goula, Natakuranji, Shanmukhapriya, Bhehag, Kapi, Hindola, Kamach, Suruti, Madhyamavati, Pharaz				
	c) Biographics tanjore Brothers, Rukminidevi Arundale, Jetty thayamma,				

tirunal, Shambu maharaj, Siddendra Yogi

Terakuttu, Nautanki, Chau

Sangeeta Ratnakara

d)

Balasaraswati, Udaya Shankar, Jayadeva, Purandaradasa. Kshetragna, Swati

Types of Dances drama forms of India. Bhagavatamela, yakshagana,

Brief study of Ancient texts: Natya Shastra, Bharatarnava, Dasharupaka

UNIVERSITY OF MYSORE

Syllabus for Ph.D. .Entrance Exam Development Studies

Unit-1.

What is Economics About? Definition and Scope of economics-economy-Principal Functions and Structure-Basic Problems of an Economy-The problem of Economising-Production Possibility curve-Concepts of opportunity cost. Basic Elements of demand and supply-The demand schedule-Demand Curve-Determinants of Market demand-shift in demand-elasticity of demand –Demand and consumer behaviour- choice and utility theory-supply schedule-supply curve-Forces determining supply-shift in supply elasticity of supply-Equilibrium of supply and demand.

Unit-2

Society – Meaning and characteristics Major theoretical formulations in sociology Angnete Comte (Social Statics and Social Dynamics), Herbert Spencer (Organism Analogy), Karl Marx (Class Conflict), Emile Durkheim (Social Fact). Key concepts in the understanding of society; community, association, social groups, social processes, social interaction, social control, heredity and environment.

Culture – Meaning features and types, Socialization – Meaning, Agencies. Social Institutions – Meaning, features, major social institutions, family, religion, economy, education, politics (Meaning features, types, recent changes and relation to development).

Unit-3.

The concept of development, transition from quantitative to qualitative indices. Growth and Development – Synonymy to disjunction.

Characteristics of modern economic growth – its unequal spread and global disparities. Common characteristics and dissimilarities among developing countries.

Unit-5

Measurement of central tendency – Arithmetic Mean, Median. Mode and Geometric mean – definitions, characteristics and uses. Measure of dispersion – Range, mean deviation, quartile deviation and standard deviation – definitions, characteristics uses and coefficient of variations correlation – simple correlation coefficient, Rank correlation co- efficient.

Survey of specific developing thought from Rosenstein-Rodan to missing components, capital – centered theoretical constructs, aid and technology – centered formulations, stage theory, institutional focus, and dualistic explanations, (particulars – emphasis on Nurkse, Myrdal, Rostow and Hirschman).

Unit-6

Structuralism approaches and dependency theory (Frank) Recent theoretical advances (Hettne, Buchanan, Olson)

The Concepts on Nation, State, Constitution, Government and Democracy. The rule of State and Democracy in Development.

The nature of the Indian Political System:

- a) Basic features of the Indian Constitution with special reference to the Parliamentary Democracy and the Federal System.
- b) Preservations or Protective Discrimination for Weaker Sections.
- c) The Nature of Government in India.

Unit-7.

Research – Its aims and objectives, nature of scientific knowledge characteristics of scientific method, development research elements of research design – selection of problem, unit selection for analysis. Variables, their choices and relationship formulation of hypothesis.

Types of research design, explanatory studies, descriptive studies, diagnostic studies and experimental studies sampling – Meaning and significance, Type: SRS, stratified, systematic, cluster, purposive and quota sampling.

Unit-8.

To be computer literate, students must know what computers are, what they can and cannot do, how they are put to work in a way that can affect society. An appreciation and understanding of the working of the computers and their applications in different settings would help Development students in formulating development policies. Thus the objectives of the course are to understand the impact of I.T. on development and society to know what computers are to know what computer does to know how they are put to work.

I.T. and Development the social impact of I.T. evolution of information society the nexus between I.T. and Development. The potential for I.T. in India. The need for national Information Technology Strategy. Towards a workable strategy. – Computer concepts, components and system computer system organization, the central processor – Arithmetic – Logic unit, primary storage concepts, input/output devices, storage devices. – Computer Classifications Analog, Digital, and Hybrid computers, types of computers – Micro, Mini, Mainframe and super computers. Computer systems today advances, intelligence, generations of computers.

The progress to human development as the core concern human capital and human development analysis of HDL and its bias, a critique.

Unit-9.

Sustainable human development. Population dynamics – basic concepts in demography – Malthus and his relevance. Optimum population theory, and population transition theory; components of population change – fertility, morality and migration, population analysis, population structure, population development India's population policy. State initiatives for development – relationship between policy and planning.

Basic issues in planning – aspirations, goals and targets importance of the political context – multi – level planning and co-ordination.

Unit-10

Origin and Evaluation of NGOs and Voluntary Actions, Voluntary Actions in the Western Society.

NGOs as a Universal Third force Globalization process and Ideology New Multilateralism.

Unit-11

Spatial data analysis and its relevance in development planning, Maps as tools of spatial data analysis – interpretations of maps and basic cartographic techniques.

Spatial measurement of location and dispersions. Point distribution analysis – clustering and dispersion nearest neighborhood analysis – line distribution analysis – road network

Analysis and spatial integration measurement – accessibility index, detour index, etc.

Unit-12

Analysis of India's economic performance through national income accounts since independence – changing sectoral shares and their Implications – economic growth, employment and equity review of Poverty studies in India.

A brief review of India's planning history - declining importance of Planning and the adoption of SAP – its economic and political Compulsions. Indian agriculture – review of performance – the transition from a community – centered to a technocratic approach impact of SAP and the new patent regime on agriculture – export promotion and food Security.

Unit-13.

Gender – the concept, the difference between sex and gender, key Concepts in gender studies, gender equality, gender justice, gender bias, gender roles, gender relations, gender blindness, gender division and labour, gender perspective.

The construction of gender in major social institutions: family, religion, economy, education, politics and media development – The concept, major theoretical formulations, changing concept of development, the shift from the growth model to the social justice model.

Unit-14.

Significant changes in development dialogue in recent times. Emergence of alternative development paradigms: sustainable development environmental movement, eco-feminism, accent on the human impact of development processes, Public awareness and the Critique of scientific hegemony – role of NGOs and the anti-mega scale phenomenon.

Unit-15

Introduction to Social security, theories, concept and approaches. Understanding the Social security, safety and social assistance

Unit-16

Characteristics of the rural economy: agriculture and rural development; contribution of agriculture to GNP; its role as a source of savings and as a market for urban manufacturing goods;

Rural non-agricultural activity. Its role in employment provision; its potential in absorbing surplus agricultural labour, the agrarian structure – how it affects agricultural development;

Unit-17

Urban, Organization – Establishing relationship between economic Development, and urbanization – emerging urbanization pattern in India,

Migration and urban growth, rural urban dichotomy, economic dimensions of urban informal sector and planning for urban informal sector, emerging urban problems in India like urban slums, shelter.

Unit-18.

Conventional approaches to development planning the absence of spatial planning. Introduction to synchronization – temporal synchronization, spatial synchronization Indian five year plans – absence of element of space. Sectoral plans and their synchronization. Types of planning deductive, indicative, normative, imperative, utopian, short and long term, project planning, integrated planning, systems planning. Concept of regions and synchronized development – Types of regions, resource region, metropolitan regions, economic region, river valley regions, administration regions, regional delineation techniques. Boundary Girdle method, transitional zone technique, Ridge line technique, principal component techniques, composite index technique.

UNIVERSITY OF MYSORE

Syllabus for Ph.D. Entrance Exam Earth Sciences

UNIT-1 MINERALOGY

Descriptive Mineralogy: Study of the physical properties of the following groups in detail. Native elements, sulphides, tellurides, arsenides, antimonides, sulphosalts, haloids, oxides, Oxygen salts, carbonates, silicates, metasilicates, disilicates, chlorite, serpentine, kaolin, talc and titanosilicates, niobates phosphates, aresenates, vanadates, antimonates, borates, uraninites, sulphates, chromite, tellurates, tungstates, molybdenite mineral fuels. (Unit cell formulae calculations of minerals: garnets, amphiboles, and pyroxene) and its application (Plotting on various diagrams, type structure building models). Measures and identification of X-ray powder patterns of typical minerals. Unit cell calculation from X-ray powder patterns.

Optical Mineralogy: Identification of minerals under polarizing microscope. Optical Indicatrix. Pleochroic scheme of minerals, birefringence by Michael; Levy chart, Bereck compensator: interference figures Uniaxial and biaxial: R.I determinations-Seck's method in thin sections: 4 axes Universal stage (description and application, measurement of 2 v)

UNIT-2 PETROLOGY

Definition and relationship of petrology with other branches, Branches of petrology - Petrography and Petrogenesis. Classification of Rocks based on Origin. Igneous, Sedimentary and Metamorphic rocks. 2. Igneous Petrology: a) Forms of Igneous rocks - Extrusive and Intrusive forms. Concordant types - sill, loccolith, phaccolith and Lopolith: Discordant types - Dykes, Stock, Boss and Batholith. b) Structures of lava flows - Vesicular, Amygdaloidal, Blocky, Ropy, pillow and Columnar. c) Textures, Definition, Factors Egigranular and Uequigranular - Porphyritic, poikilitic, controlling textures - types -Ophitic and Basaltic. 3. Sedimentary Petrology: a) Sedimentation - Weathering, Transportation, Deposition - Lithification and diagenesis. Depositional Environments - Terrestrial, Lacustrane, Fluvial and Marine. b) Structures of Sedimentary Rocks - Riple Marks, Rainprints Suncracks, Current bedding, Graded Bedding, Stratification. c) Classification of Sedimentary Rocks: i) Clastic: Rudaceous - Conglomerate and Breccia. Arenaceous -Argillaceous - Shale, Siltstone. ii) Chemical and Biogenic: Carbonates & Sandstone, Grit, Arakoses. Carbonaceous deposits iii) Residual Sediments - Laterites. 4. Metamorphic Petrology: a) Definition and Agents of Metamorphism - Temperature, Pressure and fluids. b) Kinds of Metamorphism - Cataclastic, Contact (thermal), Regional Dynamothermal - Low P, Med. P. High P. c) Fabric (Structures/textures) of Metamorphic Rocks- Schistose, Granulose, Gneissose, Cataclastic and Porphyroblastic Granulitic.

UNIT-3 PHYSICAL GEOLOGY & STRUCTURAL GEOLOGY

Relief orders. Geomorphic processes and land forms – fluvial, glacial, Aeolian, coastal and karst, Principles of terrain evaluation – terrain units –physiography, Land facets, Geomorphology in irrigation projects-Confined alluvial valleys - Riverine plans - Design of Channel network. Endogenic Processes acting on earth and their impacts.

STRUCTURAL GEOLOGY - Definition and importance of structural Geology. 2.Structures: Primary and Secondary. a) Primary: Ripple marks, Suncracks, Rain prints, Stratification, Current bedding and Graded bedding. b) Secondary Structures: I) Folds: Definition, parts of a fold, types - Symmetrical and Asymmetrical - Anticline and syncline, Overturned fold. Recumbent fold, Isoclinal, chevron, Fan and Drag folds. Erosional features - Inlier and Outlier. II) Faults: Definition, elements of fault - Fault plane, dip, strike, hade, heave, throw, hanging wall and foot wall. Step fault, ridge and trough faults, criteria for recognition of faults in the field. Joints: Definition and Terminology of joints - Dip, strike, Joint Plane, Joint block, Joint Set and Joint system. Classification of joints - Geometrical -dip, strike, oblique bedding. Genetic: Columnar, sheet joints,

rift and grain. Significance of joints. II) Unconformities: Definition, Origin and Types - Disconformity, Non-conformity, Angular unconformity and blended unconformity, Recognition and significance of unconformities.

UNIT-4 : PALEONTOLOGY & STRATIGRAPHY

STRATIGRAPHY-a) Introduction - Definition of Stratigraphy, Relationship with other branches of Geology. b) Principles - Law of uniformitarianism, Law of Order of Superposition: Nature of Geological Record. c) Stratigraphic classification and Nomenclature Unit - Litho, Bio and Chronostratigraphic., d) Correlation of Strata - Criteria - Lithological, Structural, Metamorphic, Palaeontological, Geochronological and Stratigraphical. e) Standard Stratigaphic scale.

PALAEONTOLOGY- Definition of Palaeontology - Classification of life plant kingdom and animal kingdom - vertebrate and invertebrate - phylum, class, order, genera and specis. 2. Fossils: Definition - types of fossils - modes of fossil preservation Mummification, Carbonisation, Petrifaction, Casts and Molds. Tracks and Trails. Uses of fossils. 3. Morphology and Geological distribution of Foraminifera, Brachiopods, Lamellibranchs, Gastropods, Cephalopods, Echinoids & Trilobites. 4. Plant fossils - Morphology and distribution of Lepidodendron, siggillaria, Calamites, Glossopteris, Ptillophyllum.

UNIT-5: GEOEXPLORATION

Geological Exploration: Mode of occurrence of commercial-grade deposits of Fe, Mn, An-Ag-(W), Cu,Pb-Zn,Ti,Ni,Mo,Sn,Al,Pt - group. U-Th. Geological criteria for mineral prospecting. Indications of ore. Geological prospecting methods. Small and large scale geological mapping. Methods of geological exploration - exploratory grids, location and documentation of exploratory workings (pits, trenches underground workings), drilling, core logging. Sampling techniques and evaluation of grade. Delineation of ore deposit based on exploration data. Classification of ore reserves. Ore reserve estimation. Economic evaluation of ore deposit. Preparation of technical report

Geochemical Exploration: Geochemical cycle- mobility of elements, Pathfinder elements and geochemical anomaly. Mode of occurrence of trace elements. Primary dispersion patterns of deep seated origin, syngenetic and epigenetic. Geochemical rock surveys. Weathering and its products. Factors controlling mobility of elements in the surfacial environment, Eh-PH, formation of complexes, absorption and ion exchange on colloidal practicals, formation of organic compounds, electro chemical dispersion.

Movement of surfacial material - role of mechanical and biological factor (gravity movement, dispersion in surface and ground water dispersion by glaciers and wind action, effects of vegetation). Surfacial dispersion patterns - syngenetic and epigenetic patterns. Forms of surfacial patterns. Anomalies in residual over burden - clastic, hydromorphic and biogenic anomalies. Anomalies in ground land stream water. Anomolies in drainage sediments. Geochemical drainage surveys. Uptake of mineral matter by plants. Biogeochemical anomalies. Biogeochemical survey techniques. Vapour geochemistry. Selection of geochemical methods in mineral exploration.

UNIT-6: MINING METHODS & MINERAL PROCESSING

Mining Methods: Terms used in open pit and underground mining. Classification of mining methods: Alluvial mining: Pan and batea, rocker, longtom, sluicing, hydrauliking, drift mining and dredging. Open-pit (cast) mining: loading by hand (manual), loading by machine-drag line, power shovels, scrapers, land dredges, over burden bridges, bucket wheel excavators. Underground mining: Metalliferous deposits-open stopes without support. Overhand stoping with support –Timbered stopes, filled stopes and caving methods. Mining of coal deposits. Explosives and blasting.

MINERAL DRESSING - Definition and Scope of Mineral dressing (ore dressing) Physical and Chemical Properties of minerals made use of in Mineral dressing. Communition: Principles, theories of Communition, ore grindability. Crushers: Primary and Secondary Crushers. Grinding Mills (Tumbling Mills):- types of Mills: Rod, Ball and Autogenous mills. Industrial Screening: Screens and their types.

UNIT-7: ORE GEOLOGY & INDIA'S MINERAL DEPOSITS

ORE GENESIS: - Ore / bearing fluids. Migration of ore bearing fluids. Physical and chemical controls of ore depositon. Morphology of ore bodies. Texture of ores. Zoning of mineral deposits. Genetic classification of ore deposits. Mafic igneous rock hosted ore deposits in layered mafic intrusions. anorthosites, kimberlites, carbonatites, Komatiites and ophiolite complexes, with typical examples. Ore deposits related to intermediate and felsic igneous rocks - Pegmatites, Porphyry, base-metals deposits, skarn deposits and hydrothermal cavity-filling and replacement type deposits with example.

Ore deposits related to subaerial volcanism. Ore mineralisation associated with submarine Volcanism and sedimentation-deposits of Fe (Algoma and superior types), Mn,U-Ag-W,dCu,Cu-Zn,Cu-pb-Zn-Ag. Sedimentary ore deposits of base metals,iron, manganese, phosphates and evaporites. Palaeoplacer and placer deposits of diamond, gold and other gem stones. Ore deposits related to weathering-Nickeli-ferous laterite and bauxite. Supergene alteration and enrichment of iron, manganese and base metal deposits. Ore mineralisation related to regional metamorphism and remobilisation. Ore deposits related to plate-tectonic regimes. With world occurrences of above ore-forming processes.

INDIAN INDUSTRIAL MINERAL DEPOSITS- Mode of occurrence, mineralogy, genesis and Indian distribution of the following metallic and non-metallic mineral deposits. Metallic minerals - iron, manganese, copper, chromium, tin, bauxites. Non-metallic minerals- fertilizers, refractive and abrasive minerals, ceramic and glass making minerals, mineral pigments, ornamental stones and gemstones. Radioactive minerals-Instrumental techniques of detection and measurement of radioactivity. Distribution of radioactive minerals in India. Strategic, critical and essential minerals, India's mineral wealth status and. National Mineral Policy.

UNIT-8: HYRDROGEOLOGY

PHYSICAL HYDROGEOLOGY- Definition and scope, Distribution of Groundwater in the earth's crust, Groundwater in hydrological cycle, the global water budget, India's water budget, origin of groundwater, Classification of rocks with respect to water bearing characteristics, Geological structures favoring groundwater occurrence, Groundwater movement, Aquifer and its Classification, Hydrological properties of rock, Porosity, Permeability, transibility, specific yield, specific retention, transmissibility. Darcy's law, water table, flow nets, springs.

GROUNDWATER EXPLORATION- Aquifer test, Draw down, Groundwater resources of India, Groundwater recharge-Natural, artificial recharge methods, Rainwater harvesting, Groundwater runoff, Groundwater management, Methods of groundwater exploration-Geological, Geomorphological, geophysical and Remotesenesing methods

UNIT-9: GEOCHEMISTRY

GEOCHEMISTRY- Introduction to geochemistry - its scope. Geochemical classification of elements, Age, origin and composition of the universe with special reference to the solar system. Meteorites - Classification composition and their origin. Differentiation of the Earth. Biochemical classification of element and geochemical cycles. Geochemical fractionation of trace elements in magmatic processes, REE in igneous petrogenesis, Isotopes- Stable Radiogenic Fractionation and importance.

GEOCHRONOLOGY- Geochronology -Radio activity decay schemes, growth of daughter isotopes and radiometric dating. Isotope geochemistry: Kinds of isotopes, radiogenic isotopes: strontium isotopes, lead isotopes, neodymium. isotopes, Application of isotope geochemistry:, U-Pb , Rb-Sr and Sm-Nd isotope systematics.(mineral and whole rock).

UNIT-10: REMOTE SENSING & GIS

AERIAL REMOTE SENSING AND PHOTOGRAMETRY-Aerial Photography- Multispectral Photography - Types of aerial photos -Scale - Photogrammetry:-Basic principles - Electromagnetic spectrum - platforms- Sensors - Energy interaction with atmosphere and earth's surface - Reflectance of minerals, rock and water- Imaging

and non-imaging sensors – Elements of image and Photographic –interpretation, Image processing and Indian imaging system.

REMOTE SENSING APPLICATIONS - Lithological mapping; - Structural mapping and tectonic study, suture zones and shear zones, mineral exploration, ground water exploration, mapping of native vegetation, croplands and soils. Geomorphological mapping and land form studies. Buried and palaeo channels, Flood plains, Tsunamis, forest classification, Sea level changes - Fluvio-marine, air and water pollution, Wetland and Waste land, Land use - land cover studies and Urban planning.

GPS- Global positioning System and its functions. Components of GPS, segments of GPS, GPS satellites, Types of GPS, types of antennas, Data input from Automated Surveying and Global Positioning System. Types of projections of the global co-ordinates, development of Degree sheets, and UTM. Georeferencing using Toposheets, mapping with GPS, tracking with the GPS, Uses and advantages of GPS.

GIS- Introduction to Geographic Information Systems and spatial distribution of geological data. Components of GIS- Software modules of GIS- GIS as a set of Interrelated Subsystems-Data Processing Sub system, Data Analysis Subsystem, Information Use Subsystem, Management Subsystem. Data Input:- Modes of data input- Digitizer hardware, the digitizing operation, Problems with digitizing maps, Editing errors from digitizing, Digitizing costs, Scanners; Requirements for scanning, Conversion from other digital sources. Data verification.

MAP DATA SOURCES AND MAP PROJECTIONS-Compared to Maps-Data stores, Data indexes, Data analysis tools, Data display tools. Raster GIS: The Data Model, Creating a Raster, Cell by cell entry, Digital data, Cell Values-Types of values, one value per cell, Map Layers-Resolution, Orientation, Zones, Value, Location. Raster GIS Capabilities- displaying layers, basic display, Other types of display. Local operations- Recoding, overlaying layers. Advanced GIS: Artificial intelligence- expert systems- Object oriented GIS, On-line GIS packages of Internet.

APPLICATIONS OF GPS AND GIS-Applications of GIS in mapping geological bodies, geomorphic units, landuse / landcover categories, hydrogeology, geophysical prospecting, mineral exploration, planning of urban structures, potential zones for groundwater targeting, artificial recharge and mining. GIS case studies. GPS applications on mapping and Surveying, Crustal deformation and tectonic movements, Natural hazards.

UNIVERSITY OF MYSORE

Syllabus for Ph.D. .Entrance Exam . (ECONOMICS)

Module I- Micro Economic Analysis

Demand Analysis – Marshallian, Hicksian and Revealed Preference Approaches Consumer Behaviour under Conditions of Uncertainty, Theory of Production and Costs, Pricing and output under different forms of market structure, Collusive and non-Collusive oligopolies, Different models of objectives of the firm – Baumol, Morris & Williamson, Cournot, Sweezy, Factory-Pricing, General Equilibrium & Welfare Economics.

Module II- Macroeconomics

Classical approach: Implications – Keynesian approach – concepts – Determinants of Effective Demand – Relevance – Economic Fluctuations-Hicks & Samuelson Approaches – Measures to minimize economic fluctuations – Phillips curve-Concepts – Trade off – Implications- New classical Macroeconomics: Propositions and Policy conclusions of supply side Economics and Rational Expectations Analysis – Open Economy Macroeconomics – concepts – Simultaneous Equilibrium – Implications.

Module III - Development and Planning

Sustainable Development – various measures of economic development – Human Development index – capability approach to development – Development as freedom-Development management – Development ethics- Development Vs Displacement – Inclusive growth – Gender substituted development – Market failure – Development planning – State & Development – State failure – Emerging issues of Development Planning.

Module IV- Mathematical and Statistical Methods

Linear and Non-linear functions and their applications - Application of Differential and Integral Calculus in consumer behavour and production theories – Matrix algebra and its application. Measures of Central Tendencies and Dispersion – Elementary theory of probability – Binominal, Poison and Normal Distribution – Testing of Hypothesis – Z, t, X² and F test – Index numbers – Time series.

Module V- Public Economics

Economic Functions of Modern Government – Role of Government in Economic Planning and Market Governance – Welfare foundations –Budget- Types of budget – concepts of deficits – Reforms in Budgeting – Zero Base Budgeting and Performance Budgeting – Public Revenue – Sources of Revenue – Tax Revenue – Effects of taxes on production, consumption, work efficiency, Savings – Public Expenditure – Effects of Public Expenditure on the Economy – Evaluation of Public Expenditure: Cost Benefit Analysis – Public debt – Issues in Management – Fiscal Policy – Objectives – Instruments – As an instrument of growth and social justice.

Module VI- International Economics

Foreign trade and Economic Development – Two – gap model – Foreign trade multiplier – Heickscher –Ohlin theory of International trade – Secular Decline in Terms of Trade – Perbisch – Singer & myrdal's thesis – Balance of payment problem in LDCs , Traditional, Absorption & Monetary approaches to BOP – Foreign exchange market & its functions – impact of tariff & non-tariff on trade – Regional trade Blocks – WTO & India.

Module VII- Money, Banking & Finance

Money supply & Money Demand – Role, Constituents & Functions of money & capital markets – central Bank – commercial banks- cooperative banks-Regional Rural banks-Technological developments in banking – Mutual funds – SEBI & RBI guidelines – Insurance sector –LIC-GIC- reforms in the Financial sector.

Module VIII- Environmental Economics

Natural Resources – Classification – Environmental costs – Environmental Accountings – Valuation of Natural Resources – Green GDP – Valuation of forests – Environmental Economics-Public goods- Market Failure – Common Property Resources – Market Based Instruments – Environmental Impact Assessment – Environmental Policy in India- Global warning – climate change

Module IX- Indian Economy

National Income accounting: Trends and major issues – performance of different sectors – problems of poverty, unemployment migration inflation & environment – Economic reforms in India – India on the are of economic reforms-objectives, nature & structures of economic reforms – impact of economic reforms – India & WTO India & GATS

Module X- Agricultural Economics

Agriculture and Economic Development – Farming systems – Theories of Agricultural Development –Laws of returns – Production Function – Cobb-Douglas production function – supply behavior of Agriculture- Agricultural Marketing – Problems – Farm Budgeting-Techniques – Agricultural Price Policy – Agricultural growth and productivity – capital formation – sustainable agriculture –Green Revolutions- Man –land ratio-agricultural finance-NABARD – WTO and Indian Agriculture.

UNIVERSITY OF MYSORE

Ph.D Entrance Examination Syllabus

EDUCATION

UNIT I: Philosophy of Education

Relationship between Education and Philosophy

- 1. Conceptual analysis in education –role of methodology, analysis of the concept of education.
- 2. Epistemological bases of curriculum logical relationship between objectives, knowledge and methods of teaching.
- 3. Value education need and different approaches

UNIT II: Sociology of Education

- 1. Education as a social system.
- 2. Socialization, culture and personality.
- 3. Education and social change, democracy and economic order.
- 4. Education and modernization; role of Educational technology.
- 5. Education and community with special reference to Indian Society

UNIT III: Educational Psychology

- 1. Growth and Development Principles, determining factors different dimensions; contributions of Piaget, Bruner, Ericson, Kohlberg, Chomsky.
- 2. Learning types Concepts and Principles relation to major theories of learning.
- 3. Major concepts and Principles and factors in group dynamics, motivation, remembering and forgetting as related to learning process

<u>UNIT IV:</u> Intelligence and Personality

- 1. Theories of intelligence, types of intelligence test; Emotional intelligence, Multiple Intelligence, creativity (Verbal and Non Verbal)
- 2. Personality and Mental Health Concepts, major theories of personality; Personality assessment; adjustment and mental health.

UNIT V: ICT in Education:

- Educational Technology as systems approach to education.
- > Systems approach in educational technology and its characteristics.
- > Components of educational technology, software, hardware Multi media approach in Educational Technology.
- 1. Modalities of Teaching difference between teaching and instruction, conditioning and training.
- 2. Programmed Instruction (origin, types, linear and branching, development of programmed instruction material linear / branching model, teaching machines, computer assisted instruction.
- 3. Concept of communication, Principles. Modes and Barriers of communication, Classroom communication (interaction verbal and non verbal).

UNIT VII: Teacher Education:

- 1. Objectives of Teacher Education at different levels Primary, Secondary and tertiary; Pre Service and in service teacher education (Need and Objectives).
- 2. Teacher Competencies Communication, organization, instruction and evaluation; National Curriculum Framework for teacher education; recent trends in teacher Education.
- 3. Issues and Challenges in teacher education Quality assurance in teacher education, recent trends in teacher education.

UNIT VII: Methodology of Educational Research

Characteristics of educational research

- 1. Planning the research study; review of the literature purpose and references, using database and internet; formulation of objectives and hypotheses (different types), variables types and inter-relationship, preparation of research proposal.
- 2. Research Paradigms in education: Quantitative, qualitative and mixed Characteristics and types Quantitative methods experimental (True experimental designs and quasi experimental designs), internal and external validity of results in experimental research; descriptive (survey, casual comparative, correlational programme evaluation) qualitative methods Ethnography, phenomenology, case study, historical research, mixed research strengths and weakness Characteristics of educational research.

UNIT VIII: Sampling and Tools/ Techniques of data collection

- Sampling :- Representative and biased sample; Random sampling techniques simple, systematic, stratified, cluster sampling and multi stage sampling; Non Random Sampling, technique convenience sampling, proportionate sampling, Quota sampling and snow ball sampling; sampling in qualitative research.
- Tools / Techniques data collection :- Characteristic of a good research tool, tests inventories and scales Types construction and Uses, Questionnaire Forms, Principles and Construction Administration of Questionnaires' Interview Types Characteristics and Guidelines for conducting Interviews Observation Types, Rating Scale, Check List, Schedules, Focus group discussion.

UNIT IX: Analysis of data I

- 1. Data types Nominal, ordinal, interval and ratio data levels individual and group
- 2. Description and Comparison of Groups

Measures of Central Tendency

- Dispersion, Characteristics and Uses
 Normal distribution(NPC)-characteristics
- Deviation from normality and underline causes

Correlation – Types (Spearman, Pearson, Biserial, Pointbiserial, Tetrachoric, partial and multiple) regression analysis

UNIT X Analysis of Data II

Testing of hypotheses; levels of significance, types of error, sampling distribution, sampling error, standard error: parametric test- t test, F test, ANOVA , ANCOVA- concepts ,assumption and uses

Non -Parametric tests- chiscqure, sign test, median test Analysis of Qualitative data-content analysis ,transcription

UNIVERSITY OF MYSORE

Syllabus for Ph.D. .Entrance Exam

Electronic Media

Unit 1: Visual Communication:

Mass Media and communication, Educational Media, Traditional Media, Film Theatres, Animated Films, Television, Drawings, Photographs, Illustrations, Portraits, Colors, Landscapes, Visual elements in communication. Film Genres.

Unit 2: Digital Media And Instrumentation:

Audio equipments and types, Microphones, Audio Capturing and storage, Photographic equipment and types, Image Printing equipment, Digitizing tablets, Electronic boards, Analog and Digital Video, MPEG video layers, types of video camera, Video Capture card, CCU, VCD, DVD Players, LCD, Plasma Screen, Ipod, Projectors, IMAX theatre, Cables.

Unit 3: Photography and Videography:

Basic Videography, Camera Types, Camera Parameters. Camera Accessories. Outdoor and indoor Videography, Filters, types of leans, types of shots, camera angles, camera movements, Basics of Lighting, HD TV and 24P Videography, Picture and Display Quality, VTR Usages.

Unit 4: Audio and Video Production:

Understanding Sounds, Decibel Scales, Frequencies of Radio and Sounds, Analog and Digital Sound, Digital Audio File Formats, Mono-stereo, DTS, On-line Recording, Audio Mixing, Sound Dubbing, Video Capture, Basic Video Editing, Editing Equipment, Types of Editing, Principal of Non-linear editing, online editing, Digitizing from formats, Exporting Digital file formats,

Unit 5: Script Writing and Storyboarding:

Basics of Scripts writing, Process of Scripting, Writing for Television Scripts, Radio Scripting, Writing for Different Radio Programmers, Script Writing for Documentaries, Films, Tele serial, Cartoon Movies, Educational Documentaries, Feature Film, Short Film, and Enrichment Programme.

Unit 6: Web and Internet Technologies:

Internet Technology, WWW, Web Servers, Browsers, web spiders, Search Engine, E-commerce, E-learning, URLs, File Transfers on the net, ISPs, TCP/IP, Gaming systems, Interactive TV, Video conferencing, HTML Tags and Methods of creating web pages.

Unit 7: Graphics and Animation:

Basics computer Graphics, Screen Resolutions and Aspect Ratios, Television and computer Graphics, Graphics Input and Output Devices, 2D, Graphics File Formats, Curves and Surfaces, 3D, Art Animation, Making multimedia Animation, Adding Sounds, Non-linear Animation, Flash Animation, 3D Illusion.

Unit 8: Advertising Media and News Casting:

Nature of Public relations, Propaganda and PR, Types of Public Relation, Corporate Media, Treatment, Role of Director, Scope of advertising, on-line marketing, Media Marketing, TRP, Methods of Interviewing, recording, Structure of news Story, Live Telecast, Role of OB vans, Breaking news, cycles of news, Television news Language, news portals, Flash news, News channels in India.

Unit 9: Media Ethics and Law:

Press freedom and Law, Right to Information Act, Right to Privacy, Media and Law, IPC, Criminal Procedure code (IPC), TRIP, Copy Right Act, TRAI, Prasar Bharthi Act, IT Act, Cyber crime, Press commissions, Concept of Press, AIR Code for election coverage, Unlinking rules, ASCI case Study,

Unit 10: Media Research and Statistical Application:

Concept of research, Importance of Media research, Hypothesis and variables, Methods of research, census, Sampling and Surveys, Random, Panel Research, Reliability, Primary and Secondary source, Questionnaire, Observation, Interview Method, Case Study Approach, Application of research in electronic media, Data analysis, Indexing, Citation and bibliography, Research report writing.

University of Mysore Syllabus for Ph.D. Entrance Exam ELECTRONICS

Unit 1: Analog Circuit Design

Transport phenomena in semiconductors, intrinsic and extrinsic semiconductors, direct bandgap semiconductors, pn- junction, zener, tunnel diodes, BJT, JFET, MOSFET and their character. AC and DC load lines, Transistor Biasing, Single stage and multi-stage amplifiers and their frequency response, feedback in amplifiers, oscillators.

Unit 2: Digital Circuit Design

Logic Gates, Logic Families, Simplification of Boolean Algebra and minimization Techniques, Karnaugh maps, Combinational and Sequential Logic Circuits, Encoder, Decoder, MUX and DEMUX, Memories, A/D and D/A Converter.

Op-amp Characteristics, Inverting and non-inverting configuration, Comparator, Schmitt Trigger, Integrator, Differentiator, 1st and 2nd order active filters, VCO, 555 Timer, PLL.

Unit 3: Network Theorems and Control Systems

KVL, KCL, Mesh and Node Analysis, Thevenin, Norton, Supeposition, Maximum Power Transfer Theorems. h- parameters.

Classification of Control Systems, Transfer function and Impulse Response of Control System, Block Diagram Representation, Signal Flow Graph, Stability Analysis, Routh's Stability Criteria, Root Locus Diagram, Bode Plot, Polar Plot.

Unit 4: Microprocessor and Microcontroller

Architecture and features of 8085, 8086 microprocessors and 8051 microcontroller, Programming, Addressing Modes, Interrupts, Memory and I/O Interfacing, Interfacing 8255, 8257, Serial Communication Protocols.

Unit 5: Analog and Digital Communication

Introduction, Need of Modulation, Analog Modulation and Demodulation Schemes-AM, FM, PM. Noise in Analog Communication, Transmission Lines, Wave Guides, Antennas, Channels of Digital Communication System, Source and Channel Coding, Sampling Theorem, Waveform Coding – PCM, DPCM, Delta Modulation. Digital Modulation Techniques- ASK, FSK, PSK, DPSK, QPSK, M-ary modulation and Demodulation, TDM and FDM Schemes.

Unit 6: Power Electronics

Semiconductor power diodes, transistors, SCR, Triacs, Diacs, GTOs, MOSFETs, IGBTs and their characteristics and principles of operation, triggering circuits, phase controlled rectifiers, Converters, Inverters, Choppers.

Unit 7: Computer Organization and Programming in C

Basic Structure of Computer Hardware and Software, Memory and I/O organization and Pipelining.

Overview of C, Constants, Variables and Data types, Operators and Expressions, I/O operations, Decision making, branching, looping, Arrays, Structures, User defined functions, Pointers, File management in C.

Unit 8: Signals and Systems

Classification of Signals, Concept of Frequency in Continuous-time and Discrete-time signals. Discrete-time signals and systems, Analysis of discrete-time linear time-invariant systems, Correlation and autocorrelation, Z-transforms, Inverse Z-Transforms, Fourier Series, Fourier Transform and their properties.

Unit 9: VLSI Technology

Introduction to IC Technology, IC fabrication, n-MOS, C-MOS, Bi-CMOS Fabrication, Latch up in CMOS, Stick Diagrams, Lambda based Designing rules and Layout Diagrams, Scaling Model and Scaling Factors, Sub-system Design.

Unit 10: Optical Fibre Communication

Optical Sources- LED, Spontaneous and Stimulated emission, Semiconductor Diode LASER, Photodetectors, PIN photo diodes, Phototransistors, Optocouplers, Optical Fibre, Light

University of Mysore Syllabus for PhD Entrance Exam ENGLISH

Unit 1

1. Historical Background from 14th to 16th Century – Chaucer's "Prologue"; Sidney: Sonnets I, V &VI (Astrophel and Stella); Spenser: Prothalamion, Epithalamion; Surrey: 1." Love that liveth and reigneth in my thought", 2. "Set me whereas the sun doth parch the green"; Wyatt: 1. "Who so list to hunt", 2. They flee from me; Donne: "The Good Morrow", "Song: Go and Catch a Falling Star", "Death be Not Proud", "At the Round Earth's Imagined Corner", "Sunne Rising", "Resurrection"; Herbert: "The Pulley", "The Collar", "Virtue", "Discipline"; Andrew Marvell – "To His Coy Mistress", "Thoughts in a Garden"; Marlowe's Dr. Faustus; Jonson's Volpone; Kyd's Spanish Tragedy; Shakespeare's Sonnets 18,29,30,33, ,60,71,73,114,116; Macbeth; Julius Caesar; As You Like It;

Unit 2

Historical Background to 17th and 18th Century; *Dryden's Absalom and Achitophel*; Alexander Pope's *The Rape of the Lock*; Bunyan's *Pilgrim's Progress Book-1*; William Congreve - *The Way of the World*; Sheridan's *The School for Scandal*; Aphra Behn's *Ooroonoko (Royal Author)*; Daniel Defoe: *Robinson Crusoe*; Jonathan Swift – *Gulliver's Travels* – *Book IV* (Voyage to the Land of Houyhnhnms); Addison & Steele: Spectator Essays: Addison (1) *Sir Roger at Church*, (2) *Sir Roger at Assizes*; Steele: 1) *The Gentleman* 2) *The Spectator Club*

Unit 3

Historical Background to 19th Century: William Blake's *Tyger*, *London*, *The Chimney Sweeper*, William Wordsworth's *Tintern Abbey*, *Ode to Immortality*, *Lucy Poems*; *A Slumber Did My Spirit Seal*, *She Dwelt Among Untrodden Ways*; P.B. Shelley's *Ode to the West Wind*; *To A Skylark*; Tennyson's *Ulysses*, *Lotus Eaters*; Jane Austen's *Emma*; Emily Bronte's *Wuthering Heights*; Charles Dickens' *Hard Times*; Thomas Hardy's *Jude the Obscure*; J.Ruskin: *Unto the Last* (Chs.1 and 2), J.S.Mill: "*On Liberty*"; Mathew Arnold: *Culture and Anarchy* (chapter 1: Sweetness & Light chapter 2: Hellenism & Hebraism);

Unit 4

Historical Background to 20th Century; G.M. Hopkins: *The Wreck of Deutschland, Windhover*; W.B Yeats: *Sailing to Byzantium, Byzantium, Second Coming, Easter 1916*, Thomas Hardy's *Green Slates (Penpethy), The Darkling Thrush, The Man He Killed, The Broken Appointment*; T.S. Eliot's *The Wasteland, The Journey of the Magi*; W H Auden's *In Memory of W. B. Yeats, Musee des Beaux Arts*, Sylvia Plath's *The Arrival of the Bee Box: Lady Lazarus*; Dylan Thomas: *After the Funeral, Fern Hill*; Seamus Heaney: *Tollund Man, Digging, Casuality*; Philip Larkin: *Church*

Going, Next Please, Love Again; Ted Hughes: Thought Fox, Hawk Roosting, Full Moon and Little Frieda

Unit 5

Origin, growth, and development of Literary Criticism, Various Posits and Literary Contexts, Principles of Literary and Practical Criticism; Post World War Scenario, Twentieth Century Social Milieu, Twentieth Century Theatre, Twentieth Century Novel, Great Economic Depression, Stream of Consciousness, Postmodernism, Aristotle: *Poetics;* Longinus: *On the Sublime;* Plato on Mimesis in *A Short History of English Literary Criticism* by Wimsatt & Brooks); Sidney's *Apologie for Poetry;* Samuel Johnson's *Preface to Shakespeare;* Dryden: *On Dramatic Poesy;* W. Wordsworth's *Preface to Lyrical Ballads;* Coleridge : *Biographia Literaria* Chapters 13,14,17; Arnold: *The Function of Criticism at the Present Time;* DH Lawrence: *The Rainbow;* Virginia Woolf: *To the Lighthouse;* E.M.Forster: *A Passage to India;* Doris Lessing: *The Golden Notebook;* Samuel Beckett – *Waiting for Godot;* John Osborne: *Look Back in Anger;* Virginia Woolf: "On Modern Fiction"; George Lukacs: "The Meaning of Contemporary Realism", (chapters on Kafka & Modernist Fiction); Raymond Williams: "When was Modernity?"

Unit 6

Russian Formalism, Psychoanalysis, Structuralism, Deconstruction, Postcolonialism, Phenomenology and certain other forms of Hermeneutics. Marx, Nietzsche, Freud, Gramsci, T.S. Eliot: *Tradition and Individual Talent*, F.R. Leavis: *Literature and Society, Tragedy and the Medium* (From **The Common Pursuit**), C. Jung: 'Psychology and Literature', N. Frye: Archetypes of Literature, G. Genette: 'Structuralism and Literary Criticism', J. Derrida: 'Structure, Sign, and Play in the Discourse of Human Sciences', Elaine Showalter: "Towards a Feminist Poetics", Helene Cixous: "The Laugh of the Medusa"

Unit 7

Anglicists and Orientalists Debates, *Macaulay's Minute*, Rajaram Mohan Roy's *Letter to Lord Amherst*, The Rise of the Indian English Novel, Novel as a Social Act; Colonization and its aftermath, Culture Vs Modernity: The Indian Context, The Modern Indian Psyche vis a vis Indian Writing in English and in Translation; Toru Dutt's *Prahlad; Our Casurina Tree*; Rabindranath Tagore's Gitanjali: First five and last five poems; Sarojini Naidu: *Coromandel Fishers, Indian Weavers*; Girish Karnad: *Hayavadhana;* Vijay Tendulkar: *Silence! The Court is in Session,* Mahesh Dattani: *The Final Solution*; Aurobindo: *Savitri* Canto-I; Mulk Raj Anand: *Untouchable;* Raja Rao: *Kanthapura; R.* .K. Narayan: *The Man Eater of Malgudi;* Hiryanna: *Art Experience*: Indian Aesthetics (Chs. 1 and 2); Ananda Coomaraswamy: "The Dance of Shiva"; Aurobindo: The Poets of Dawn -1&2 (From Future Poetry) Arundathi Roy: *God of Small Things;* Amitav Ghosh: *Shadow Lines* (Partition); Jahnavi Barua: *Next Door;* M. K. Gandhi: *My Experiments with Truth; A*mrita Pritham: *Revenue Stamp; D*om Morales: *My Sons' Father;* Gayathri Spivak: "Can the Subaltern Speak?", Meenakshi Mukherjhee: "The Anxiety of Indianness", Aijaz Ahamed: "Introduction" to *In Theory*

Unit 8

Philosophy and Aesthetics of Commonwealth Literature, paradigm shifts from commonwealth to New Literatures, Chinua Achebe's Arrow of God; Ngugi Wa Thiongo Homecoming Part-II: (a) The Writer and His Past,(b) The Writer in a Changing Society; Wole Soyinka's The Lion and the Jewel; Denis Brutus' At the Funeral, If This Life is All That We Have; David Diop's Africa, Vultures; Gabriel Okara: Piano and Drums. The Call of the River Nun; Margaret Atwood: Surfacing Northrop Frye: "Conclusion" to Literary History of Canada AJM Smith: The Lonely Land; E.J. Pratt: The Dying Eagle; Patrick White: The Tree of Man Judith Wright: Preoccupations in Australian Poetry (Chapter 13 on A.D. Hope); Judith Wright: Woman to Man, A.D. Hope: Australia; V S Naipaul's AHouse for Mr. Biswas; Wilson Harris' Tradition and the West Indian Novel; Derek Walcott: Almond Trees, A Far Cry from Africa, Mass Man, Missing the Sea; Braithwaite: Starvation, Blues, Caliban, Thirst

Unit 9

American Renaissance, Journey as Metaphor, Westward Movement, Transcendentalism, Emerson: American Scholar, Nature, Thoreau: Walden (Chapters on Economy & Where I Lived and What I Lived For), Emily Dickinson: Because I Could Not Stop for Death, The Soul Selects her Own Society, Wallace Stevens: Emperor of Ice-Cream, Anecdote of The Jar, Walt Whitman: When Lilacs Last in the Dooryard Bloomed, A Noiseless Patient Spider, Robert Frost: Mending Wall, The Road Not Taken, Mark Twain: Huckleberry Finn, Ernest Hemingway: The Old Man and the Sea, Leslie Stephen: King of the Jews, Toni Morrison: The Bluest Eye, Alice Walker: The Color Purple, Fredrick Douglas: Narrative of the Life of an American Slave

Unit 10

Introduction to Spanish, French, German and Russian Literatures of the 19th and 20th Century: a. Political , b. Cultural c. Philosophical d. Social with special reference to the authors in the syllabus; Gustave Flaubert: **Madam Bovary**; Franz Kafka: **Metamorphosis**, Cervantes: **Don Quixote**; Fyodor Dostoevsky: **Crime and Punishment**

University of Mysore Ph.D Entrance Examination Syllabus ENVIRONMENTAL SCIENCE

- Unit 1 Environmental Chemistry: Air pollution, sources of air pollutants, CFC's photochemical smog, effect of air pollution on vegetation, animals and human beings, Air pollution control measures carcinogens in the air. Global warming, Green house effect, Ozone depletion and its impact, acid rain. Water pollution sources, heavy metal pollution noise pollutions, effect of noise pollution, prevention and control of noise pollution. Principles and applications of UV-Visible spectroscopy AAS, FES, IR, Nephelomchy, Polargrphy, GC and HPLC.
- **Unit 2 Environmental Earth Science :** Interior of earth; Earth systems and its interaction. Earth's Materials Minerals and their definition, Definition of resources and reserve. Earthquakes: causes, intensity and magnitude of earthquakes; geographic distribution of earthquake zones, volcanism: nature, extent and causes of volcanism, geographic distribution of volcanoes. The hydrological cycle, and its balance. Factors influencing the surface water and characteristics of stream flow, sub-surface water.
- Unit 3 Environmental Microbiology: Classification, microbes as bioindicators of pollution, role of microorganisms in environmental pollution and management, microbes of extreme environment. Bioaccumulation and Biomagnification. Advanced techniques in detection of microbes in air, water and soil.
- Unit 4 Environmental Biotechnology Role of biotechnology in energy production, role of environmental biotechnology in field of prevention, deduction and monitoring and genetic engineering. Application of biotechnology to environmental problems. Biosensors Types of biosensors. Applications of biosensors. Composting types of composting. GMO's Bioremediation, Applications, biofilters, microchips
- Unit 5 Solid waste Management Sources, characteristics, classification, collection, storage, segregation, transportation and disposal methods sanitary land filling, waste prevention and recycling, commonly recycling material and processes, recovery of biological conversion products, biogasification, energy recovery, energy and hazardous waste management classification of hazardous waste, characteristics listing criteria, hazardous waste management, hazardous waste management in India, municipals solid waster management roles 2000, biomedical waste management and handling rules 1998, pyrolysis, incineration. Hospital waste characteristics and Management
- Unit 6 Occupational Health Hazards: Occupational Environment, Physical, Chemical, Biological agent. Occupational Hazards physical hazards, chemical hazards, Biological hazards. Occupational diseases-Pneumoconiosis-silicosis, Anthracosis, Byssinosis, Bagassosis, Asbestosis, Farmers lung, Lead poisoning, Occupational cancer, Occupational Dermatitis, Radiation hazards.

Unit – **7 Environmental Biology** – Ecosystem, Homeostasis, energy flow in a lake ecosystem, Lindemen model – climatic factors, influence of light on morphology and physiology of plants, characteristics of heliophytes and sciophytes, effect of low and high temperature on plants, mechanical and physiological effects of wind, characteristics of populations, biological interaction.

Unit-8 Remote Sensing GIS and Disaster Management: Principle of Remote Sensing and its applications to Environment, types of sensors spectral reflectance and their characteristics, products used in Remote sensing, GIS and their use for environmental monitoring.

Environmental Disaster – Types of Hazards, Hazard mitigation. Earthquake, volcanic, seismic Hazards – nature of destruction, ground subsidence, protection of earthquake and volcanic hazards, Landslides and mudflows floods and flood management, nature and frequency of flooding, man made disaster and Hazards.

Unit – 9 Biodiversity: Genetic diversity, Species diversity and ecosystem diversity, alpha, beta, and gamma diversity, endemism, significance of the endemism, Hot spots of Biodiversity, Red data book and IUCN categories, endangered species, vulnerable species. Rare species. Ecological consequences of reduction in biodiversity. Deforestation and its impact.

Causes for depletion of biodiversity in India, Sacred grooves. Biosphere Reserves – A new concept of conservation – objectives and management, *In situ* and *ex situ* conservation.

Unit – 10 EIA and Environmental Laws: Framework of Environmental Impact assessment (EIA), simple methods of identification of impacts, matrices network, checklists. Methods of impact analysis, public participation in Environmental decision making, EIA in project planning.

Legal control of Environmental pollution in India with special reference to:

- i. The Wildlife protection Act 1972
- ii. The Water prevention and control of pollution Act, 1974.
- iii The Forest Conservation Act, 1980.
- iii. The Air prevention and control of pollution Act, 1981.
- iv. The Environment protection Act. 1986.
- viii. Hazardous waste management rules-1989
- ix Biological Diversity Act of India, 2002

UNIVERSITY OF MYSORE

Syllabus for Ph.D. Entrance Exam FOLKLORE

UNIT 1: PERSPECTIVES OF FOLKLORE

A Folklore: An Introduction

Meaning, Nature and Scope

Diverse approaches: A working definitions, Folk, Rural, peasant, urbans Pre-Industrial

Orality to Literacy and Vice-Versa

Folk, Folklore, Folkloristics

Characteristics and Functions of Folklore

B Classification of Folklore

Two folded. Three folded and Four folded classification

Macro and Micro Classification

Forms of Folklore: Oral Literature, Material Culture, Social Folk Customs

Performing Folk Arts

C Basic Concepts

Meta Folklore, Cultural Identity, Feminism, Worldview, Oicotype,

Type and Motif, Arche Type

Active bearers and Passive bearers

D Folklore and its neighbouring disciplines

Anthropology, Psychology, History, Linguistics, Literature

Need for inter disciplinary study

Need for Multi disciplinary study

UNIT: 2 STUDY OF FOLK CULTURE

A The concept of culture-definition: Nature and Scope

Great and little tradition, Culture and Folklore

B. Patterns of People's culture

Folk Culture

Popular Culture

Elite Culture

Tribal Culture

Mono Culture and Cultural Pluralism

Subaltern culture

Culture and Creativity

Culture and Globalization

C Social Organizations and Customs

Marriage, Family and kinship

Clan, community, Religion: Folk Religion v/s Religion of the Elite

Beliefs, customs, rites, taboos, Folk Magics

D Acculturation an diffusion of culture

Cultural Trails Cultural Area **Cultural Identity**

UNIT: 3 FOLK LITERATURE

Α Folk Literature : An Introduction

- 1.1 Literature; its meaning and scope
- 1.2 Oral and Written Literature
- 1.3 Literary tradition: its relationship

В **Genres of Folk literature**

- 2.1 Oral Narratives: Myths, legends and Folk tales
- 2.2 Function and Meaning of oral Narratives
- 2.3 Verse Narratives : Songs, ballads and epics
- 2.4 Function and Meaning of Verse Narratives

С **Genres of Folk literature**

- 3.1 Fixed phrase Genres: Proverbs and Riddles
- 3.2 Text, Texture, context3.3 Function and Meaning
- 3.4 Structure

D **Genres of Folk literature**

- 4.1 Collection, Editing and Analysis of Folk literature
- 4.2 Different approaches to the study of Folk literature

UNIT: 4 FOLKLORE THEORIES

Α **Current Theories in Folklore**

Necessity of Theories in Folklore Relevance of Theories in Folklore

Evolutionary and Devolutionary Theories В

Cultural Evolutionists, Myth Ritualists and Comparative Mythologists The Indianists, The Egyptians and The Finnish Method Anthropological Theory

C **Functional and Structural Theory**

Application of Functional thoughts Psychoanalytical theory, Application of Psychoanalysis Propp, Levistrauss, Alan Dundes and Maranda and Maranda Model Application and limitations of structural models

D **Oral Formulaic and Genre Theory**

Application of Oral Formulaic Theory Contextual and Performance Method Applicational prospectus of these theories Context and Genre Ethnic and Analytical category Real and Ideal Genre

UNIT: 5 FOLK SPEECH AND COMMUNICATION

A Folk Speech : An Introduction

Nature, Scope and characteristics of Folk Speech Folk Etymology; Folk Speech – Elite Speech Dialects, Idioms, Slang, Abuses

B Name lore

Folk Names of Plants, Animals and other objects Occupation, Games and Trade Names Personal names, Place names and Nick names Folk Speech in poetry, Narratives Role of Folk Speech in Cultural Context

C Meaning and Kinds of Communication

Definitions: The Communication perspectives Types of Communication; Models

D Folklore and Communication

Purpose of Folk Communication, Items of Folk Communication, Techniques of Folk Communication, Types of Folk Media and Mass Media : Concern and conflict Performer, Audience and Communication

UNIT: 6: KARNATAKA FOLKLORE

A Karnataka Folklore : An Introduction

Folklore as a field of study in Karnataka History and Development, Foreign Scholars, Native Scholars

B Karnataka Folklore : Genres of Oral Literature

Prose Narratives : Myths, Legends and Folktales

Verse Narratives : Ballads, Songs, Epics Fixed Phrase Genres : Proverbs, Riddles, Jokes

C Karnataka Folklore: Material Culture and Social Folk Customs

Content and forms

D Karnataka Folklore: Folk Arts

Folk Dances, Performing Folk Arts, Theatre form Regional Forms: Yakshagana, Mudalapaya, Doddata, Sannata; Socio-cultural significance, Karnataka Folklore Compared

UNIT: 7 THE STUDY OF INDIAN FOLKLORE

A India: Its geographical, Historical, Cultural and Linguistic Identity

B Indian Terms for Folklore

Folkloristics in India, Indian folkloristics and the contemporary world

C Genres of Indian Folklore

Folk Poetry, Prose Narratives, Fixed Phrase Genres

D Theatrical Forms

Geographical Identity, Historical Validity, Socio-Cultural significance People, Place and Performance, Literature, Music and costumes

UNIT: 8 FOLKLORE IN THE CHANGING WORLD

A Folklore Research around the world : Popular Antiquities to Folklore

Folkloristics of the West : Germany, Finland, Russia, England and America Folkloristics of the East : Japan, China, South East Asia, India, Bangladesh,

UNESCO recommendations

B The Folklore Process
The First Life of Folklore
The Second Life of Folklore

C Applied Folklore

The Political uses and Themes of Folklore

- To Promote Commodities in the Market
- To Promote Tourism
- D Karnataka Folklore in the Changing World

Factors influencing Media Globalisation and Consumerism Folklorisim: Its Impact of Folklorism

UNIT: 9 FOLK RITUALS & INDIGENEOUS KNOWLEDGE SYSTEM

- A Folk Rituals : its meaning, Characteristics, Classification related to Life Cycle
- B Folk Rituals related to Hunting, Pasturalism, Horticulture, Agriculture Fares and Festivals, Village gods, Totemic Gods, Festivals
- C Indigenous knowledge System Definition, Nature and Scope Characteristics and classification Indigenous knowledge System-related to food and Folk Medicine
- D Indigenous knowledge System related to Professional Hunting, Food gathering, pastorals, Horticulture, Agriculture Pottery, leatherwork, ironwork and ornamenting Indigenous knowledge System related to Non-professional-Architecture Costume, Designing, knitting, Embroidery, Decoration and Toy making

UNIT: 10 FOLKLORE RESEARCH METHODOLOGY

A Introduction to Folkloristic Research

History of field work tradition in Folklore Folklore as a field science, Purpose of Field Work in Folklore Preparations for field work in Folklore

B Different stages of folkloristic Research

Selection of Topics – Verbal and Non-verbal forms Selection of an informant : Establishment of Rapport, qualities of an investigator

C Basic Tools and Techniques of Data collection in Folkloristic Research –

Observation, Interview, questionnaires, case-study and life history method Use of Technology and issues related to it. Archiving and using the archives

D Analysis of Data

Classification, Categorization, Contextual, interpretations Writing a report, Synopsis, Illustrations, Footnotes, References etc.,

University of Mysore

Syllabus for Ph. D. Entrance Exam

FOOD SCIENCE AND NUTRITION

Unit 1.

Macro/macro nutrients and trace element:- Food sources – general and specific sources. Relevance and essentiality – involvement in biochemical reactions and nutritional implications. Assessment of nutriture and analysis in food materials. Toxicity and deficiency - levels, symptoms, health consequences and their management.

Unit 2.

- A. Body composition Methods of study, compositional changes during life cycle, nutritional disorders, and their effect on body composition.
- B. Body fluids and water balance Body water compartments, regulation of water balance, disorders of water balance.
- C. Energy metabolism- Basal and resting metabolism influencing factors, methods to determine energy requirements & expenditure, thermogenesis, adaptation to altered energy intake. Regulation of food intake.
- D. Basis for computation of nutrient requirements, latest concepts in dietary recommendations, RDA ICMR and WHO their uses & limitations.

Unit 3. Nutrition during life span -

- a. Pregnancy Physiological adjustments, nutritional requirements, nutritional status of Indian Pregnant women, effect of malnutrition on outcome of pregnancy, complications of pregnancy.
- **b.** Lactation Physiology of lactation, factors affecting lactation, nutritional requirements, effect of lactation on maternal malnutrition and fertility.
- **c.** Infancy Growth and development, nutritional requirements, feeding pattern, compositional differences between human milk and milk substitute and their suitability for infant feeding. Weaning practices, weaning and supplementary foods.
- **d.** Preschool age Growth and development, nutritional requirements, special care in feeding preschoolers, nutritional problems specific to this age.
- e. School age and adolescent children Growth and development, nutritional requirements, factors affecting their eating habits, nutritional problems specific to this age.

- **f.** Young adults Nutritional requirements, nutritional status of Indian adult population, nutritional problems common to this age.
- g. Elderly Nutritional requirements, special needs, nutritional problems.

Unit 4.

- a. Public Health Nutrition: Aims and scope, primary prevention, nutritional epidemiology, public health and health promotion.
- b. Nutrition related non-communicable diseases (Indian Perspective) Demographic, developmental and nutrition transition and its impact on chronic diseases, prevalence and determinants, nutritional management and prevention strategies.

Unit 5. Dietary Management of diseases

- a. Medical Nutrition therapy- Febrile conditions, gastro-intestinal disorders, liver diseases, renal disorders.
- b. Nutrition in critical care- nutrition support systems and associated complications.

Unit 6. Nutrition care and Assessment

- A. Assessment methods for research and practice Dietary, anthropometric, clinical, functional, biochemical tests, body composition, as applicable in individuals, populations and specific situations, Integrating assessment data subjective global assessments.
- B. Nutrition in health care Illness and nutrition status, health professionals and nutrition care, nutrition screening, nutrition care process, ethical issues in nutrition care.

Unit 7.

Processing of foods: Wheat, rice, millets, legumes, fruits and vegetables, fats and oils, sugar and confectionaries, beverages, milk and milk products, eggs, meat and fish.

Unit 8.

- A. Concept and meaning of food quality and food Safety. National and international food laws, food standards and Governing bodies. Hazard analysis and critical control points in processing of foods. Quality control in Food industry.
- B: Product development and sensory evaluation.

Unit 9.

A:Food spoilage and its control. Contamination and spoilage of cereal, pulses, vegetables, fruits, flesh foods, eggs, poultry, marine products, milk & milk products.

B: Preservation of foods: Principles and techniques of preservation - Food dehydration and concentration, heat processing, cold preservation, chemicals and irradiation.

Unit 10.

Recent concepts in food science and nutrition: Nutrigenomics, metabolomics, nutrition for space travelers, neutraceuticals, functional foods, genetically modified foods, fat substitutes, emerging food processing technologies {nanotechnology, microencapsulation, biopolymers for packaging, active packaging, edible gums and coatings, pulsed electric fields, supercritical extraction, membrane filtration}.

Unit 1: FOOD CHEMISTRY (Biochemistry & Nutrition)

(i) Introduction to chemistry of foods; (ii) Carbohydrates: characteristics and its classification - mono, di, tri and polysaccharides, qualitative & quantitative analysis of carbohydrates - free & total sugars; (iii) Proteins: characteristics and its classification, functional properties in foods, quantitative analysis of proteins, spectrophotometric method for determination of protein - Lowry's and Biuret; (iv) Oils and fats: Chemistry, occurrence, classification and composition; physical and chemical properties of fats - interesterification, hydrogenation, shortening & spreads; qualitative & quantitative analysis of oils and fats; (v) Enzymes: Characteristics and its classification; enzyme kinetics; isolation and purification of assay of enzymes, chromatographic separation enzymes. polyacrylamide gel electrophoresis - native & SDS-PAGE; (vi) Energy value of foods; (vii) Nutritional aspects of proteins, protein deficiency diseases; (viii) Nutritional aspects of fats - essential fatty acids and their role in the body; (ix) Role of dietary fibre and its determination; (x) Nutritional significance of vitamins & minerals and deficiency diseases; (xi) Recommended daily allowances for nutritional balanced diets.

Unit 2: PRINCIPLES OF FOOD PROCESSING

(i) Basic principles of thermal processing; (ii) Determination of process time and inoculated pack studies; (iii) Characteristics of packaging containers for use in food processing; (iv) Methods of dehydration in food processing and types of Dryers; (v) Fermentative processes – alcoholic, lactic acid and acetic acid; (vi) Use of chemical preservatives in food stability; (vii) Hurdle technology – principles and applications; (viii) Infestation in stored food grains – control measures; (ix) Analysis of pesticide and fumigant residues in foods; (x) Determination of shelf life of packaged foods.

Unit 3: INDUSTRIAL MICROBIOLOGY

(i) Isolation and maintenance of microbial cultures; (ii) Solid state and submerged fermentations; (iii) Operations of bioreactors and process control; (iv) Microbial enzymes for food applications – production and characteristics; (v) Indian and oriental fermented foods; (vi) Microbiological profile of water, milk & milk products, cereals & cereal products, spices, meat & meat products and fish & fish products.

Unit 4: TECHNOLOGY OF FOOD PRODUCTS (Cereals & Pulses)

(i) Characteristics of wheat & its milled products – physical, chemical & rheological; (ii) Influence of ingredients, processing conditions and additives on quality attributes of bakery products; (iii) Physical and chemical characteristics of

rice and rice-based processed products; (Iv) Cooking quality of rice; (V) Parboiling of paddy; (Vi) Processed products of malze, sorghum & finger millet; (Vii) Pulse processing including cooking quality of pulses; (Viii) Oilseeds as sources of protein and oil; (ix) Extraction methods for edible oil – ghanni, expeller and solvent; (x) Processing of oilseeds for protein concentrates & isolates; (XI) Vegetable protein isolates – processing characteristics.

Unit 5: TECHNOLOGY OF FOOD PRODUCTS (Fruits & Vegetables)

(i) Post-harvest spoilage – microbiological and physiological; (II) Wax ripening; (iii) Fruit ripening; (iv) Measurement of texture and colour in fruits & vegetables; (v) Modified and controlled atmosphere storage of fruits & vegetables; (vi) Canning of fruits & vegetables; (vii) Fruit juices/beverages preparation – RTS, squashes, syrups, lime juice cordial; (vii) Tomato juice, puree, paste, ketchup & soup; (ix) Fruit juice concentrates, fruit juice powders, pickles; (x) Preserves & candies, pickles & chutneys; (xi) Commercial cold storages.

Unit 6: TECHNOLOGY OF FOOD PRODUCTS (Spices & Plantation products)

(i) Principal constituents in pepper, ginger, chilli and turmeric; (ii) Analysis of spice oils and oleoresins; (iii) Flavour formulations; (iv) Tea – brewing and tasting; (v) Coffee – characteristics, roasting and brewing; (vi) Cocoa beans – physical & chemical characteristics, chocolate making.

Unit 7: TECHNOLOGY OF FOOD PRODUCTS (Meat. Fish & Poultry products)
(i) Hygienic meat production and carcass evaluation; (ii) Detection of spollage in meat and fish; (iii) Thermal processing of meat, fish and poultry products; (iv) Commercial sterility of canned meat products; (v) Preparation of meat-based traditional products – tandoori chicken, kababs, etc.

Unit 8: ADVANCES IN FOOD SCIENCE

(i) Quality attributes of foods – sensory profile; (ii) Food additives & contaminants; (iii) Food Regulations; (iv) Quality systems – GMDPs, HACCP, GLPs, GHPs, etc.; (v) Food biotechnology; (vi) Natural colours & flavours; (vii) Tissue culture methods; (viii) Intellectual property rights; (lx) Use of state-of-art instrumentation in the determination of food quality & safety; (x) Determination of additives & preservatives in foods and residue analysis in foods

Dr. A. Jayadeep

Co-ordinator Ph.D. (Univ:), 11.
CSIR-Central Food Technological Research...

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UNIVERSITY OF MYSORE

Syllabus for Ph.D. Entrance Exam Food Science / Food technology

Unit 1: Chemistry of Foods

Introduction to chemistry of foods: composition and factors affecting the composition of foods, Moisture in foods and methods of moisture determination, minerals in foods; Carbohydrates: monosaccharides, disaccharides and trisaccharides, their occurrence and classification; isomerism in hexoses, principles of structure determination; Chemistry of cellulose, starches and other polysaccharides; Chemistry of amino acids and proteins; classification of proteins, chemical and physical properties of proteins, structure of proteins and techniques used in elucidation of protein structure; Oils and fats: chemistry, occurrence, classification and composition; Vitamins: Chemistry and changes during processing; Essential oils: Chemistry, occurrence and extraction; Terpeneless oils and their use in foods;

Unit 2: Basics of Food Microbiology

Historical development of Microbiology, Morphology, general cytology and reproduction of bacteria, yeast, fungi, actinomycetes and algae; Genetic recombination, transformation, transduction, bacterial conjugation, mutation and mutagenesis; Physiology of microorganisms; Growth and destruction of microorganisms, growth curves and methods of measuring microbial growth; Physical, chemical and biological factors influencing the destruction of microorganisms including concepts of Z, F and D values; Bacterial foodborne infections & intoxications; Mycotoxins

Unit 3: Biochemistry

Relevance of biochemistry in food science and technology; Cell structure, separation of sub-cellular components and their biochemical functions; Enzymes, general properties, classification of enzymes, coenzymes and co-factors and kinetics of enzymes; enzyme inhibition and kinetics of enzyme inhibition; purification of enzymes, allosteric enzymes and enzyme regulation; Carbohydrate metabolism, glycolysis, Kreb's Cycle, hexose monophosphate shunt, oxidative phosphorylation; biosynthesis and breakdown of starch and glycogen; Protein metabolism; mechanism of amino acid metabolism; deamination, transamination, decarboxylation and amino acid oxidation; Nucleic acids, structure of DNA and RNA; Elements of immunology; Biochemistry of hormones

Unit 4: Basics of Nutrition

Energy value of foods and energy requirement; Nutritional aspects of proteins, quality of proteins, protein requirement and protein deficiency diseases; Nutritional aspects of fats, essential fatty acids and their role in the body; Nutritional aspects of carbohydrates; Role of dietary fibre; Nutritional significance of vitamins & minerals and related deficiency diseases; Recommended Daily Allowances for nutrients and balanced diets; Nutritional requirement in diabetes, atheroscelerosis and obesity; Athletic and therapeutic foods

Unit 5: Industrial Microbiology

Microbial production of substances of food applications such as amino acids, enzymes, food flavours and potentiators, organic acids; Production of fats, proteins, polysaccharides and vitamins by microbial processes (algae & yeast); Fermented foods and beverages; Types of fermentation processes and their advantages and disadvantages; Kinetics of microbial growth and death; Bioreactors for microbial, plant and animal cell cultures; Batch, fed batch and continuous bioreactors and their design

and analysis; Downstream processing of biological materials; Immobilized Enzyme Technology; Effluent treatment

Unit 6: Principles of Food Processing

Basic principles of food processing, thermal processing, canning, rigid tin plates and cans, aluminum cans, heat penetration into containers, pH classification of foods, heat resistance of microorganism, heat resistance of enzymes in foods, methods for determination of process time, inoculated pack studies, spoilage of thermally processed food, composite can, fabrication, specification, corrosion of cans; **Flexible** packaging materials, types, properties, application and selection for specific food products; **Refrigerated** storage, effect of low temperature on fresh food commodities and prepared products; Modified and controlled atmosphere storage and gas storage;

Preservation by freezing, freezing points of foods, slow and quick freezing, cryogenic freezing and frozen food storage; **Drying** and dehydration, sun drying, solar dehydration, mechanical drying, types of dryers; **Food** fermentations: Alcoholic, acetic and lactic fermentation, traditional and new products, pickling and curing, role of salt in food preservation, types of salt and cured products; **Preservation** by controlling water activity, high sugar products, intermediate moisture foods, liquid food concentrates, role of water activity in food preservation; **Food** irradiation, principle, type and source of radiation, radiation effect on food constituents and food regulations; **Primary** processing of foods, milling of wheat, rice, coarse grains and pulses; **Oil** seeds processing, processing of spices and plantation products; **Hurdle** technology, Principles, applications and advantages; **Effect** of storage and processing on food quality

Unit 7: General Engineering

Units, dimensions and conversions, SI system; Material and energy balances, simple calculation/estimation of energy requirement in pasteurization, evaporation and dehydration operations; Properties of steam and moist air; steam tables and psychrometric charts (for drying); Boilers and their rating, boiler hp, fire and water tube boilers, package boilers, mountings and accessories; Steam distribution, pipes, valves fittings and insulation. pressure losses, pressure reduction, condensate return and culinary steam; Materials for food plant construction - MS, SS and plastics; corrosion in metals; Voltage, current and resistance, units, relations and Ohm's Law. AC single phase, three phase systems, concepts of phase difference, power factor, inductance, capacitance and impedance; Relationships KW and KVA, AC motors - single and three phase, starters and types of starters

Unit 8: Food Engineering

Properties of solid food materials - shape, density, porosity and others; **Angles** of friction/repose, relations and simple calculations; **Pressure** drops and pressure, head and energy relationships; **Flow** properties of liquid foods, pulps and slurries; **Viscosity**, consistency, simple rheological models; **Heat** transfer, conduction, convection and radiation with examples; steady and unsteady heat transfer, overall heat transfer coefficient and its significance, heat exchange equipment, types, relative merits and demerits; **Radiation** heating; Infra red and solar heating - principles, applications and equipment; **Freezing** and thawing, principles, applications and equipment; **Evaporation**: classification and uses of evaporators, multiple effect evaporation, vapour recompression, basic calculations; **Extraction** and leaching: principles, equipment, types and applications; **Mass** and momentum transfer operations: theory and applications in food processing; **Distillation**: principles, equipment and applications, steam distillation and molecular distillation: **Drving**: theory of drving, types of driers and their applications

UNIVERSITY OF MYSORE Syllabus for Ph.D. .Entrance Exam Gandhian Studies

Unit I Gandhi in Indian History

Gandhi's birth and education, Gandhi in South Africa. Gandhi and the birth of Indian Nationalism Gandhi and Indian National Congress, Gandhi in anti colonial struggle. Muslim League and Gandhi,

Unit II Gandhian Struggle

Gandhi and Peasant Struggles*(Champaran, Kheda, Bardoli) Gandhi and Trade Union Movement, Gandhi and Forest Satyagraha

Unit III: Gandhia's Interface with Other Nationalist Leaders

Gandhi and Ambedkar Debate, Gandhi and Socialist , Gandhi and Communist Movement, Gandhi and Tagore debate, Gandhi;s engagement with Mohammad Ali Jinnaha, Gandhi and Iqbal

Unit IV: Gandhian Concepts and techniques

Gandhian Concept of Satyagraha, Concept of Truth, Concept of Ahimsa, Gandhian Concept of Social Harmony, Gandhian Concept of Sarvodaya, Concept of Deep Ecology, Concept of Development, Concept of Class harmony,

Unit V: Gandhi's Movements

Non cooperation movement, Khilafat Movement, Civil Disobedience Movement, Chale Jao Movement, Dandi March

Unit VI: Gandhian Economics

C Kumarappa and Gandhi, Gandhian concept of Rural reconstruction, Gandhi and swadeshi, Village swaraj, Trusteeship, Sarvodaya,

Unit VII: Gandhis' Philosophy

Gandhian Philosophy of Religion,. Gandhian Philosophy of God, Gandhian Philosophy of Tolerance, Gandhian Philosophy of World Peace, Gandhian Philosophy of Ideal State and Politics

Unit VIII: : Gandhian Issues in Indian Politics,

Gandhism and Indian Constitution, Directive Principles of State Policies and Gandhism, Decentralization and Panchyati Raj,

Unit IX: Gandhian Methods for Peace and reconcilation

Gandhian Techniques of Fasting, Satyagraha, reconciliation, Long Marches.

Mediation and reconciliation, Bhoodan,

Unit X: Post-Gandhian Politics

Gandhi in different social movements- ecology, farmers; anti-nuclear, nationalist anti globalization etc. Gandhi and global Civil Society and Gandhism, Gandhian Civil Society, Gandhian Experiments- Palekar, Anna Hazare

UNIVERSITY OF MYSORE

Syllabus for Ph.D. .Entrance Exam

Genetics

Unit 1: Transmission Genetics

Mendelism, Extensions of Mendelism (Allelic variations and gene function, Multiple alleles and allelic series, Lethal alleles, Penetrance and expressivity, Interaction of genes, Pleiotropy), Evolution of concept of gene (alleles, multiple alleles, pseudoalleles, One mutant gene-One metabolic block, One gene – One enzyme concept, One gene – One polypeptide concept, Complementation test), Linkage and crossing over, Sex-linked inheritance, Non-Mendelian inheritance, Behavioural genetics.

Unit 2: Chromosome Genetics

Microscopy, Chromosomal theory of Inheritance, Cytoskeleton, Chromosomal structural rearrangements, Numerical variations in chromosomes, Special chromosomes (Polytene, Lampbrush), Cell Division, Chromosomal basis of sex determination, Effects of radiations on chromosomes.

Unit 3: Gene structure and function

Central dogma of Molecular Biology, Nucleic acids structure, replication of DNA (Regulation of initiation, Fidelity), Damage, repair, and recombination of DNA (models and protein machinery), Transcription (post transcriptional processing of RNA), translation, Gene regulation in Prokaryotes and Eukaryotes (Transcriptional, Post transcriptional, Chromatin remodeling).

Unit 4: Molecular Cytogenetics

Molecular basis of mutations, Chemical mutagens, Molecular organization of eukaryotic chromosomes, Heterochromatin, Molecular basis of sex determination and dosage compensation (*Drosophila, C.elegans* and Man), Somatic cell genetics and imprinting. Molecular dynamics of cell division

Unit 5: Population genetics and Evolution

History of evolutionary thought, Lamarckism, Darwinism, Evidences for evolution, Neo-Darwinism, Inheritance of quantitative traits, Inbreeding and Heterosis, Isolation mechanisms, Speciation, Molecular population genetics, Molecular Phylogenetics and Human phylogeny.

Unit 6: Genetic Engineering

Historical account, Tools of Gene cloning (cloning vectors, hosts, DNA modifying enzymes), Methods of gene isolation, Screening and characterization of clones, DNA sequencing methods, PCR (Mechanism, types and applications), DNA Engineering techniques (Gel electrophoresis of nucleic acids and proteins, Microarray technology, RNAi, Blotting of macromolecules, Promoter characterization, DNA fingerprinting, Gene transfer techniques, *In vitro* translation).

Unit 7: Genes and Development

Introduction, Morphogenetic determinants, Gastrulation, Axis formation, Homeotic selector genes, Signaling and pathways in morphogenesis, limb development, Axonal pathfinding, Metamorphosis, Regeneration, environment and animal development, Developmental mechanisms of evolutionary change.

Unit 8: Molecular Human Genetics

History of human genetics, Genetic mapping of mendelian traits (Two-point mapping, Multipoint mapping, Homozygosity mapping) and complex traits (Allele sharing methods, Allelic association, Linkage disequilibrium mapping, Transmission disequilibrium test), Reproductive genetics (Hermaphroditism, Gonadal dysgenesis, Genetics of infertility, Technology in reproductive assistance), Genetic basis of syndromes and disorders (Cystic Tay-Sachs syndrome. Phenylketonuria, Maple fibrosis. syrup urine disease. Mucopolysaccharidosis, Marfan syndrome, Prader-Willi, Neurofibromatosis, Charcot-Marie-Tooth syndrome, Duchenne Muscular Dystrophy, Sickle cell anemia, Colour blindness, Diabetes mellitus, Dyslexia, CHD), prenatal and pre-implantation diagnosis, Genetic counseling, Ethical considerations.

Unit 9: Advanced Cell Biology

Molecular architecture of eukaryotic cell, Ultra structure and functions of Cell organelles, Eukaryotic cell cycle and its regulation, Biology of Neoplasm, Cell-cell interaction, Cell signaling, Apoptosis, Aging, Stem cells and their applications, Immunobiology and Clinical immunology.

Unit 10: Genome Genetics

Scope of genome genetics, Organization of prokaryotic and eukaryotic genomes, Mapping of genomes by genetics(RFLPs, SSLPs, SNPs) and physical techniques (Restriction mapping, FISH, Sequence tagged site mapping, Radiation hybrids), understanding of genome sequence, Comparative, structural, and functional genomics and pattern of genome evolution.

UNIVERSITY OF MYSORE Syllabus for Ph.D. .Entrance Exam GEOGRAPHICAL INFORMATION SYSTEM (GIS)

UNIT - I - CONCEPTS OF GIS

History of GIS; Components of GIS; Application of GIS; spatial data entities; Spatial data structure and management; data models; Coordinate systems; Projection; Datum; Spatial and Attribute Query; Contouring and DEM; Network analysis; Modeling; Layout Generation and reporting; Set theory and Boolean operations.

UNIT -II - SPATIAL DATA MODELING

Thematic Characteristics of spatial data; other sources of spatial data; Sources of error in GIS; Managing GIS errors; Spatial data model; Spatial data structures; Modeling surface; Building computer worlds.

UNIT - III – STATISTICAL METHODS:

Statistical diagrams; study of frequency distribution and cumulative frequency; Measures of central tendency; Selection of class intervals for mapping; Measures of dispersion and concentration; Standard deviation; Lorenz curve; Simple and multiple correlation; Regression.; Nearest-neighbor analysis; Scaling techniques, Sampling techniques for geographical analysis.

UNIT - IV - ATTRIBUTE DATA MANAGEMENT

Database data models; creating a database; GIS data base application, databases, database management system; structure, types of DBMS.

UNIT- V- DATA ANALYSIS AND MODELING

Measurements; Queries; Buffering functions; Map overlay; Network analysis; multidimensional GIS-T models; spatial interaction models; local operations, neighborhood operations, zonal operations; terrain mapping and analysis; contour; hill shading; slope and aspect; local, neighborhood, regional operations of overlay analysis.

UNIT VI – CARTOGRAPHY

Scope and importance of Cartography; Elements of cartography; Map as a tool in geographic studies; Types of Maps; Data Models and Information; cartographic communication process; cartographical cube; Contouring algorithms, Surfaces and surface interpolation algorithms; site selection vs. site planning; data suitability.

UNIT VII - REMOTE SENSING

Concepts of Remote Sensing; Process; Source of Energy; Principles; Electromagnetic spectrum; Interpretation and Analysis; Applications of Remote Sensing; Platforms; Digital Imaging; Microwave Remote Sensing; Thermal and Micro wave Remote Sensing; parametric and non-parametric decision, classification and clustering principles.

UNIT VIII - GLOBAL POSITIONING SYSTEM

History of GPS; Components of GPS; Basic concepts of GPS/GNSS; Application of GPS; Functioning; WGS84 co-ordinate system; ground, space and user segment; orbit and constellation; errors and limitations; Application of GPS; DGPS; GNSS Augmentation.

UNIT IX - PHOTOGRAMMETRY

Concepts, Development and classification of Photogrammetry; Process; Acquisition of Imagery; Orientation and Triangulation; Stereo Model Compilation; Stereoscopic Measurement; DTM/Dem Generation; Contour map Generation; Ortho-rectification; Limitations of Photogrammetry; 3D Feature Extraction; 3D Scene Modeling; LIDAR.

UNIT X - AERIAL PHOTOGRAPHY

Concepts; Classification; Aerial photograph; Difference between Map and Aerial Photograph; Air Survey and Ground Survey; Applications of Photogrammetry; Flight Planning and Design; Mosaic; Aerial Cameras – Concepts; Sensitivity of Film Emulsion; Stereoscopy; Mono-vision; Stereoscopic view and its Exaggeration; Interpretation of Aerial Photo; Grey Tone Criteria; Spectral Response.

UNIVERSITY OF MYSORE Syllabus for Ph.D. .Entrance Exam

GEOGRAPHY

Unit-I

Geomorphology: Fundamental concepts; Factors controlling landform development; Endogenetic and Exogenetic forces; Denudation process: wheathering. and erosion, Geosynclines, mountain building, continental drift and plate tectonics; Concept of Geomorphic Cycle; Landforms associated with fluvial, glacial, arid, coastal and karsts cycles, Slope forms and processes; Environmental and Applied Geomorphology.

Unit-II

Climatology: Composition and structure of the atmosphere; Isolation; Heat budget of the earth; Distribution of temperature, atmospheric pressure and general circulation of winds; Monsoons and jet streams; Stability and instability of the atmosphere; Air-masses; Fronts, temperate and tropical cyclones; *Types* and distribution of precipitation; Classification of world climates; Koppen's and Thornthwaite's i schemes; Hydrological Cycle; Global warming.

Unit-III

Oceanography: Origin of ocean basins; Bottom relief of Indian, Atlantic and Pacific Oceans; Ocean deposits; Coral reefs; Temperature and salinity of the Oceans; Density of sea water; Tides and ocean currents; Sea-level changes.

Bio-Geography: Physical factors influencing world distribution of plants and animals; Forms and functions of ecosystem: Forest, grassland, marine and mountain ecosystem; Bio-diversity and its depletion through natural and man induced causes. Conservation and management of ecosystems; Environmental hazards and problems of pollution; Ozone depletion.

Unit-IV

History of Geographic Thought: General character of Geographic knowledge during the ancient and medieval period; Foundations of Modern Geography: Contribution of German, French, British and American schools; Conceptual and methodological developments during the 20th century; Changing paradigms; Man and Environment, determinism and possibilism, area! differentiation and spatial organization; Quantitative revolution; Impact of positivism, humanism, radicalism and behaviouralism in Geography.

Unit-V

Population Geography: Nature, scope, subject matter and recent trends; Patterns of world distribution, growth and density of population; Policy issues; Patens and processes of migration; Demographic transition; Population-resource regions.

Settlement Geography: Site, situation, types, size, spacing and internal morphology of rural and urban settlements; Ecological processes of urban growth; Urban fringe; City-region; Settlement systems; Primate city; Rank-Size rule; Settlement hierarchy; Christaller's Central Place theory; August Losch's theory of market centers.

Unit-VI

Economic Geography: Location of economic activities and spatial organization of economies; Classification of economies; Sectors of Economy: primary, secondary, tertiary and quaternary; Natural resources -.Renewable and non-renewable; Conservation of resources.

Agricultural Geography: Concept and techniques of delimitation of agricultural regions; Measurement of agricultural productivity and efficiency; Crop combinations and diversification; Von Thunen's Model; Agricultural systems of the world.

Industrial Geography: Classification of industries: Weber's and Losch's approaches; Resource based and footloose industries.

Geography of Transport and Trade: Models of transportation and transport cost; Accessibility and connectivity: Inter-regional and Intra-regional: Comparative cost advantages.

Unit-VII

Political Geography: Definition and scope of Political Geography; Geopolitics; Global strategic views (Heartland and Rimland theories);-Concept of nation, state and Nation-State; Boundaries and frontiers; Politics of world resources; Geography and Federalism.

Social Geography: Nature and scope of social geography; Social structure and social processes; Elements of Social Geography—ethnicity, tribe, dialect, language, caste and religion; Concept of Social well-being.

Cultural Geography: Nature and scope of Cultural Geography; Environment and culture; Concept of culture-areas and cultural regions; Theories of tribal groups; I)welling places as cultural expressions.

Unit-VIII

Regional Planning: Regional concept in Geography; its application to planning; Concept of planning region; Regional hierarchy; Types of regions and methods of regional delineation; Conceptual and theoretical framework of regional planning; Regional planning in India: Concept of development; Indicators of development; Regional imbalances.

Unit-IX

Geography of India: Physiographic divisions; Climate: Its regional variations; Vegetation types and vegetation regions; Major soil types; Coastal and Marine resources; Water resources; Irrigation; Agriculture; Agro-climatic regions; Mineral **and** power resources; Major industries and industrial regions; Population distribution and growth; Settlement patterns; Regional disparities in social and economic development.

Unit-X

Cartography: Map as a tool in Geographical studies; Types of maps: Techniques for the study of spatial patterns of distribution; Single purpose and composite maps; Choropleth, Isopleth and Chorochromatic maps and pie diagrams; Mapping of location specific data; Accessibility and flow maps.

Remote sensing and computer application in mapping; Digital mapping; Geographic Information System (GIS): Thematic maps.

Statistical Methods: Data sources and types of data; Statistical diagrams; study of frequency distribution and cumulative frequency; Measures of central tendency; Selection of class intervals for mapping; Measures of dispersion and concentration; Standard deviation; Lorenz curve; Methods of measuring association among different attributes; Simple and multiple correlation; Regression.

Measurement of spatial patterns of distribution; Nearest-neighbor analysis; Scaling techniques, rank score, weighted score; Sampling techniques for geographical analysis.

UNIVERSITY OF MYSORE Syllabus for Ph.D. .Entrance Exam

(हिंदी- HINDI) पाठ्यक्रम

Unit-1. इकाई-1. हिंदी साहित्य का इतिहास

साहित्येतिहास लेखन की परंपरा, काल विभाजन, नामकरण

आदिकाल- ऐतिहासिक पृष्ठभूमि, प्रवृत्तियाँ, प्रमुख कवि, लेखक और कृतियाँ

मध्यकाल- ऐतिहासिक पृष्ठभूमि, प्रवृत्तियाँ, प्रम्ख कवि, लेखक और कृतियाँ

आधुनिककाल- (गद्यकाल तथा पद्यकाल) परिस्थितियाँ, प्रवृत्तियाँ, प्रमुख वाद, प्रमुख आंदोलन, प्रमुख कवि, लेखक और कृतियाँ. समकालीन कविता, रचनाएँ और साहित्यिक विशेषताएँ

Unit-2. इकाई-2. हिंदी भाषा का इतिहास और भाषा विज्ञान

संसार की भाषाओं का वर्गीकरण, हिंदी भाषा का उद्भव और विकास, भाषा के विभिन्न रूप, हिंदी भाषा की बोलियाँ, शब्द भंडार, लिपि का उद्भव और विकास, भाषा की परिभाषा, बोली, विभाषा और भाषा, भाषा की प्रवृत्तियाँ, भाषा परिवर्तन के कारण, भाषा विज्ञान है या कला, भाषा के अंग, ध्वनिविज्ञान, पद विज्ञान, वाक्य विज्ञान, अर्थ विज्ञान

Unit-3. इकाई-3 भारतीय काव्यशास्त्र

काव्य के लक्षण, काव्य की आत्मा, काव्य हेतु और प्रयोजन, काव्य गुण और दोष, काव्य संप्रदाय (अलंकार, रस, रीति, वक्रोक्ति, औचित्य, ध्विन) शब्द शक्ति, काव्य के भेद, महाकाव्य, नाटक

Unit-4. इकाई-4. पाश्चात्य काव्य शास्त्र

प्लेटो के काव्य संबंधि विचार, अरस्तु और उनके काव्य सिद्धान्त, लोंजाइनस, होरेस, टी. एस इलियट, आई. एस रिचर्डस, वर्डसवर्थ, क्रोचे, कॉलरिज, मैथ्यु अर्नाल्ड, कला कला के लिए, स्वच्छन्दतावाद, यथार्थवाद

Unit-5. इकाई-5. हिंदी साहित्य की गद्य विधाएँ

हिंदी कहानी- बीसवीं सदी की हिंदी कहानी और प्रमुख कहानी आंदोलन, हिंदी के प्रमुख कहानीकार और उनकी चर्चित कहानियाँ, (प्रेमचंद, प्रसाद, जैनेन्द्र, यशपाल, अज्ञेय, कमलेश्वर, भीष्म साहनी, मन्नु भंडारी, उषा प्रियंवदा, मृदुला गर्ग)

हिंदी उपन्यास- प्रेमचंदपूर्व युग, प्रेमचंद युग, प्रेमचंदोत्तर युग के प्रमुख उपन्यासकार, जैनेन्द्र, अज्ञेय, हजारीप्रसाद द्विवेदी, यशपाल, अमृतलाल नागर, फणिश्वरनाथ रेण्,

हिंदी नाटक- हिंदी के प्रमुख नाटककार और उनके नाटक,

हिंदी निबंध- हिंदी के प्रमुख निबंधकार- रामचंद्र शुक्ल, हजारीप्रसाद द्विवेदी, विद्यानिवास मिश्र, विष्णुप्रभाकर

Unit-6. इकाई- 6. विशेष कवि, लेखक और उनकी कृतियाँ

कबीरदास- कबीर ग्रंथावली, कबीर की भिक्ति, दार्शनिकता, रहस्यवाद, कबीर की समाजिक चेतना, उलटबासियाँ,

तुलसीदास- रामचरितमानस, भक्ति, लोकनायकत्व, समन्वयवाद, दार्शनिकता, तुलसी के राम, रामराज्य की परिकल्पना,

सूरदास- भ्रमरगीत, भ्रमरगीत परंपरा, सूर की भिक्त, काव्यकला, वागविदग्धता, दार्शनिकता,

बिहारी- सतसई, सतसई परंपरा, शृगांरिकता, काव्यकला, भाषा शैली, मुक्तकार बिहारी, भिक्त, नीति,

मैथिलाशरण गुप्त- साकेत, साकेत का प्रबंध स्वरूप, साकेत का विरह वर्णन, उर्मिला का चरित्र चित्रण, प्रसाद- कामायनी, महाकव्यत्व, रूपकत्व, प्रतीकात्मकता, मनोवैज्ञानिकता, शैवदर्शन, आनंदवाद,

निराला- राग विराग, भाव पक्ष और काव्य सौष्ठव, क्रांतिकारी कवि, प्रगतिशील विचारधारा, काव्य चेतना, शोकगीत

रामधारी सिंह दिनकर- कुरुक्षेत्र, उर्वशी, राष्ट्रीय चेतना, काव्य सौष्टव, युद्ध और शांति, मिथकियता , आधुनिकता और पौराणिकता

नरेश मेहता- संशय की एक रात, महाप्रस्थान, प्रवाद पर्व, काव्य की वैष्णवता, मिथकीय काव्य, युद्ध और शांति, काव्य नाटक, केंद्रीय विचारधारा, आधुनिकता और पौराणिकता. भाषागत अध्ययन

प्रेमचंद-, गोदान, गबन और निर्मला, प्रेमचंद की जीवनी, साहित्य साधना, प्रेमचंदपूर्व उपन्यास साहित्य, परिस्थितियाँ और प्रेमचंद का अविर्भाव, प्रेमचंद के उपन्यास कला का मूल्यांकन, प्रेमचंद के उपन्यास कला की विशेषताएँ, उपन्यास साहित्य को प्रेमचंद की देन

अज्ञेयः शेखर एख जीवनी, नदी के द्वीप, अपने अपने अजनबी, अज्ञेय की जीवनी, साहित्य साधना, अज्ञेयपूर्व उपन्यास साहित्य, अज्ञेय की उपन्यास कला का मूल्यांकन, अज्ञेय के उपन्यास कला की विशेषताएँ, उपन्यास साहित्य को अज्ञेय की देन

Unit-7. इकाई -7. हिंदी पत्रकारिता

पत्रकारिता- अर्थ, परिभाषा और स्वरूप, पत्रकारिता के विविध रूप, भारत में पत्रकारिता की पृष्ठभूमि, हिंदी पत्रकारिता का उद्भव और विकास, हिंदी के प्रमुख पत्रकार और पत्रिकाएं, संपादन कला, संपादक के गुण और योग्यताएँ, संपादकीय, शीर्षक, समाचार समितियाँ, पृष्ठ सज्जा, आमुख, विज्ञापन, कार्टुन, सूचना प्रोद्योगिकी और हिंदी पत्रकारिता, इलेक्ट्रानिक पत्रकारिता, कर्नाटक की हिंदी पत्रकारिता

Unit-8. इकाई- 8. प्रयोजनमूलक हिंदी पत्रकारिता

प्रयोजनमूलक हिंदी से अभिप्राय और उसकी परिव्याप्ति, पयोजनमूलक हिंदी की प्रयुक्तियाँ और उसके प्रयोगात्मक क्षेत्र, राजभाषा हिंदी का विकास, भारतीय संविधान और हिंदी , राजभाषा आयोग 1955, संसदीय राजभाषा समिति 1957, राष्ट्रपति आदेश 1960, राजभाषा अधिनियम 1963, राजभाषा (संशौधन) अधिनियम 1967, 1976, हिंदी तथा अन्य भारतीय भाषाओं का संबंध, आलेख और टिप्पण

Unit-9. इकाई- 9 भारतीय साहित्य

भारतीय साहित्य की अवधारणा एवं स्वरूप, भारतीय साहित्य के अध्ययन की समस्याएँ, भारतीय साहित्य के विकास के चरण, भारतीय साहित्य का समाज शास्त्र, भारतीय साहित्य में आज के भारत का बिंब, हिंदी साहित्य में भारतीय मुल्यों की अभिव्यक्ति

Unit-1**0. इकाई** 10. अनुवाद

अनुवाद-	अर्थ,	परिभाषा	, स्वरूप	और	प्रकार,	अनुवाद	कला है	या	विज्ञान,	अनुवाद	का	महत्व	और	उपयो	गिता,
अनुवाद ः	की स	मस्याएँ,	(साहित्यि	क अन्	ावाद र्	ने समस्य	ाएँ, वैज्ञ	ानिक	एंवं तक	नीकि सा	हेत्य	के अनु	वाद व	र्भा सम	स्याएँ),
अच्छे अन्	नुवादक	न की योग्र	गताएँ औ	् गुण											

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UNIVERSITY OF MYSORE

Syllabus for Ph.D. .Entrance Exam HISTORY

Unit.1

- I. Definitions-Nature and Scope of History subject matter-themes of history objectivity and bias-Sources-External and Internal Criticism.
- II. Major trends in Western Historiography-Greco-Roman, Christian, Cartesian, anti-cartesian, positivist, Marxist, Annales Schools of Indian Historiography-Colonial, Nationalist Marxist, Cambridge, Anglo-American and Subaltern.
- III. Indus Valley Civilization-Towns and Hinter lands Society and Economy-Recent interpretations-Early Vedic Society and Culture-Literary Sources Later Vedic Society, Polity and economy Greek Invasion-Spread of Greek Culture, ideas art, Sculpture Architecture.
- IV. Mauryan State and empire-Major rulers Ashokan administration-Mauryan economy, trade and artism guilds
 Rise of Jainism and Buddhism.
 Kushanas-Economy-trade, Culture.
- V. Gupta Empire, Administration-Art, Architecture, Culture, Literature Gupta State and the rise of Feudalism Other States-Satavahanas, Kadambas, Sangam Polity, Economy and Culture Gangas and Hoysals.
- VI. Rise of Delhi Sultanate
 Khaljis and Tughluqs Agriculture, Land Revenue
 Administration, Trade and Commerce Urbanization Craft
 technology Vijayanagara and the Bahmanis Society, economy,
 Cultural life Art & Architecture, Portuguese Trading activities.
- VII. Mughal Empire 1526 –

Establishment of the Mughal Empire

Administration – Revenue System –

Zamindari System – Jaghirdari System

Land grants - Society and economy - Urban growth

 Manufacturing – internal and external trade Dutch English and French trading companies Decline of the Mughals.

VIII. Modern India

Rise of British Colonialism in India

East India Company trade and administration

Colonialism and the decline of traditional manufacturing.

Land settlements-Zamindari, Ryotwari, Mahalwari and Inamdari

Land Settlements Commercialization of agriculture – Famines and Famine Policy

Conditions of the agricultural classes-Peasant rebellions.

IX. Infra-structural developments-Railways modern Industries-British and Indian capital investments-colonial State and Industrial Policy.

Nature of Educational reforms –

Colonialism and Modernization –

Socio-religious movements.

X. Formation of Indian National Congress – Moderates and Externists
 – Home Rule Movement – Khilafat Agitation – Non-Co-operation
 Movement and Gandhi

Constitutional Experiments – 1909, 1919, 1935, 1942, 1947.

Swarajist Movement

Rise of the working class movement- Peasantry and the Freedom

Struggle – Militants, INA, Quit India Movement

Independence and Partition

PH.D.SYLLABUS OF HUMAN DEVELOPMENT FOR ENTRANCE TEST

Unit I	Theories of Human Development and Behaviour:
	- Meaning, Types and Functions of theory,
	- Theoretical Perspective of Human Development and Behaviour,
	- Theories – Developmental theory, Ethological and Ecological Theory,
	Personality Theory, Theory of Learning, Social Learning Theory, Cognitive
	Development Theory, Theory of Moral and Language Development
Unit II	Methods and Techniques of Assessment in Human Development:
	- Meaning, Objectives, Significance, types & approaches in research;
	- Scientific methods and Use of objective measures
	- Assessment and Development of tests/scale, standardization procedure,
	types of scales;
	- Methods of Studying Growth and Body Size; Assessment of Mental ability;
	Measurement of Social and Emotional Development; Personality
	assessment; Assessment of Attitude, Aptitude, Interest and Achievement
II:4 III	-
Unit III	Advanced Life Span Development:
	- Introduction, Need of interdisciplinary approach to study life span
	Development;
	- Basic concepts of development and developmental tasks
	- Role of heredity and environment in development
	- Stages of Life Span Development from Prenatal through old age -
	Definition, Characteristics, Developmental tasks, All round developments
Unit IV	Early childhood Care and Education:
	- Need and importance, objectives, types of preschool
	- Contributions of Educators, Agencies and Five year plans
	- Organizational Set up of Early childhood Educational Institutions
	- Curriculum and Programme Planning for Early childhood Education -
	Definition, Principles, types of planning, curriculum models, types of
	preschool programmes, Play and learning activities and teacher's role,
	Parent – Teacher Interaction
Unit V	Challenged Children and Special Education:
	- Definition, need for recognizing individual differences, Various approaches
	in defining and understanding disability
	- Need and types of Special Education Programmes and Policies, Philosophy
	of inclusions, Role of Family and Community in Management of challenged
	children
	- Definition, classification, identification, causes, rehabilitation and
	management of challenged children - Physically challenged, sensory
	impairment, intellectually challenged and superior children, communication
	disorders, learning disabilities, emotional and socially disturbed children,
	- Role of family and community in rehabilitation and management of
	challenged children
	CHARGIZM CHIMICH

Unit VI	Advanced studies in family:
	- Family and changes in family structure in India – Meaning and functions of
	family; types of family structure; Alternative families
	- Marriage and Marital adjustment - meaning, forms and functions of
	marriage; Alternative marriages; Facilitating and debilitating factors for
	marital adjustment, impact of marital problems on family members
	- Family Life Cycle and Developmental tasks, Role expectations at various
	stages
	- Disorganized and reorganized families, crisis in family and family therapy
Unit VII	Women and children in difficult circumstances:
	- Women in difficult circumstances - Issues and challenges, Categories of
	difficult circumstances, demographic statistics, causative factors, health
	status, life style, problems, prevention control, rehabilitation and
	intervention programmes
	- Children in difficult circumstances – Issues and challenges, Categories of
	difficult circumstances, demographic statistics, causative factors, health
	status, life style, problems, prevention control, rehabilitation and
	intervention programmes
Unit VIII	Women and Child welfare Programmes
	- Women welfare programmes – Concept of schemes, Agencies and training
	centers for rehabilitation, Employment and Income generating programmes,
	Legislation for Women's Welfare
	- Child welfare programmes – Concept of various programmes and services;
	Agencies and Training centers for Rehabilitation of children; Girl Child
	protection schemes, Legislation Relate to Child Welfare
	- Method of appraisal, Process of monitoring, Sustainability of analysis and Significance in developmental programmes for women and children
Unit IX	Problems during Childhood and Adolescence:
Omt 17X	- Problems of children – Definition and concept of childhood and problem,
	types of problems, common childhood behavioral problems and emotional
	and behavioral disorder; causes and management, role of parents, teachers
	and counselor dealing with problematic children
	- Problems of adolescence – Definition and concept of adolescence and
	problem, Psych-socio-physiological problems, Educational and vocational
	problems, causes and management, role of parents, family and counselor
	dealing with problematic adolescents
Unit X	Gerontology – challenges and care
	- Gerontology – Emergence and Scope, concept of aging and aging process,
	biological, psychological sociological aspects of aging
	- Physical and mental health challenges and care - factors influencing on
	health status and care required for the aged
	- Changing roles and adjustment I family and society, work and leisure time
	activities
	- Welfare for the aged – categories of services and institutions for the aged
	economic programmes and Legislation/Acts for the welfare of the aged



Information Management (PhD) Syllabus

- **1.** Theories of Information: Shannon's theory; Decision Theories Game Theory and Zipf's law
- **2.** Macroeconomics of Information: Applications in bargaining and auctions. Applications of information economic principles to finance.
- **3.** Foundations of computing: Mathematical Logic; Set Theory; Graph; Proof Techniques; Turing Machines; Limits of Algorithmic Computing
- **4.** Software engineering processes, tools, and techniques used in software development and quality assurance. Life-cycle models, process modelling, requirements analysis and specification techniques, quality assurance techniques, verification and validation, testing, project planning, and management.
- 5. Data Representation and organization. Categorization, indexing and content analysis. Data structures and databases.
 Database Management Database design, development and administration. Database Systems and Applications Logical data models, relational database systems, structured query language (SQL), conceptual modelling, database design, web-connected databases
- **6.** Content Management Systems: XML. Open Source CMS packages such as Jhoomla, Drupal, Wordpress and others.
- **7.** Network technologies The techniques of telecommunication networks and the management of information technologies and networks. Internet architectures, technologies, applications, and protocols
- **8.** IR Models including Boolean Model; Vector Space Model; Relational DBMS; Probabilistic Models; Language Models. Web Information Retrieval; citation network analysis; social collaboration (PageRank and HITS algorithms)
- **9.** Data Mining: Overview; Types of Patterns; Algorithms for Classification, Clustering, Association Rules, Outliers, Privacy Preservation; Data Preprocessing (Feature Selection, Discretization, Sampling); Web Mining; Applications and Case Studies
- **10**. Knowledge Organization Systems Term Lists; Classification and categorization systems; Relationship Models. Taxonomy Descriptive taxonomies; Navigational taxonomies; Data management vocabulary; The Semantic Web Vision. Ontology Languages for the Semantic Web RDFS, OWL, OIL and DAML+OIL

UNIVERSITY OF MYSORE Syllabus for Ph.D. .Entrance Exam Jainology & Prakrits

The question paper will be in two Parts - A & B. Under Part - A, Part A will contain 50 objective type- Multiple choice questions - 5 from each unit. each right answer carrying one mark.

Part B will contain 10 essay type/short answer questions, One from each unit, out of which any five to be answered - each answer for 10 marks.

10 UNITS -

- 1) Jain Shraavakachar
- 2) Muni Achar
- 3) Jainism in North India
- 4) Jainism in South India
- 5) Classification of Jaina Literature
- 6) Jaina Literature in Prakrit & Apabhramsha
- 7) Jaina Literature inKannada
- 8) Jaina Cultural Centres of Karnataka
- 9) Jaina Philosophical thought 7 Tattva, Saptabhangi, Six Dravyas
- 10) Tirthankaras & their Teachings

ಮೈಸೂರು ವಿಶ್ವವಿದ್ಯಾನಿಲಯ

ಪಿಎಚ್.ಡಿ. ಕನ್ನಡ ಪದವಿಗಾಗಿ ನಿಗದಿಪಡಿಸಿದ ಪಠ್ಯಕ್ರಮ ಅರ್ಹತಾ ಪರೀಕೈಯ ಪಠ್ಯಕ್ರಮ

1 ಪ್ರಾಚೀನ ಕನ್ನಡ ಸಾಹಿತ್ಯದ ಹಿನ್ನೆಲೆ

- ಸಾಹಿತ್ಯದ ಹಿನ್ನೆಲೆಯಲ್ಲಿರುವ ಅಂಶಗಳು : ಭೌಗೋಳಿಕ ಸಾಮಾಜಿಕ ಪರಿಸರದಲ್ಲಿ 1. ರೂಪಿತವಾದ ತಾಂತ್ರಿಕತೆ
- ವಿವಿಧ ಕಾಲಘಟ್ಟಗಳ ಸಾಮಾಜಿಕ ಮತ್ತು ರಾಜಕೀಯ ಸ್ಥಿತಿಗಳು ಮತ್ತು ಅವುಗಳ 2. ಹಿನ್ನೆಲೆಯಲ್ಲಿ ರೂಪಿತವಾದ ಸಾಹಿತ್ಯ ಪರಂಪರೆ
- ಧಾರ್ಮಿಕ ಹಿನ್ನೆಲೆ : ಬೌದ್ದ, ಜೈನ ಧರ್ಮಗಳ 3. ಹಿನ್ನೆಲೆಯಲ್ಲಿ ರೂಪಿತವಾದ ಸಾಹಿತ್ಯ ಪರಂಪರೆ
- ಸಂಸ್ಕೃತ, ಪ್ರಾಕೃತ ಭಾಷಾ ಸಾಹಿತ್ಯಗಳ ಪ್ರೇರಣೆ, ಪ್ರಭಾವಗಳ ಹಿನ್ನೆಲೆ

ಪರಾಮರ್ಶನ ಸಾಹಿತ್ಯ

ಕನ್ನಡ ಅಧ್ಯಯನ ಸಂಸ್ಥೆಯ ಕನ್ನಡ ಸಾಹಿತ್ಯ ಚರಿತ್ರೆಯ ಸಂಪುಟಗಳು $1,\ 2$ ಮತ್ತು 301)

02) ಕನ್ನಡ ನಾಡಿನ ಧರ್ಮಗಳು : ಶಿ. ಚೆ. ನಂದೀಮಠ

: ಎಂ. ಚಿದಾನಂದಮೂರ್ತಿ

. ಶ. ಚ. ನಂದೀಮಠ . ಶ. ಚ. ನಂದೀಮಠ . ಎಚ್. ತಿಪ್ಪೇರುದ್ರಸ್ವಾಮಿ 04) ಕನ್ನಡ ಶಾಸನಗಳ ಸಾಂಸ್ಕೃತಿಕ ಅಧ್ಯಯನ : ಎಂ ಚಿರಾವರ್ : ಮಿರ್ಜಿ ಅಣ್ಣಾರಾಯ : ಅ.ನ.ಕೃಷ್ಣರಾಯ(ಸಂ) 06) ಭಾರತೀಯ ಸಂಸ್ಕೃತಿ

07) ಕರ್ನಾಟಕ ಪರಂಪರೆ ಭಾಗ 1 ಮತ್ತು 2

08) ಸಮಗ್ರ ಕನ್ನಡ ಸಾಹಿತ್ಯ ಚರಿತ್ರೆ ಸಂಪುಟಗಳು : ಬೆಂಗಳೂರು ವಿಶ್ವವಿದ್ಯಾಲಯ

09) ಚಂಪೂ ಸಾಹಿತ್ಯ : ಪಿ. ವಿ. ನಾರಾಯಣ

ಕರ್ನಾಟಕ ಸಾಹಿತ್ಯ ಅಕಾಡೆಮಿಯ ಕನ್ನಡ ಸಾಹಿತ್ಯ ಪುನರ್ ಮೌಲ್ಯೀಕರಣ 10) ಮಾಲೆಯ ಸಂಪುಟಗಳು

ಕನ್ನಡ ಛಂದಸ್ಸಿನ ಅಧ್ಯಯನ 2

- ಅ) ಛಂದಸ್ಸಿನ ಉಗಮ, ನಿಷ್ಪತ್ತಿ ಮತ್ತು ಪ್ರಯೋಜನ
 - ಆ) ವರ್ಣಗಣ, ಮಾತ್ರಾಗಣ ಮತ್ತು ಅಂಶಗಣಗಳ ಸ್ವರೂಪ
 - ಇ) ಯತಿಯ ಸ್ವರೂಪ ಮತ್ತು ಪ್ರಸ್ಕುತತೆ

- 2. ಅ) ಪ್ರಾಸದ ಸ್ವರೂಪ, ಪ್ರಭೇದ ಮತ್ತು ಪ್ರಸ್ತುತತೆ
 - ಆ) ಖ್ಯಾತ ಕರ್ನಾಟಕಗಳ ಸ್ವರೂಪ
 - ಇ) ಕಂದದ ಉಗಮ ಮತ್ತು ಸ್ವರೂಪ
- 3. ಅ) ತ್ರಿಪದಿಯ ಲಕ್ಷಣ ಮತ್ತು ಪ್ರಭೇದಗಳು
 - ಆ) ಷಟ್ಪದಿಯ ಮೂಲ, ಲಕ್ಷಣ ಮತ್ತು ಪ್ರಭೇದಗಳು
 - ಇ) ಸಾಂಗತ್ಯದ ಮೂಲ ಮತ್ತು ಲಕ್ಷಣ
- 4. ಅ) ಹೊಸಗನ್ನಡ ಛಂದಸ್ಸು : ತತ್ತ್ವಗಳು, ಪರಿಭಾಷೆ
 - ಆ) ಸರಳ ರಗಳೆಯ ಮೂಲ ಮತ್ತು ಸ್ವರೂಪ;
 - ಇ) ಸಾನೆಟ್ ನ ಮೂಲ ಮತ್ತು ಸ್ವರೂಪ

ಪರಾಮರ್ಶನ ಸಾಹಿತ್ಯ

 01)
 ಕನ್ನಡ ಛಂದಸ್ಸಂಪುಟ
 : (ಸಂ) ಎಲ್. ಬಸವರಾಜು

 02)
 ಕನ್ನಡ ಕೈಪಿಡಿ, ಸಂಪುಟ 1 ಭಾಗ 2 : ಮೈಸೂರು ವಿಶ್ವವಿದ್ಯಾನಿಲಯ

03) ಜಯದಾಮನ್ : (ಸಂ) ಎಚ್.ಡಿ. ವೇಲಣಕರ್

04) ಕನ್ನಡ ಛಂದೋವಿಕಾಸ : ಡಿ. ಎಸ್. ಕರ್ಕಿ

05) ಸಮಾಲೋಕನ (ಛಂದಸ್ಸನ್ನು ಕುರಿತ ಲೇಖನಗಳು) : ತೀ. ನಂ. ಶ್ರೀಕಂಠಯ್ಯ

06) ಕನ್ನಡ ಛಂದಃಸ್ವರೂಪ : ಟಿ. ವಿ. ವೆಂಕಟಾಚಲಶಾಸ್ತ್ರೀ

07) ಪೀಠಿಕೆಗಳು, ಲೇಖನಗಳು : ಡಿ. ಎಲ್. ನರಸಿಂಹಾಚಾರ್

(ಛಂದಸ್ಸನ್ನು ಕುರಿತ ಲೇಖನಗಳು)

08) ಕನ್ನಡ ಛಂದೋವಿಹಾರ : ಟಿ. ವಿ. ವೆಂಕಟಾಚಲಶಾಸ್ತ್ರೀ

09) ಛಂದೋಗತಿ : ಸೇಡಿಯಾಪು ಕೃಷ್ಣಭಟ್ಟ

10) ಕನ್ನಡ ಛಂದಸ್ಸು : ಸೇಡಿಯಾಮ ಕೃಷ್ಣಭಟ್ಟ

11) ಹೊಸಗನ್ನಡ ಕವಿತೆಯ ಛಂದಸ್ಸು : ಕೆ. ಜಿ. ನಾರಾಯಣಪ್ರಸಾದ್

12) ಭಾರತೀಯ ಛಂದಶ್ಶಾಸ್ತ್ರ : ಪ್ರ. ಗೋ. ಕುಲಕರ್ಣಿ

13) ಛಂದೋತರಂಗ : ಎಂ. ಚಿದಾನಂದಮೂರ್ತಿ

14) ಹೊಸಗನ್ನಡ ಕವಿತೆಯ ಮೇಲೆ : ಎಸ್. ಅನಂತನಾರಾಯಣ

ಇಂಗ್ಲಿಷ್ ಕಾವ್ಯದ ಪ್ರಭಾವ

15) The Commonness in the Meters : S. Subrahmanyan

of the Dravidian Languages

16) A Study of Metre : T.S. Omond

17) Metre, Rhyme and Free Verse : G.S. Fraser

3 ಮಧ್ಯಕಾಲೀನ ಕನ್ನಡ ಸಾಹಿತ್ಯದ ಹಿನ್ನೆಲೆ

1. ರಾಜಕೀಯ ಹಿನ್ನೆಲೆ : ಕಲ್ಯಾಣ ಚಾಲುಕ್ಯರು ನೀಡಿದ ಸಾಹಿತ್ಯ ಪ್ರೇರಣೆ – ಪೋಷಣೆ, ಎದುರಿಸಿದ ಪ್ರಭುತ್ವ ವಿರೋಧಿ ನಿಲುವುಗಳು : ಹೊಯ್ಸಳರು ನೀಡಿದ ಜೈನ–ವೈಷ್ಣವ ಸಾಹಿತ್ಯ ಪೋಷಣೆ

- ಕಲಚುರಿಗಳ ವಚನಾಂದೋಲನ - ಪ್ರತಿಭಟನೆ, ಸಮಾನತೆಯ ಘೋಷಣೆ;

- ವಿಜಯನಗರದ ಅರಸರ ಕಾಲದ ವೈದಿಕ ವೀರಶೈವ ಧರ್ಮಗಳ ಚಟುವಟಿಕೆಗಳ ಮನರುತ್ಥಾನ
- ಧಾರ್ಮಿಕ ಹಿನ್ನೆಲೆ : ಶೈವ, ವೀರಶೈವ, ವೈಷ್ಣವ, ಜೈನ ಧರ್ಮಗಳು : ಸ್ವರೂಪ, ಸ್ಥಿತಿಗತಿ, ಸ್ಪರ್ಧೆ ಜೈನ ಧರ್ಮ ಎದುರಿಸಿದ ಆತಂಕಗಳು : ವೈದಿಕ ಧರ್ಮದ ಪುನರುಜ್ಜೀವನ
- ವಚನ-ರಗಳೆ ಸಾಹಿತ್ಯಗಳ ನವೀನತೆ, ಸಾಮಾಜಿಕ ನಿಲುವುಗಳು : ರಗಳೆ-ಷಟ್ಪದಿ ಕೃತಿಗಳಲ್ಲಿ ಬಂದ ಕರ್ನಾಟಕದ ಧಾರ್ಮಿಕ ಮರುಷರ ಚರಿತ್ರೆ : ಭಾಗವತ-ಭಕ್ತಿ ಸಾಹಿತ್ಯದ ಮನರುತ್ಥಾನ, ಕೀರ್ತನ ಸಾಹಿತ್ಯದ ಸಾಮಾಜಿಕ ನೆಲೆಗಳು

ಪರಾಮರ್ಶನ ಸಾಹಿತ್ಯ

- ಕನ್ನಡ ಅಧ್ಯಯನ ಸಂಸ್ಥೆಯ ಕನ್ನಡ ಸಾಹಿತ್ಯ ಚರಿತ್ರೆಯ ಸಂಪುಟಗಳು 3,4, ಮತ್ತು 5
- ಶಿ. ಚೆ. ನಂದೀಮಠ 2) ಕನ್ನಡ ನಾಡಿನ ಧರ್ಮಗಳು
- ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ ಸಮೀಕ್ಷೆ ಎಚ್. ತಿಪ್ಪೇರುದ್ರಸ್ವಾಮಿ 3) ವಚನಗಳಲ್ಲಿ ವೀರಶೈವ ಧರ್ಮ : ಎಚ್. ತಿಪ್ಪೇರುದ್ರಸ್ವಾಮಿ 4)
- ಕನ್ನಡ ಶಾಸನಗಳ ಸಾಂಸ್ಕೃತಿಕ ಅಧ್ಯಯನ 5) : ಎಂ. ಚಿದಾನಂದಮೂರ್ತಿ
- ವಚನ ಸಾಹಿತ್ಯ 6) ಎಂ. ಚಿದಾನಂದಮೂರ್ತಿ
- 7) ಎಂ. ಆರ್. ಶ್ರೀನಿವಾಸಮೂರ್ತಿ ವಚನಧರ್ಮಸಾರ
- 8) ಹರಿದಾಸ ಸಾಹಿತ್ಯ ಆರ್. ಎಸ್. ಪಂಚಮುಖಿ
- ಭಾರತೀಯ ಸಂಸ್ಕೃತಿ ಅ.ನ.ಕೃಷ್ಣರಾಯ(ಸಂ) 9)
- ಕರ್ನಾಟಕ ಪರಂಪರೆ ಭಾಗ 1 ಮತ್ತು 2 10)
- ಸಮಗ್ರ ಕನ್ನಡ ಸಾಹಿತ್ಯ ಚರಿತ್ರೆ ಸಂಪುಟಗಳು : ಬೆಂಗಳೂರು ವಿಶ್ವವಿದ್ಯಾಲಯ 11)
- ಕರ್ನಾಟಕ ಸಾಹಿತ್ಯ ಅಕಾಡೆಮಿಯ ಕನ್ನಡ ಸಾಹಿತ್ಯ ಮನರ್ ಮೌಲ್ಯೀಕರಣ ಮಾಲೆಯ ಸಂಪುಟಗಳು 12)

ಆಧುನಿಕ ಕನ್ನಡ ಸಾಹಿತ್ಯದ ಹಿನ್ನೆಲೆ 4

- 1. ನವೋದಯ ಸಾಹಿತ್ಯ : ಪ್ರಭಾವ, ಪ್ರೇರಣೆ ಮತ್ತು ಹಿನ್ನೆಲೆ, ರೊಮ್ಯಾಂಟಿಸಿಸಂ, ರಾಷ್ಟ್ರೀಯತೆ, ಪರಾಷ್ಟ್ರೀಯತೆ, ನಾಡು ನುಡಿ
- 2. ಪ್ರಗತಿಶೀಲ ಸಾಹಿತ್ಯ : ಪ್ರಭಾವ, ಪ್ರೇರಣೆ ಮತ್ತು ಹಿನ್ನೆಲೆ, ಮಾರ್ಕ್ಸ್ಸ್ ವಾದ, ವಾಸ್ತವತಾವಾದ
- 3. ನವ್ಯ ಸಾಹಿತ್ಯ : ಪ್ರಭಾವ, ಪ್ರೇರಣೆ ಮತ್ತು ಹಿನ್ನೆಲೆ, ಅಸ್ತಿತ್ವವಾದ, ಅಸಂಗತವಾದ
- 4. ದಲಿತ ಬಂಡಾಯ ಸಾಹಿತ್ಯ : ಪ್ರಭಾವ, ಪ್ರೇರಣೆ ಮತ್ತು ಹಿನ್ನೆಲೆ, ಮಾರ್ಕ್ಸ್, ವಾದ, ಅಂಬೇಡ್ಕರ್ ವಾದ, ಲೋಹಿಯಾ ವಾದ ಮತ್ತು ಸ್ತ್ರೀವಾದ

ಪರಾಮರ್ಶನ ಸಾಹಿತ್ಯ

- ಹೊಸಗನ್ನಡದ ಅರುಣೋದಯ : ಶ್ರೀನಿವಾಸ ಹಾವನೂರ 01)
- ಹೊಸಗನ್ನಡದ ಕವಿತೆಯ ಮೇಲೆ ಇಂಗ್ಲಿಷ್ ಕಾವ್ಯದ ಪ್ರಭಾವ: ಎಸ್. ಅನಂತನಾರಾಯಣ 02)
- ಯುಗಧರ್ಮ ಹಾಗೂ ಸಾಹಿತ್ಯ ದರ್ಶನ : ಕೆ. ಡಿ. ಕುರ್ತಕೋಟಿ 03)
- ಪ್ರಗತಿಶೀಲ ಸಾಹಿತ್ಯ 04) ಅನಕೃ (ಸಂ)
- 05) ನಾಡಿಗ ಕೃಷ್ಣಮೂರ್ತಿ
- 06) ಎಲ್. ಎಸ್. ಶೇಷಗಿರಿರಾವ್
- 20ನೆಯ ಶತಮಾನದ ಕನ್ನಡ ಸಾಹಿತ್ಯ : ಡಾ. ಬಸವರಾಜ ಸಾದರ, ಕ.ವಿ. ಸಂ. ಧಾರವಾಡ 07)

08) ಕರ್ನಾಟಕ ಸಂಗಾತಿ : ಕನ್ನಡ ಅಭಿವೃದ್ಧಿ ಪ್ರಾಧಿಕಾರ ಪ್ರಕಟಣೆ

09) Impact of Marxism on Indian Life and Literature: H. M. Nayak (Ed.)

Heritage of Karnataka 10) : R. S. Mugali

5 ಪ್ರಾಚೀನ, ಮಧ್ಯಕಾಲೀನ ಮತ್ತು ಆಧುನಿಕ ಕನ್ನಡ ಸಾಹಿತ್ಯ – ಪಠ್ಯಗಳು

- ವಡ್ಡಾರಾಧನೆ, ವಿಕ್ರಮಾರ್ಜುನ ವಿಜಯ, ಆಧಿಪುರಾಣ, ಸಾಹಸಭೀಮವಿಜಯ, ಅಜಿತಪುರಾಣ 1)
- ಶೂನ್ಯ ಸಂಪಾದನೆ, ಬಸವಣ್ಣನವರ ವಚನಗಳು, ಹರಿಶ್ಚಂದ್ರಕಾವ್ಯ, ಕರ್ಣಾಟಭಾರತ ಕಥಾಮಂಜರಿ 2) ರಾಮದಾನ್ಯ ಚರಿತೆ, ರಾಮಾಯಣದರ್ಶನಂ ಚಿತ್ರಾಂಗದ
- ಹೊಸಗನ್ನಡ ಕವಿತೆ : ಸಂ. ಜಿ. ಎಚ್. ನಾಯಕ, ಕ. ಸಾ. ಪ. ಬೆಂಗಳೂರು 3)

ಈ ಕೆಳಗಿನ 15 ಕವಿಗಳ ನಿಗದಿತ ಕವನಗಳು

01. ಶಿಶುನಾಳ ಷರೀಫ : ಗಿರಣಿ ಕಾಣಿಕೆ 02. ಬಿ. ಎಂ. ಶ್ರೀ ದ. ರಾ. ಬೇಂದ್ರೆ 03. ಬೆಳಗು

: ಕೋಗಿಲೆ ಮತ್ತು ಸೊವಿಯೇಟ್ ರಷ್ಯ : ನೆರಳು : ಮನೆಯಿಂದ ಮನೆಗೆ 04. ಕುವೆಂಪು

ಪು. ತಿ. ನ 05.

ಕೆ. ಎಸ್. ನರಸಿಂಹಸ್ವಾಮಿ 06.

: ಶ್ರೀರಾಮನವಮಿಯ ದಿವಸ ಗೋಪಾಲಕೃಷ್ಣ ಅಡಿಗ 07.

: 08. ಸು. ರಂ. ಎಕ್ಕುಂಡಿ ලම්ඛ

09. ಜಿ. ಎಸ್. ಶಿವರುದ್ರಪ್ಪ ಮಬ್ಬನಿಂದ ಮಬ್ಬಿಗೆ

ಚನ್ನವೀರ ಕಣವಿ : ಮಣ್ಣಿನ ಮೆರವಣಿಗೆ 10.

11. ಪಿ. ಲಂಕೇಶ್ ಅವ್ವ

ಚಂದ್ರಶೇಖರ ಕಂಬಾರ : 12. ಮರೆತೆನಂದರೆ ಮರೆಯಲಿ ಹ್ಯಾಂಗ

13. ಕೆ.ಎಸ್. ನಿಸಾರ್ ಅಹಮದ್ : ಕುರಿಗಳು ಸಾರ್ ಕುರಿಗಳು

14. ಚ. ಸರ್ವಮಂಗಳಾ ಬೊಂಬೆ 15. ಸಿದ್ದಲಿಂಗಯ್ಯ : ನನ್ನ ಜನ

ಕಾದಂಬರಿ : ಕುಸುಮಬಾಲೆ : ದೇವನೂರು ಮಹಾದೇವ

ಮುಕ್ಕಿ ಶಾಂತಿನಾಥ ದೇಸಾಯಿ ಚಂದ್ರಗಿರಿಯ ತೀರದಲ್ಲಿ : ಸಾ. ರಾ. ಅಬೂಬಕರ್

ನಾಟಕ: ಬೆರಳ್ಗೆ ಕೊರಳ್ : ಕುವೆಂಪು, ಉದಯರವಿ ಪ್ರಕಾಶನ, ಮೈಸೂರು

ಸಿರಿಸಂಪಿಗೆ : ಚಂದ್ರಶೇಖರ ಕಂಬಾರ

ಸಣ್ಣಕಥೆ: ಆಯ್ದ ಕಥಾ ಸಂಕಲನ: ಸಂ. ಕಾಳೇಗೌಡ ನಾಗವಾರ

ಪರಾಮರ್ಶನ ಸಾಹಿತ್ಯ

- 1. ಶಾಂತಿನಾಥ ದೇಸಾಯಿ ಅವರ ಸಾಹಿತ್ಯ ಒಂದು ಅಧ್ಯಯನ : ಕೆ. ಎನ್. ಗಂಗಾನಾಯಕ್
- 2. ಮುಕ್ಕ ಚಂದ : ಅಭಿನವ ಪ್ರಕಾಶನ, ಬೆಂಗಳೂರು

6 ಭಾರತೀಯ ಕಾವ್ಯಮೀಮಾಂಸೆ

- 1. ಸಂಸ್ಕೃತ ಕಾವ್ಯಮೀಮಾಂಸೆಯ : ಕವಿ-ಕಾವ್ಯ-ಸಹೃದಯ, ಕವಿತೆಯ ಆಕರ-ಪ್ರತಿಭೆ, ವ್ಯುತ್ಪತ್ತಿ, ಸ್ಫೂರ್ತಿ ಪ್ರಮುಖ ಸಿದ್ಧಾಂತಗಳು : ರಸ, ಧ್ವನಿ, ಔಚಿತ್ಯ
- 2. ಕನ್ನಡ ಕಾವ್ಯಮೀಮಾಂಸೆ : ಕವಿರಾಜಮಾರ್ಗ ಮತ್ತು ಇತರ ಪ್ರಾಚೀನ ಲಕ್ಷಣ ಗ್ರಂಥಗಳು, ಆಧುನಿಕ ಕನ್ನಡ ಕಾವ್ಯ ಮೀಮಾಂಸೆಯ ವಿವಿಧ ಚಿಂತನೆಗಳು : ನವೋದಯ, ನವ್ಯ, ಪ್ರಗತಿಶೀಲ, ದಲಿತ, ಬಂಡಾಯ, ಸ್ತ್ರೀವಾದ
- 3. ಕನ್ನಡ ಕವಿಗಳ ಕಾವ್ಯ ಕಲ್ಪನೆ

ಪರಾಮರ್ಶನ ಸಾಹಿತ್ಯ

 01.
 ಭಾರತೀಯ ಕಾವ್ಯಮೀಮಾಂಸೆ
 :
 ತೀ. ನಂ. ಶ್ರೀಕಂಠಯ್ಯ

 02.
 ತೌಲನಿಕ ಕಾವ್ಯಮೀಮಾಂಸೆ
 :
 ಎಚ್. ತಿಪ್ಪೇರುದ್ರಸ್ವಾಮಿ

 ಜಿ. ಎಸ್. ಶಿವರುದ್ರಪ್ಪ 03. ಕಾವ್ಯಾರ್ಥ ಚಿಂತನ 04. ಕನ್ನಡ ಕವಿಗಳ ಕಾವ್ಯಕಲ್ಪನೆ : ಜಿ. ಎಸ್. ಶಿವರುದ್ರಪ್ಪ

 05.
 ಕನ್ನಡದಲ್ಲಿ ಸರಸ್ವತೀ ತತ್ತ್ವ
 :
 ಜಿ. ಎಸ್. ಶಿವರುದ್ರಪ್ಪ

 06.
 ಕಾವ್ಯಾರ್ಥ ಪದಕೋಶ
 :
 ಜಿ. ಎಸ್. ಶಿವರುದ್ರಪ್ಪ ಮತ್ತು ಕೆ. ವಿ. ನಾರಾಯಣ

 07.
 ವಿಮರ್ಶೆಯ ಪರಿಭಾಷೆ
 :
 ಒ. ಎಲ್. ನಾಗಭೂಷಣಸ್ವಾಮಿ

ಕನ್ನಡ ಧ್ವನ್ಯಾಲೋಕ ಲೋಚನಸಾರ : ಕೆ. ಕೃಷ್ಣಮೂರ್ತಿ 08. ಔಚಿತ್ಯ ವಿಚಾರ ಚರ್ಚೆ 09. ಕೆ. ಕೃಷ್ಣಮೂರ್ತಿ

ಕನ್ನಡದಲ್ಲಿ ಸಂಶೋಧನ ವಿಧಾನ 7 ಸಂಶೋಧನ ವಿಧಾನ

- ಸಂಶೋಧನೆ, ಅರ್ಥವ್ಯಾಪ್ತಿ, ಪ್ರಕಾರಗಳು, ಸಂಶೋಧಕನ/ಳ ಅರ್ಹತೆ ಹಾಗೂ ಮನೋಧರ್ಮ, ಸಂಶೋಧನ ಲೇಖನ (ಏಜ್ಜಾಚಿಹಿಭಿ) ಕಚಿಠಿಜಾ), ನಿಬಂಧ(ಅ್ಲಾಜಾಣಚಿಣಾಟಿ), ಮಹಾಪ್ರಬಂಧ (ಮಿಜ್ಞಾ) – ಇವುಗಳ ಸ್ವರೂಪ ಮತ್ತು ವ್ಯತ್ಯಾಸ, ಸಂಶೋಧನ ಸಾರಲೇಖ (೩೩೩೩೩೩೩)
- ಸಂಶೋಧನೆಯ ಭಾಷೆ ಮತ್ತು ಶೈಲಿ, ಉದ್ಧರಣೆ, ಅಡಿಟಿಪ್ಪಣಿ, ಅನುಬಂಧ, ಗ್ರಂಥಸೂಚಿ, ಕ್ಷೇತ್ರಕಾರ್ಯದ ಸ್ವರೂಪ ಹಾಗೂ ವಿಧಾನ

ಪರಾಮರ್ಶನ ಸಾಹಿತ್ಯ

01. ಸಂಶೋಧನೆ ಎಂ. ಚಿದಾನಂದಮೂರ್ತಿ

02. ಕನ್ನಡ ಸಂಶೋಧನಶಾಸ್ತ್ರ : ఎం. ఎ : బి. వి. ಶಿರೂರ : ಎಂ. ಎಂ. ಕಲಬುರ್ಗಿ

03. ಸಂಶೋಧನ ಸ್ವರೂಪ

04. ಸಂಶೋಧನ ಪ್ರಜ್ಞೆ

 04.
 ಸಂಶೋಧನ ಪ್ರಜ್ಞೆ
 :
 ಹೇರಂಜೆ ಕೃಷ್ಣಭಟ್ಟ (ಸಂ)

 05.
 ಸಂಶೋಧನೆ : ತಾತ್ತ್ವಿಕ ವಿಚಾರ :
 ರಹಮತ್ ತರೀಕೆರೆ

ಅಧ್ಯಯನದ ವಿಧಿವಿಧಾನಗಳು : ಕೆ. ರವೀಂದ್ರನಾಥ 06. : ಎಂ ಎಂ ಕಲಬುರ್ಗಿ 07. ಮಹಾಮಾರ್ಗ

8 ಕನ್ನಡ ವಿಮರ್ಶೆ – ಪಠ್ಯ (10 ಪ್ರಬಂಧಗಳು)

ಕನ್ನಡ ವಿಮರ್ಶೆಯ ಸ್ವರೂಪ - ಬೆಳೆದು ಬಂದ ಬಗೆ, ಪಂಥಗಳು ಹಾಗೂ ಧೋರಣೆಗಳು

1) ಎಂ ಜಿ ಕೃಷ್ಣಮೂರ್ತಿ :

ಹುಗ್ಗು ಅವರ ಸಣ್ಣ ಕಥೆಗಳು
: ಹೊನ್ನಮ್ಮನ ಕಿವಿಮಾತಿಗೆ ಒಂದು ಪ್ರತಿಕ್ರಿಯೆ
: ರತ್ನಾಕರನ ಭೋಗಯೋಗದ ತೊಡಕು
: ಕಾಳಿದಾಸನ ಶಾಕುಂತಲಾದಲಿ -: ಪ್ರಗತಿಶೀಲ ---2) ವಿಜಯಾದಬ್ಬೆ ಜಿ ಎಸ್ ಶಿವರುದ್ರಪ್ಪ

ಕಾಳಿದಾಸನ ಶಾಕುಂತಲಾದಲ್ಲಿ ದುರಂತ ವಸ್ತು ವಿನ್ಯಾಸ ತೀ ನಂ ಶ್ರೀ

5) ನಿರಂಜನ

ಕುವೆಂಪು 6) : ರಸೋ ವೈ ಸಃ

7) ದೇವಯ್ಯ ಹರವೆ : ದಲಿತ ಸಾಹಿತ್ಯ : ಕೆಲವು ತಾತ್ವಿಕ ಚಿಂತನೆಗಳು 8) ಬರಗೂರು ರಾಮಚಂದ್ರಪ್ಪ : ಬಂಡಾಯ ಸಾಹಿತ್ಯಮೀಮಾಂಸೆ 9) ಬಿ ಎನ್ ಸುಮಿತ್ರಾಬಾಯಿ : ಕುವೆಂಪು ಅವರ ಕಾದಂಬರಿಗಳಲ್ಲಿ ಸ್ತ್ರೀತ್ವದ ಪ್ರತೀಕಗಳು

10) ರಾಜೇಂದ್ರ ಚೆನ್ನಿ ಯಾರ ಜಪ್ತಿಗೂ ಸಿಗದ ನವಿಲುಗಳು

ಪರಾಮರ್ಶನ ಸಾಹಿತ್ಯ

1) ಗಿರಡ್ಡಿ ಗೋವಿಂದರಾಜ 2003 ಪ್ರಮಾಣು, ಕನ್ನಡ ವಿ ವಿ ಹಂಪಿ

2) ಬಿ ದಾಮೋದರರಾವ್ 1992 ಆಯಾಮಗಳು, ಪರಿಸರ ಸಾಹಿತ್ಯ ಪ್ರಕಾಶನ, ಶಿವಮೊಗ್ಗ **ಕನ್ನಡ ಸಾಹಿತ್ಯ ಮೀಮಾಂಸೆ,** ಕನ್ನಡ ವಿ ವಿ ಹಂಪಿ 3) ರಹಮತ್ ತರೀಕೆರೆ (ಸಂ) 2001 ರಹಮತ್ ತರೀಕೆರೆ (ಸಂ) 2005 **ಮಾತು ತಲೆಯೆತ್ತುವ ಬಗೆ,** ಕನ್ನಡ ವಿ ವಿ ಹಂಪಿ

4) ಲಕ್ಷ್ಮ್ರಣ ಕೊಡಸೆ (ಸಂ) **ಕನ್ನಡ ವಿಮರ್ಶಾ ವಿವೇಕ,** ಸುಮುಖ ಪ್ರಕಾಶನ ಬೆಂಗಳೂರು 2008

5) ಕೀರ್ತಿನಾಥ ಕುರ್ತಕೋಟಿ ಯುಗಧರ್ಮ ಹಾಗೂ ಸಾಹಿತ್ಯ

ಪಾಶ್ಕಾತ್ಯ ಕಾವ್ಯಮೀಮಾಂಸೆ

1) ಅರಿಸ್ಟಾಟಲ್, ಹೊರೇಸ್, ಲಾಂಜಿನಸ್

2) ಬುಲ್ಲೋ : ಮಾನಸಿಕದೂರ

ಅ) ಟಿ. ಎಸ್. ಎಲಿಯಟ್ : ಪರಂಪರೆ ಮತ್ತು ವ್ಯಕ್ತಿ ಪ್ರತಿಭೆ 3)

ಆ) ಐ. ಎ. ರಿಚರ್ಡ್ಸ್ : ಮೌಲ್ಯ ಸಿದ್ಧಾಂತ, ಸಂವಹನ ಸಿದ್ಧಾಂತ

ಜೊನಾಥನ್ ಕಲರ್ : ರಚನಾವಾದ ಮತ್ತು ಕಾವ್ಯಮೀಮಾಂಸೆ

ಪರಾಮರ್ಶನ ಸಾಹಿತ್ಯ

01. ಅರಿಸ್ಟಾಟಲನ ಕಾವ್ಯಮೀಮಾಂಸೆ : ಎನ್. ಬಾಲಸುಬ್ರಹ್ಮಣ್ಯ 02. ಹೊರೆಸನ ಸಾಹಿತ್ಯ ವಿಮರ್ಶೆ ಎನ್. ಬಾಲಸುಬ್ರಹ್ಮಣ್ಯ 03. ಔನ್ನತ್ಯ ವಿಚಾರ ಚರ್ಚೆ ಎನ್. ಬಾಲಸುಬ್ರಹ್ಮಣ್ಯ 04. ತೌಲನಿಕ ಕಾವ್ಯಮೀಮಾಂಸೆ ಎಚ್. ತಿಪ್ಪೇರುದ್ರಸ್ವಾಮಿ 05. ಪಾಶ್ಚಾತ್ಯ ಕಾವ್ಯಮೀಮಾಂಸೆ : ವಿ. ಎಂ. ಇನಾಂದಾರ್

06. ಇಂಗ್ಲಿಷ್ ಭಾಷೆಯಲ್ಲಿ ಆಧುನಿಕ ಸಾಹಿತ್ಯ ವಿಮರ್ಶೆ: ಎಲ್. ಎಸ್. ಶೇಷಗಿರಿರಾವ್

 07. ಕಾವ್ಯಾರ್ಥ ಚಿಂತನ
 :
 ಜಿ. ಎಸ್. ಶಿವರುದ್ರಪ್ಪ

 08. ಸಾಹಿತ್ಯ ವಿಮರ್ಶೆ
 :
 ಸಿ. ಎನ್. ರಾಮಚಂದ್ರನ್

10 ದ್ರಾವಿಡ ಭಾಷಾವಿಜ್ಞಾನ

1) ದ್ರಾವಿಡ ಪದದ ನಿಷ್ಬತ್ತಿ – ದ್ರಾವಿಡ ಭಾಷೆಗಳ ಸಂಖೈ, ಸ್ವರೂಪ ಮತ್ತು ವರ್ಗೀಕರಣ

- 2) ದ್ರಾವಿಡ ಭಾಷಾವಿಜ್ಞಾನದ ಇತಿಹಾಸ ಸ್ವರವೃತ್ಯಯ ವಿಚಾರ ದ್ರಾವಿಡ ಧ್ವನಿಮಾಗಳ ಚರಿತ್ರೆ – ಕ್, ಚ್, ಟ್, ಪ್, ಱ್, ಅ್
- 3) ಆಕೃತಿಮಾಗಳ ಅಧ್ಯಯನ : ಸರ್ವನಾಮ, ಲಿಂಗ, ವಚನ, ವಿಭಕ್ತಿ, ಸಂಖ್ಯಾವಾಚಕಗಳ ಸ್ಥೂಲಪರಿಚಯ, ಚರಿತ್ರೆ ಕ್ರಿಯಾಪದ ಮತ್ತು ಕರ್ಮಣಿ ಪ್ರಯೋಗ
- 4) ಭಾಷಾವಿಜ್ಞಾನದ ದೃಷ್ಟಿಯಿಂದ ಮುಖ್ಯವೆನಿಸಿದ ಕೆಲವು ಪದಗಳ ಇತಿಹಾಸ

ಪರಾಮರ್ಶನ ಸಾಹಿತ್ಯ

08)

ಚಿದಾನಂದಮೂರ್ತಿ ಎಂ 01) ಭಾಷಾವಿಜ್ಲಾನದ ಮೂಲತತ್ತ್ವಗಳು ದ್ರಾವಿಡ ಭಾಷಾವಿಜ್ಞಾನ 02) ಹಂಪ ನಾಗರಾಜಯ್ಯ : 03 ದ್ರಾವಿಡ ಸಂಖ್ಯಾ ವಾಚಕಗಳು ಹಂಪ ನಾಗರಾಜಯ್ಯ ಸಂಗಮೇಶ ಸವದತ್ತಿಮಠ 04) ದ್ರಾವಿಡ ಭಾಷಾವ್ಯಾಸಂಗ : 05) ದ್ರಾವಿಡ ಭಾಷೆಗಳು ಸಂಗಮೇಶ ಸವದತ್ತಿಮಠ

 06)
 ಕನ್ನಡ ಭಾಷಾವ್ಯಾಸಂಗ
 : ಸಂಗಮೇಶ ಸವದತ್ತಿಮಠ

 07)
 ಆಲೋಕ
 : ಎಚ್. ಎಸ್. ಬಿಳಗಿರಿ

09) ಕನ್ನಡ ಭಾಷೆಯ ಸಂಕ್ಷಿಪ್ತ ಚರಿತ್ರೆ : ಡಿ. ಎನ್. ಶಂಕರಭಟ್ಟ

ವಿಲಿಯಂ ಮಾಡ್ತ

 10)
 ಕನ್ನಡ ಭಾಷೆಯ ಚರಿತ್ರೆ
 :
 ಪ್ರ. ಗೋ. ಕುಲಕರ್ಣಿ

 11)
 ಕನ್ನಡ ಭಾಷೆಯ ಸ್ವರೂಪ
 :
 ಕೆ. ಎಂ. ಕೃಷ್ಣರಾವ್

 12)
 ಐತಿಹಾಸಿಕ ಭಾಷಾವಿಜ್ಞಾನ
 :
 ಜೆ. ಎಸ್. ಕುಳ್ಳಿ

 13)
 ವರ್ಣನಾತ್ಮಕ ಭಾಷಾವಿಜ್ಞಾನ
 :
 ಜೆ. ಎಸ್. ಕುಳ್ಳಿ

13) ವರ್ಣನಾತ್ಮಕ ಭಾಷಾವಜ್ಞಾನ : ಜ. ಎಸ್. ಕುಳ್ಳ 14) ದ್ರಾವಿಡ ಭಾಷೆಗಳ ತೌಲನಿಕ ಅಧ್ಯಯನ : ಡಾ. ಟಿ. ಮಣಿಯನ್ 15) ತಮಿಳು ಭಾಷಾಚರಿತ್ರೆ : ಡಾ. ಟಿ. ಮಣಿಯನ್

16) ತೌಲನಿಕ ದ್ರಾವಿಡ ಭಾಷಾವಿಜ್ಞಾನ ಪರಿಚಯ : ಕೆ. ಕೆಂಪೇಗೌಡ 17) A Comparative Grammar : R. Caldwell

17) A Comparative Grammar : R. Caldwell of the Dravidian Languages

ಕನ್ನಡ ಭಾಷೆಯ ರೂಪರೇಷೆಗಳು

18) History of Kannada Language : R. Narasimhacharaya

19) Collected Papers on Dravidian : T. Burrow Linguistics

20) Dravidian Comparative : M. B. Emeneau Phonology – A sketch

21) Dravidian Nouns : S. V. Shanmugam

22) Dravidian Verb Morphology : P. S. Subramanyam

UNIVERSITY OF MYSORE Syllabus for Ph.D. .Entrance Exam Law

Unit -1: **Jurisprudence**

Analytical School, Natural Law Theory, Historical School, Sociological Theory of Law – Concept of Person, Rights and Liability.

Unit-2: Judicial Process & Social Transformation

Doctrine of Precedent – Ratio decidendi and Obiter dicta – Methods of Determining ratio decidendi – Stare-decisis -Judicial Activism – Concept of Social Transformation- Legal & non-legal factors – Social Justice-Empowerment of Women

Unit-3: Constitutional Law

Fundamental Rights Concept of Equality – Freedom – Right to life & Liberty Freedom of Religion, Relation between part III & IV – Right to Constitutional remedies – Act.32 – International Human Rights Law.

Unit-4: Constitutional Law

Federalism – Centre – State Relations – Organization of Govt.- Legislature, Executive, Judiciary – Theory of Separation of Powers – Power of amendment, Parliamentary Privileges.

Unit-5: International Law

Relationship between International and Municipal Law – Subjects of International Law – State Responsibility – Law of the Sea – International Organizations – Law of Treaties.

Unit-6: Research Methodology

Concept and Meaning of Research – Reflective thinking – Nature & Objectives of Legal Research – Doctrinal & Non-doctrinal Legal Research – Formulation of Research Problem – Hypothesis – Observation – Questionnaire – Research report – Law Reform and Legal Research.

Unit-7: Human Resource Development

Definition of Industry, Workman – Concept of Collective Bargaining – Dispute Settlement Mechanism – Welfare and Safety under Factories Act – Strike, Lockout, Layoff, Retrenchment & Closure.

Unit-8: Intellectual Property Rights

Economic & legal Justifications for protection of IPR – TRIPs and WIPO – Meaning and subject matter of Copyright – Infringement of copyright- Concept of patent–Ingredients of Innovation – Non-patentability – Procedure for getting patent – compulsory licensing – Definition of Trade mark – Registered Trade mark & Unregistered Trade mark – Passing off action – Concept of Industrial Design.

Unit-9: Environmental Law

Concept of Environment – Environmental Law & Polity in India (Water Act, Air Act Environment Protection Act, Wildlife Protection Act) - International Environmental Principles – Conservation of Natural Resources – Common Law and Constitutional remedies.

Unit-10: Corporate Law

Registration of Companies – Memorandum & Articles of Association – Prospectus- Directors Powers & Functions- Indoor Management & Constructive Notice – Company Meetings – Prevention of oppression & Mismanagement of Companies – Winding up of Companies.

Books for Reference

Salmond – Jurisprudence

RWM Dias – Jurisprudence

Lloyd – Introduction to Jurisprudence (Latest edition)

Julius Stone – Social Dimensions of Law

W.Friedman - Legal Theory

M. P. Jain – Constitutional Law

V.N.Shukla – Constitutional Law

H.M.Seervai - Constitutional Law of India

S.K.Roy – Corporate Image in India

O'Connel – International Law Vol –I & II

Harries, D.J - Cases and Materials on International Law

Brownlie – Principles of International Law

Malcolm Shaw – International Law\

Goodrich and Hambro – The Charter of the United Nations

Robertson – The European Institutions

Whitney, F.L.- The Elements of Research

Goode, William J and Hatt, Faul, H. - Methods in Social Research

ILI Verma– Legal Research and Methodology

D.D. Basu- Comparative Federalism

Robert Cross - Precedent in English Law

A.Lakshminath- Precedent in India

Prof.P.Ishwara Bhat – Law & Social Transformation

Ramaiya –Guide to the Companies Act

O.P.Malhotra – Law of Industrial Disputes

W.R.Cornish – Intellectual Property Rights

P.Narayanan – Patent Law

P.Narayanan – Trade Mark and Passing Off

Paul Torremans and Jan Holyoak – Intellectual Property Law

Catharine Colstone - Principles of Intellectual Property Law

Black Stone's International Documents

Simon Ball and Stuart Bell - Environmental Law

Bernie and Bayle – International and the Environment

Shyam Divan and Armin Rosencranz - Environmental Law and policy in Indi

University of Mysore

Department of Library and Information Science

Unit 1: Library, Information and Society

Library as an institution and its evolution. Library as a social and cultural institution. History of libraries. Library movement in India.

Different types of libraries - functions, objectives, activities and programs.

Communication theories and models. Barriers for communication. Levels of communications – intrapersonal, interpersonal and mass communication.

Five laws of Library Science and its implications on LIS activities.

Library legislation – need, importance and features. Library legislation in India. Study of public library acts in India.

Library and Information Science education in India

Intellectual Property Rights - Concept, copy right, Censorship - Print and Non-print media.

Right to Information Act, 2005

Role of Raja Ram Mohan Ray Library Foundation (RRLF).

Role of professional associations and organizations in library development. Study of ALA, LA, IFLA, FID, UNESCO, ILA, IASLIC, IATLIS,.

Unit 2: Management of Libraries and Information Centres

Management: Meaning and definitions. Role, functions and principles of management, Schools of thought in management, Levels of management.

Functional units of libraries

- Acquisitions section Functions and procedures. Collection development -Selection policies and principles for print and electronic resources. Problems of Collection development for print and electronic resources (including licensing).
- -Technical section.
- Circulation section

- Periodical section

- Collection management. Stock rectification. Stock verification and its methods. Weeding

(withdrawal) of resources. Conservation and preservation of library resources.

- Reference and customer care service.

Financial and records management. Importance. Sources of finance. Mobilization of financial

resources. Budgeting - methods and techniques.

Personnel Management. Meaning and importance. Job analyses and Job description. Staff selection

and recruitment. Education and training. Motivation and leadership. Job evaluation and Performance

appraisal, Staff manual.

Annual records. Importance of statistical data.

Library rules and regulations.

Unit 3: Information resources

Types of sources: Primary, Secondary & Tertiary- Documentary and non-documentary sources.

Primary sources: Structures and components of Journals; Patents; Technical Reports; Standards and

Specifications; Conference Proceedings; Trade literature; Thesis and Dissertations.

Secondary sources: Dictionaries, Encyclopedias, Geographical sources. Biographical sources,

Bibliographical sources, Yearbooks, Almanacs, Handbooks & manuals, Statistical sources.

Tertiary sources: Directories, Union catalogues etc.

Non-documentary sources: Human and institutional sources of information.

Electronic resources: e-books, e-journals, e-theses, e-databases, Internet resources etc.

Unit 4: Library Classification

Library Classification: Definitions, Need, Purpose and Functions.

Universe of knowledge. Modes of formation of subjects.

Types of classification schemes.

Understanding the concept of and schemes in Knowledge classification. Knowledge classification vs.

Book classification. General theory of library classification.

Study of Laws, Canons, Principles and Postulates for Library classification.

2

Understanding the concept of notation. Types and qualities of notation.

Mnemonics and devices.

Study of schemes of classification. DDC, UDC and CC. Trends in library classification.

Unit 5: Library Cataloguing

Library Catalogue: Meaning, Definition, Need, Purpose, Objectives and Functions. Physical forms and Inner forms of catalogues.

History and development of catalogue codes.

Normative principles: Cannons, laws and principles.

Kinds of entries: Main entry. Added entries, Reference entries, Analytical entries – their structure and uses.

Subject cataloguing: Study of SLSH, LCSH and MeSH.

Study of resource description standards: ISBD, AACR2R.

Meta data: Concepts, Types, Use, Standards - MARC21 and Dublin Core.

Resource sharing of bibliographic data: OCLC and its activities.

Centralized cataloguing, Co-operative cataloguing, Cataloguing at Source, CIP, Union Catalogues.

Consortia approach to metadata. Current developments: OPACs, WebOPACs, Z39.50.

Unit 6: Information Retrieval

Information Retrieval Systems: Basic concepts, definitions, objectives, components and functions.

Functional model of an IRS. Types of Information systems – IRS, DBMS, MIS, DSS, QAS, and Expert Systems.

Indexing Systems: Indexing - Meaning, purpose and need. An overview of historical development in indexing. Pre-coordinate indexing Vs. Post-coordinate indexing. Pre-coordinate indexing stems – brief outline of Chain procedure, POPSI, PRECIS and Keyword Indexing. Post-coordinate Indexing Systems – Uniterm Indexing. Citation Indexing – Meaning and importance, Different citation indexes: Shepard's Citations, SCI, SSCI. Automatic Indexing – Techniques and methods. Uncontrolled vocabularies.

3

Vocabulary Control: Vocabulary control – Meaning and importance; Controlled Vs. Free text indexing; Vocabulary control tools – Subject heading Lists, Thesauri, Thesaurofacet, Classarus. Thesaurus construction techniques. Case Study of Controlled vocabularies/ Ontologies such, ERIC, MeSH, INSPEC, UNESCO-IB, AgroVac, UMLS

Information Search Strategy and Retrieval Models: Types of queries. Search Strategy: Its pre-requisites, pre-search interview, the nature of search strategy, logic – Venn diagram, types of search strategy. Types of searches. Query formulation and searching process - Boolean operators and Boolean query formulation, Truncation, Wild Card Operators, Nested searching, Proximity searching, Range searching, Best match searching. IR models, Evaluation of IRS, Evaluation experiments: Overview of the Cranfield test, MEDLARS, the SMART Retrieval Experiment, The STAIRS project, TREC.

Unit 7: Information Systems and Services

Information systems: Basic concepts, Meaning, Objectives and Functions.

Components of Information System: Structure, Functions and Services, Libraries, Documentation centres, Information centres, Data centres, Information analysis centres, Clearing houses, Data banks, Data curation centres, Museums, Memories, Institutional repositories, Open archives, Referral and translation Centres, Publishing Houses.

Understanding the user communities: Identification of user communities; Information seeking behavior. User education, User studies.

Study of National Documentation Centres, Information Systems and programmes : NISCAIR, DESIDOC, NASSDOC, ENVIS.

Study of International Information Systems, services, and programmes- CAS, INSPEC, AGRIS, BIOSIS, INIS, MEDLARS.

Resource Sharing and Networks: Consortia- Importance and objectives. Study of information networks- OCLC, INFLIBNET, UGC-INFONET, DELNET, and INDEST.

Information Polices and programmes. Planning, Design and Evaluation of Information systems.

Information Services- Reference and Documentation Services: Introduction to references and referral services, Examination of reference collection for various types of libraries. Current Awareness Services (CAS): SDI service. Bibliography services, Abstracting service - Abstracting techniques, Types of abstract, Abstract writing (style, content) Abstracting bulletins. Indexing services. Trend report, Translation Services, Reprographic Services, Alerting services- List Servs and other email based services. FAQs. Virtual Reference Desk. Virtual Libraries.

Unit 8: Research Methods

Foundations of research: Nature, Definition and Objectives of research, Basic concepts of research. Ethics in research. Areas of research in Library and Information Science

Types of research – Basic and Interdisciplinary, Methods of Research- Historical , Descriptive, Case Study, Survey, Comparative, and experimental.

Planning of research: The Planning process; Review of literature. Selection of a problem for research- mode of selection, sources of problems, process of identification, criteria of selection, formulation of the selected problem. Hypothesis – Meaning, types, sources, functions, hypothesis; conceptualization; Research design - Essentials of good research design & its importance, Research design / writing the research proposal.

Research methods: Quantitative and qualitative methods of LIS research: Survey method, Historical method, Observation method, Experimental method, Case-Study method. Delphi method. Sampling & data collection: Sampling techniques/methods, sample design or choice of sampling techniques, sample size, sampling and non-sampling errors. Meaning and importance of data, sources of data, types of data, Use of secondary data

Data collection tools - Questionnaire- types of questions, structured and unstructured questions, Interview schedule – types, merits & limitations; Measurements indices, pilot studies. Observation method. Statistical analysis of data Statistical analysis; measures of central tendency, mean, median & mode; measures of dispersion – Range, intermediate ranges, measures of aggregate dispersion, mean-absolute deviation, the variance and standard deviation & normal distribution. Chi-square test.

Graphical presentation of data and report writing: Meaning & importance, commonly used graphics forms, graphs and charts. Histograms, Frequency polygons, Ogive bar charts, pie charts & pictogram. Organization of reports. Steps in writing research reports, writing style.

Research trends in LIS.

Unit 9: Fundamentals of Information and Communication Technology

Information and Communication Technology – Components, Impact of ICT on society.

Computers- Hardware, Software, Storage devices, Input/output devices.

Data representation in computers: Number systems, Binary numbers: Binary addition (1's and 2's complement methods), subtraction, multiplication and division. Representation of integers, fractions. Character encoding standards – ASCII, EBCDIC, ISCII and UNICODE. Issues with respect to character collation and sorting.

Computer software: System and application software; Programming concepts: System analysis, flowcharts, and algorithms. Open source and proprietary software. Operating Systems: M S-DOS, Windows & UNIX / LINUX.

File organization: Sequential, Indexed Sequential and Direct file.

Understanding communication concepts: Digital and analogue signals, Modulation, Frequency, Spectrum, Bandwidth, Multiplexing (FDM, TDM, STDM, and WDM), attenuation, Noise, Asynchronous and synchronous transmission, Simplex, Half-duplex and Full duplex channels.

Understanding networks concepts: Types of computer networks: Local Area Networks – Concept, Topologies (Bus, Star, Mesh, Tree, and Ring). Wide Area Networks and Metropolitan Area Networks- Concepts, Circuit switching and packet switching. Difference between LAN and WAN. Wireless Networks – Mobile telephones.

Internet Technologies: Internet-History and development. World Wide Web (WWW). Protocols and its functions. Study of protocols: HTTP protocol, HTML, The Internet Transmission Control Protocol (TCP) and IP Transmission over a telephone channel using PPP.

Fax, E-Mails, telecommunication. Video conferencing, Bulletin Board Service, Videotext, Voice Mail

Internet-Components, Services Browsing-Web browser, Search Engine, Meta-Data, Digital Object Identifies (DOI)

Web 2.0.technologies.

Unit-10 Library automation and Digital libraries

Library automation: Definition, need, purpose and advantages. Historical development. Planning for library automation, Hardware and Software selection,.

Automation of library operations: Acquisitions, Cataloguing, OPACs, Circulation and Serials control.

Evaluation of library automation systems. Criteria for evaluation. Evaluation techniques. Study of standards relevant to library automation.

Introduction to digital libraries. Concepts and issues. Understanding digital libraries. Evolution of digital libraries- Important milestones- Pre- DLI 1, NSF and DLI 1 and 2. Development of literature on digital libraries. DL communities - Agencies and organizations responsible for the development of DLs- CNI, CNRI, DLF. DL conferences- JCDL, ECDL and ICADL.

Content creation – Electronic documents, files and file formats. Study of different file formats. Studying PDF in detail- features of PDF. Born digital and legacy documents. Digitization- scanning, OCRing and conversion to PDF. Electronic Publishing and scholarly communication, E-journals and e-books

Comparative study of different document types. Digitization.

Creating Web documents- Mark Up Languages- SGML, HTML and XML. Creating documents in HTML. HTML editors and tools. Front Page and Dream Weaver. XML and its features- XML tools. DL architecture .Elements of a DL. DOI, Open URL, CrossRef and other aspects. Study of the DL content management issues- Metadata and other resource discovery issues. Access Control and DRM, Security and preservation issues.

Open Access Movement and Institutional repositories.



Subject - LINGUISTICS

SYLLABUS FOR ENTRANCE TEST FOR Ph.D. IN LINGUISTICS

DEPARTMENT OF STUDIES IN LINGUISTICS
KUVEMPU INSTITUTE OF KANNADA STUDIES MANASAGANGOTRI, MYSORE 570 006

UNITS OF THE SYLLABUS

UNIT – 01	Language and Linguistics, Aspects of Speech Production and Study
UNIT – 02	Basics of Morphology and Syntax
UNIT – 03	Semantics and Lexicography
UNIT – 04	Advances in Historical and Comparative Linguistics
UNIT – 05	Dialectology, Bilingualism and Multilingualism
UNIT – 06	Indo-Aryan, Dravidian and Kannada Linguistics
UNIT – 07	Schools of Linguistics
UNIT – 08	Linguistics and Education
UNIT – 09	Linguistics and Communication
UNIT – 10	Applied Linguistics

DETAILED SYLLABUS AND REFERENCES FOR ENTRANCE TEST FOR Ph.D. PROGRAM IN LINGUISTICS

UNIT – 01 LANGUAGE AND LINGUISTICS, ASPECTS OF SPEECH PRODUCTION AND STUDY

- I. **LANGUAGE**: The design of a Language, Characteristic Features of the language, Language and Writing, Basic notions, Icon, Sign and Symbol, Human and Animal Communication
- II. LINGUISTICS: Broad branches of Linguistics General and Applied, General Linguistics Descriptive, Historical and Comparative Linguistics , Applied Linguistics Sociolinguistics, Psycholinguistics, Anthropological Linguistics, Folklinguistics, Mathematical Linguistics and Biolinguistics etc.,
- III. **STUDY OF PHONETICS:** Branches of Phonetics Articulatory, Acoustic and Auditory Phonetics, Production of Speech Sounds, Articulators and their functions (Organs of Speech), Classification of Speech sounds, Suprasegmental Features, Sound waves Acoustic properties of Speech sounds, Speech Perception- Auditory nature of speech sounds
- IV. **STUDY OF PHONOLOGY:** Difference between Phonetics and Phonemics, Phone, Allophone, Phoneme, Principles of Phonemic Analysis, Transcription: IPA Symbols-Phonetic Transcription, Phonemic Transcription, Translation

UNIT – 02 BASICS OF MORPHOLOGY AND SYNTAX

- I. **MORPHOLOGY**: Concepts of Morpheme, Morph, Allomorph, Principles for the identification of Morphemes, Morphemes and word, Word and meaning, Types of words, Classification of words, morphs and morphemes
- II. MORPHOLOGICAL PROCESSES, CONSTRUCTIONS AND: ANALYSIS: Affixation-Reduplication, Internal Change, Zero Modification, Inflectional and Derivational Constructions, Morphophonemics, I.C. Analysis, Grammatical Categories
- III. MODELS OF GRAMMATICAL DESCRIPTION: Item and Arrangement, Item and Processes, Word and Paradigm Paradigmatic and Syntagmatic relations- Parts of Speech
- IV. SYNTAX, SYNTACTICAL CONSTRUCTIONS AND ANALYSIS: The boundary between Morphology and Syntax- Syntactical Structure, Syntactical Linkages, By Selection, Context, Concord, Governmental Concord, Government and Cross reference etc: Endocentric and Exocentric Constructions, Types of Sentences- Transformations Recent Developments in Morphology and Syntax

UNIT - 03 SEMANTICS AND LEXICOGRAPHY

- I. INTRODUCTION TO SEMANTICS AND LEXICOGRAPHY: Semantics and Linguistics; Relationship with other Disciplines, Pragmatics, Philosophy, Anthropology, Psychology, Literature; Types of Semantics, Lexicography as Applied linguistics, Lexicology and Lexicography, Lexicon and Grammar- Theoretical dictionary (lexicon) and Practical Dictionary; Structure of Lexeme- Simple and compositive lexemes
- II. **DESCRIPTIVE SEMANTICS**: Concepts of Meaning- word as the Unit of Meaning The role of Context; Reference and Sense, Ogden and Richards meaning triangle-Definitions; Referential-Operational- Theories of Meaning, **MULTIPLE MEANING**: Polysemy, Homonymy, Synonymy, Antonymy, Hyponymy- Semantically related words-Semantic field- Functional Words Proper names,
- III. HISTORICAL AND STRUCTURAL SEMANTICS: Semantic Change, Causes of Semantic change, Linguistic, Historical, Social, Psychological, Taboo, Different Types of Semantic Change, Consequences of Semantic Changes- Pejorative and Ameliorative developments, TYPES OF DICTIONARIES: Synchronic and Diachronic, Monolingual and Bilingual dictionary, Restricted and Non-restricted Dictionary- Learner's dictionary and Encyclopedia- Making of a Dictionary and collection of materials
- IV. COMPONENTS OF LEXICAL MEANING: Types of meaning Leech's Seven types of meaning-, LEXICOGRAPHICAL METHODS Selection and Management of entries Labeling and encoding of grammatical information, sequence, notation and Format, abbreviations problems of spelling and pronunciation, description and definition-references- cross references and sub-entries, Preparing dictionaries of un written languages, Automatic data processing, use of computers in dictionary, Recent Developments in Semantics and Lexicography

UNIT - 04 ADVANCES IN HISTORICAL AND COMPARATIVE LINGUISTICS

- I. **INTRODUCTION TO GENERAL LINGUISTICS**: Historical, Comparative and Descriptive Linguistics, Diachronic Linguistics, A brief history of linguistics: Growth and Development of Historical and Comparative Linguistics in 18th, 19th and 20th centuries
- II. CLASSIFICATION OF LANGUAGES: Principles of Classification, Genealogical and Typological Classification of Languages, Indian Languages and their Classification
- III. **LINGUISTIC CHANGE**: Causes and Conditions for Linguistic Change, Types of Linguistic Change, Phonological Grammatical, Morpho-phonemic, Phonetic and Semantic Change; LINGUISTIC BORROWING: Processes of Borrowing, Types of borrowing- Analogical Creation,
- IV. HISTORICAL AND COMPARATIVE METHODOLOGY: Linguistic Prehistory- Written Records, Linguistic Geography and its Implication to Historical Studies, COMPARATIVE METHOD: Comparative Reconstruction, Internal and External Reconstruction, History of Writing systems, Recent Developments in Historical and Comparative Linguistics

UNIT – 05 DIALECTOLOGY, BILINGUALISM AND MULTILINGUALISM

- I. DIALECTOLOGY: Aims, achievements, Methods and Orientations of Dialectology, Concepts of Idiolect, Dialect, Variety, Register and Style, Focal Area, Relic Area, Mutual intelligibility, Common core, Isoglosses, Dialect Atlas, Overall pattern, Dialect distance CONCEPT OF BILINGUALISM: Types of Bilingualism- National- Societal and Individual, Co-ordinate and Compound, Ambivalent and Partial
- II. LANGUAGE AND ITS VARIATION (Types of Dialects) Social and Regional Dialects, Urban Vs Rural dialects, Educated Vs Un-educated, Dialect unity and Diversity and their importance; LANGUAGES IN CONTACT: Interference, Theories of Interference, kinds of Interference, Structural and Non-Structural-Impact of Bilingualism
- III. **DIFFERENT APPROACHES TO DIALECTOLOGY**: Traditional and Structural, Synchronic and Diachronic and Comparative Dialectology, **BILINGUALISM AND RELATED ASPECTS**: Bi-dialecticism- Diglossia, Bi- Multilingualism Multilingualism, Contrastive Linguistics
- iv. HISTORY OF DIALECTOLOGY: A brief History of Dialectology, Dialect study Vs Dialect Survey Vs Linguistic Survey: A brief sketch of Linguistic survey of India, Dialects of Karnataka; Functional Aspects of Indian Bi-lingualism: Bi-lingualism and Multi-Lingualism in India; Description and Measurement of Bi-lingualism: Direct and indirect measures- Bilingual proficiency

UNIT – 06 INDO-ARYAN, DRAVIDIAN AND KANNADA LINGUISTICS

- I. INTRODUCTION TO ARYAN AND DRAVIDIAN LANGUAGES: Classification of Indian Languages, The place of Aryan & Dravidian languages in Indian languages, Unique characteristics of Aryan & Dravidian languages, Classification of Aryan & Dravidian languages, Sub-grouping of Indo-Aryan & Dravidian languages, Aryan & Non-Aryan Languages, Affinity between Dravidian and non-Dravidian List the Aryan and Dravidian languages and linguists; KANNADA LINGUISTICS- A brief history and development of Kannada linguistics, Summer schools of Linguistics Pioneer scholars of Kannada linguistics
- II. ORIGIN AND DEVELOPMENT:OF INDO-ARYAN AND DRAVIDIAN LINGUISTICS:
 Aryans Dravidians and their Culture and society Proto Indo-Aryan and Dravidian language Proto Indo-Aryan and Hindi, A brief history of Aryan-Dravidian languages, Developmental stages of Aryan & Dravidian languages
- III. COMPARATIVE INDO-ARYAN AND DRAVIDIAN PHONOLOGY, MORPHOLOGY AND SYNTAX Development of Proto Indo-Aryan & Dravidian phonemes and clusters, Comparative Study of Indo-Aryan & Dravidian Nouns, Verbs, Pronouns, Adjectives, adverbs, Gender, Number, Case, Tense, Moods, Voice, Post positions, Pronominal Terminations, Aryan & Dravidian Sentences and their word order Phrases., Comparative study of Indo-Aryan & Dravidian sentences; Recent Studies on Indo Aryan & Dravidian Linguistics

IV. ACHIEVEMENTS OF DIFFERENT UNIVERSITIES AND INSTITUTIONS — Within Karnataka - University of Mysore, KIKS, CIIL, SRLC, Bangalore University — Karnataka University-Kannada University- Kuvempu University- Mangalore University- Gulbarga University etc, Outside Karnataka - Deccan College Pune- -University of Madras, Kerala, Coimbatore, Osmania, Madhure Kamaraj University etc Descriptive, Historical and Comparative linguistic research in Kannada, Recent studies in Kannada Linguistics

UNIT - 07 SCHOOLS OF LINGUISTICS

- I. **LINGUISTICS IN INDIA 1:** Introduction to Indian Schools of Linguistics, A brief history of Schools of Indian Linguistics-Traditional School (Classic period)-Panini Patanjali, Katyayana, Hemachandra- etc., Phonetics –In Ancient time,
- II. **LINGUISTICS IN INDIA 2:** Contribution of Western scholars to Indian Linguistics Comparative Philology, studies of Dravidian Languages, Modern Period –Indian Linguistics in Pre-independence and Post-independence Periods.
- III. EUROPEAN SCHOOL OF LINGUISTICS: Geneva School- De Saussures contribution to Linguistics Prague School Contribution of R. Jacobson and N.S. Trubetzkoy Concept of Archie Phoneme; Copenhagen school- Glossematics French School: Andre Martinets Functional Linguistics, London School British tradition in Phonetics, Malinowski's context of situation, semantic theory, Phatic communion, Firth's contextual theory of meaning, prosodic Phonology, systems Structure grammar Halliday's scales and categories systemic grammar, Social aspect of language
- IV. AMERICAN SCHOOL OF LINGUISTICS: Early stages and influence of Anthropology, Bloomfield's Descriptive linguistics, behaviorism, taxonomy, Golden age of Descriptivism, Development of mentalistic trend Development of Transformational Generative Grammar, Phrase structure, Grammars, Contemporary American models of grammars: Tagmemic model (K. L. Pike)—Stratificational Model (S. Lamb) Generative Semantics (Lakoff) Descriptive Model (Hockett, Harris)-Case Grammar (Fillmore)

UNIT – 08 LINGUISTICS AND EDUCATION

- I. LANGUAGE TEACHING AND ORGANISING THE COURSE: History of Language teaching in India, Role of linguistics in learning and teaching, Language teaching and Language learning, Applied Linguistics —Contrastive Linguistics, Contrastive linguistics and Bilingualism, Psycholinguistics, Socio-Linguistics, Error Analysis, Contrastive features of Two or more languages, Native Language and Target language Linear and Spiral syllabi, problems of syllabus, curriculum in Language Teaching, Formal-Early school education of normal children, non-formal Adult Education and educating the under privileged children, Linguistics blind spot, language planning and teaching
- II. LANGUAGE TEACHING METHODS: Direct method, Grammar Translation Method, Audio Visual method, Bilingual method, Linguistic Method, Teaching Native language and Foreign Language, Problems of Pronunciation, Vocabulary and Grammar LITERACY PROGRAMMES: Rural Vs Urban- language in Multilingual Setup- Standard Vs Non-Standard- State Vs Minority languages and language Interference- Modeling teaching and writing in uncommonly taught languages-Preparation of syllabi and

pedagogical grammars- Preparation of -Instructor's manuals- Materials and teaching aids, Basic Literacy, post-literacy and functional literacy, TEACHING MATERIALS: Role of Audio-Visual Programs- Script for media, Television and other communication networks-Preparation of primers- supplementary texts- Scientific Discourse for Neo-Literate- learning disabilities error analysis in reading and writing- Remedial Materials Recent developments in Language Teaching Methods

- **iii. PRINCIPLES OF LANGUAGE TEACHING AND LEARNING:** Theoretical Principles of Language teaching, A short survey of Language Learning theories stimulus response and reinforcement theories Teaching sound, Word,
- iv. LANGUAGE TESTING: Principle and methods of testing, Construction of tests—reliability and validity, kinds of testing testing aptitude, Diagnostic, prognostic Achievement proficiency LANGUAGE TEACHING AIDS- Audio-Visual and Audio Lingual, Language laboratory, programmed instructions, Examination and Test, testing-speaking, listening and reading comprehension; Constructing the test and evaluating testing, Problems of Evaluation interlingual and intralingual errors, error analysis, L1 and L2 hypothesis, errors-mistakes and lapses Goofing, types of errors creative Construction process, causes for errors, systematic and asystematic Errors, data for error analysis, recognition of errors, description of Errors, classification of errors, explanations of errors, group focus and individual focus etc., Recent research studies on language curriculum, testing and evaluation, Contrastive Linguistics and Error analysis

UNIT - 09 LINGUISTICS AND COMMUNICATION

- I. LANGUAGE, SOCIETY AND COMMUNICATION: Inter-relationship of Language, Society and communication, The process of communication and types of Communication barriers of communication, Verbal Vs Non- verbal communication
- II. COMMUNICATION SYSTEMS AND MODELS: Communication theories- Models of communication- Shannon- Weaver, Lass Well- Schrmm, Osgood, Westly, New Comb, Gate keeper theories
- III. MASS MEDIA AND SOCIETY: Characteristics of Mass Media- Print Media-Newspapers- Magazines, Periodicals, Advertisements, Announcements and books Radio- Television, Cinema and Photographic Communication Mass media and society Language use in different media
- IV. SOCIAL APPROACH TO THE STUDY OF COMMUNICATION AND: LANGUAGE USE: The role of mass communication and mass Media on public opinion formation and national social development, inter and intra group communication, nature of audience Homogeneous and Heterogeneous audience Communication and smaller and larger social Groups, Networks of communication bi / multilingual situation and mass communication, Roll of translation in the development of Modern Indian Languages used In Mass media

UNIT – 10 APPLIED LINGUISTICS

- I. ANTHROPOLOGICAL LINGUISTICS: Relationship with Sociology, Psychology, Folklore, Neuro-physiology, Language and Communication, Anthropology and Language planning, origin and evolution of language: Language and Biological Evolution, Structure of human communication, Language maintenance, Language and worldview, inter- Relationship between language, race, culture, and Ethno science and cognitive Anthropology
- II. PSYCHOLINGUISTICS: Definition, Branches of Psycholinguistics Theories of Psychology History of Psycholinguistics, Theoretical aspects of Psycholinguistics: Contributions of Saussure, Humboldt, Wundt, Chomsky –Experimental Psycholinguistics methods in Psycholinguistics; Developmental Psycholinguistics: Association theories (Skinner, Mowrer, Osgood, Statts) Content theory (Chomsky LAD) Processes Theory or cognitive Theory (Bever, Fodor, Reber, Slobin) other theories (Piaget, Mysak, Lenneberg); Field theory Semantic differential, Mediation theory etc., Psycho, Phonetic, Neuro Linguistic, semantic, and syntactic models Recent trends in Psycholinguistics
- CURRENT TRENDS IN SOCIOLINGUISTICS: Dimension and III. Branches Sociolinguistics, Origin and Development - Sociolinguistics and other disciplines; SOCIOLINGUISTIC CONCEPTS, THEORIES, APPROACHES: Linguistic Structure -Social Structure - Linguistic change and Social Change- Sociology of Language (J. A. Fishman)-Variation or Diversity (W. Bright) - Ethnography of communication (Dell Hymes) Verbal repertoire (J.J. Gumperz)- Deficit Theory (Basil Bernstein) Correlation Theory, Stratificational Theory (William Labov) - Theory of Linguistic Sapir - Whorf Hypothesis; LINGUISTIC VARIATION AND LANGUAGES IN CONTACT: Linguistic Variation, Social Variation and language, Social Distance and barriers, Social class, Ethnic group, language and context, language and sex, Pidgin-Creole and Artificial language, borrowing-convergence, code switching, code mixing, loss and maintenance of language; APPLIED SOCIOLINGUISTICS: Sociolinguistic field techniques (Elicitation, Sampling, Questionnaire and Analytical procedures), Language Development -Language planning, Modernization, Standardization, Graphization, policy Formulation, Implementation, Evaluation, Reformulation
- iv. LINGUISTIC THEORY OF TRANSLATION A short history of Translation, Processes of translation, Source language and Target language, Text and Text Analysis, Grammatical basis for translation, Phonological, Morphological, Syntactic, correspondences and contrasts, referential and connotative, TYPES AND ISSUES OF TRANSLATIONS: Intralingual and Interlingual, Full and Partial, Total and restricted, Rank bound and unbound, Equivalence, Loss and Gain, Structural, Pragmatic and Cultural uniformity, Untranslatability- Linguistic, Stylistic and cultural, TRANSLATION OF DIFFERENT KINDS OF TEXTS: Scientific, Technical, Legal, Administrative and Literacy- Metaphor and figures of speech, APPLICATION OF TRANSLATION: Language teaching, Comparative Literature, Lexicography and Contrastive linguistics, Cross cultural studies, Machine translation Evolution Procedures: Translation and testing, Recent trends in Linguistic translation

University of Mysore

Syllabus for Ph. D. Entrance Exam **MANAGEMENT**

DETAILED SYLLABUS FOR PART A & B PART -A GENERAL PAPER ON TEACHING AND RESEARCH APTITUDE

I. **Teaching Aptitude**

- > Teaching: Nature, objectives, characteristics and basic requirements;
- Learner's characteristics;
- > Factors affecting teaching;
- > Methods of teaching;
- > Teaching aids;
- > Evaluation systems.

П. Research Aptitude

- Research: Meaning, characteristics and types;
- > Steps of research;
- Methods of research;
- Research Ethics;
- Paper, article, workshop, seminar, conference and symposium;
 Thesis writing: its characteristics and format.

III. Reading Comprehension

A passage to be set with questions to be answered.

IV. Communication

Communication : Nature, characteristics, types, barriers and effective classroom communication.

V. Reasoning (Including Mathematical)

- Number series; letter series; codes;
- Relationships; classification.

VI. Logical Reasoning

- Understanding the structure of arguments;
- Evaluating and distinguishing deductive and inductive reasoning;
- Verbal analogies: Word analogy Applied analogy;
- Verbal classification;
- Reasoning Logical Diagrams: Simple diagrammatic relationship, multidiagrammatic relationship;
- Venn diagram; Analytical Reasoning.

VII. Data Interpretation

- > Sources, acquisition and interpretation of data;.
- Quantitative and qualitative data;
- Graphical representation and mapping of data.

VIII. Information and Communication Technology (ICT)

- ICT : meaning, advantages, disadvantages and uses;
- General abbreviations and terminology;
- Basics of internet and e-mailing.

IX. People and Environment

- > People and environment interaction;
- Sources of pollution;
- Pollutants and their impact on human life, exploitation of natural and energy resources;
- > Natural hazards and mitigation

X. Higher Education System : Governance, Polity And Administration

Structure of the institutions for higher learning and research in India; formal and distance education; professional/technical and general education; value education: governance, polity and administration; concept, institutions and their interactions.

PART-B

I - Managerial Economics

Nature and scope of Managerial Economics. Importance of Managerial decision—making; Marginal analysis; Objective of a firm, Demand function, Elasticity of demand and its significance in Managerial decision-making; Consumer equilibrium-utility and indifference curve approach; Price, income and substitution effects; Fundamentals of demand estimation and forecasting; Short-run and long-run production functions; Cost curves and economics of scale; Price and output determination under perfect competition, monopoly, monopolistic, competition, and oligopoly; Pricing strategies and tactics; National Income— alternative concepts aid measurement of National income; Inflation—types, measurement and control; Balance of Payments; Monetary and Fiscal Policies.

II - Business Statistics

Univariate Analysis: An overview of central tendency, dispersion, aid skewness. probability Theory; Classical, relative and subjective probability, - Addition and multiplication probability models; Conditional probability and Baye's Theorem. Probability Distributions: Binomial, Poisson, and normal distributions; Their characteristics and applications. Sampling and sampling methods; Sampling and non-s Sampling erros's; Law of Large Number and Central Limit Theorem; Sampling distributions and their characteristics. Statistical Estimation and Testing; Point and interval estimation of population mean, proportion, and variance; Statistical testing of hypothesis and errors; Large and small sampling tests—Z, t and F tests. Non—Parametric Tests: Chi-square tests; Correlation and Regression Analysis: Two variables case. Index Numbers: Meaning and types; Weighted aggregative indices-Laspeyre's and Paasch's indices; Uses and problems of Index number; Time Series Analysis; Trend Analysis.

III - Business Environment

Nature, components and determinants of business environment, dynamics of business environment, key indicators; Risk in business environment, Assessing business environment — country risk and political risk. Current state of business environment in India Economic reforms — Liberalisation, privatisation, globalisation, industrial policy and industrialisation trends, public enterprise reforms and disinvestment programmes; competitive environment; financial environment. India's current balance of payment position, globalisation trends, Trade reforms & trends, FIJI poky & trends, India's share iii world economy. Trends in global trade & investment; Nature & operations of multilateral economic institutions- World Bank, WTO IMF and their impact on Indian business environment. Factors of global competitiveness.

IV - Operations Research

Management Science - Basic concepts and its role in decision- making; Linear programming, meaning, scope & assumptions. Formulation of linear programming problem & solution by graphical & Simplex methods. Some special cases like degeneracy, unbounded ness, infeasibility and multiple optimal solutions. Transportation and Assignment models including trans-shipment and routing problems; Some special cases like minimization , unbalanced problems, degeneracy in transportation models. Queuing theory; Inventory management techniques; PERT/CPM; Decision theory and decision trees; Game theory; Simulation.

V - Business Research Methodology

Nature and Scope of Research Methodology, Problem Formulation and Statement of Research, Objectives; Value and Cost of Information; Bayesian Decision Theory; Research Process; Research Designs - Exploratory, Descriptive and Experimental; Methods of Data Collection — Observational and Survey Methods; Questionnaire and Interviews. Attitude Measurement Techniques; Administration of Surveys; Sample Design; Selecting an Appropriate Statistical Technique. Field Work and Tabulation of Data; Analysis of Data; Use of SPSS and other

Statistical Software Packages Advanced Techniques for Data Analysis — ANOVA. Discriminate Analysis, Factor Analysis, Conjoint Analysis and Clustering Methods.

VI - Business Policy and Strategic Management

An Introduction to business policy — Nature, Objective and importance of business policy; An overview of strategic management; Strategic decision making; Process of strategic 4ecision making. Types of planning systems - corporate planning, strategic planning and long range planning; Strategy Formulation, Company's mission, purpose and objectives; Corporate strategy - concept, significance and objectives; types of strategies; Environmental and organizational appraisal (Internal & external) techniques of business environment analysis. Strategic alternatives and choice; Business ethics and corporate strategy Concept of value chair and competitive advantage. Strategy implementation - Designing organisational structure and activating strategies; Matching structure and activating strategy, Structural, Behavioural and Functional implementation. concept of synergy. Strategy Evaluation - Strategic evaluation and Control, Strategic and Operational Control; techniques of evaluation and control, Role of organisational system in evaluation.

VII - Marketing Management

Nature, scope and concept of marketing, Corporate orientations towards the marketplace; The Marketing environment and Environment scanning; Marketing information system and Marketing research; Understanding consumer and Industrial markets; Market segmentation, Targeting and positioning; Product decisions —product mix, product life cycle, new product development, branding and packaging decisions; Pricing methods and strategies; Promotion decisions—promotion mix, advertising, sales promotion, publicity and personal selling; Channel management - Types and functions, Selection, Cooperation and conflict management, vertical marketing implementation and systems, Marketing Logistics; Organizing and implementing marketing in the organization; Evaluation and control of marketing efforts; Ethics in Marketing; New issues in marketing - Globalization, Consumerism, Green Marketing, Direct Marketing, Network Marketing, Event Marketing.

VIII - Human Resource Management

OB: Personality; Perceptions; Attitudes; Learning; Decision-making; Management by Objectives; Understanding and managing group processes- interpersonal and group dynamics; Applications of Emotional Intelligence in organizations. Leadership and influence process; Work Motivation. Understanding arid Managing organizational system—Organizational design and structure, Work stress, Organizational Change and development; Conflict Management; Stress Management.

HR: Concepts and Perspectives on Human Resource Management; Human Resources Management in a changing environment; Corporate objectives and Human Resource Planning; Career and succession planning; job analysis; Methods of manpower search; Attracting, Selecting and retaining human resources; Induction and socialization; Manpower training and development; Performance appraisal and potential evaluation; Job evaluation and compensation; Employee welfare; Industrial relations & trade unions; Dispute resolution & grievance management, Employee empowerment.

IX - Financial Management

Introduction to financial management Objectives of financial management; Time value of money, sources of finance, Investment decisions: Importance, Difficulties determining cash flows, methods of capital budgeting Risk analysis: Cost of capital; Concept and importance, Computations of cost of various sources of finance; Weighted Average Cost of Capital; Capital Structure decisions; Theories of capital structure, Factors determining capital structure. Optimum capital structure; Management of working capital - Cash, Receivables and Inventory Management, Internal Financing and Dividend Policy; Financial Modelling.

X - International Business

India's Foreign Trade and Policy; Export promotion policies; Trade agreements with other countries; Policy and performance of Export zones and Export-oriented units; Export incentives.

International marketing logistics; International logistical structures; Export Documentation framework; Organization of shipping services; Chartering practices; Marine cargo insurance.

International financial environment; Foreign exchange markets; Determination of exchange rates; Exchange risk measurement; International investment; International capital markets; International Credit Rating Agencies and Implications of their ratings.

WTO and Multilateral trade agreements pertaining to trade in goods; trade in services and TRIPS; Multilateral Environmental Agreements (MEAs); International Trade Blocks—NAFTA, ASEAN, SAARC, EU, WTO and Dispute Settlement Mechanism.

Technology monitoring; Emerging opportunities for global business.

UNIVERSITY OF MYSORE Syllabus for Ph.D. Entrance Exam Materials Science

Unit I: Kinetic Theory and Laws of Thermodynamics

Kinetic Theory of Matter, Different States of Matter, Concept of Ideal or Perfect Gas, Kinetic Theory of Gases, Expression for the Pressure of a Gas, Kinetic interpretation of Temperature. Thermal Equilibrium Concept of Temperature (Zeroth Law of Thermodynamics), Concept of Heat-Heat: S Path Function Work; A Path Function, Comparison of Heat and Work – First Law of Thermodynamics, Isothermal Process, Adiabatic Process, Isobaric Process, Isochoric Process, Second Law of Thermodynamics, Entropy, Third law of Thermodynamics.

Unit II: Crystal Structure

Periodic Array of Atoms Crystal Lattice-Lattice translation Vectors – United-Basis-Symmetry Consideration- Bravis Lattice – Crystal Planes and Millers Indices- Simple Crystal Structure (HCP, FCC, BCC, SC, Diamond), Bragg's Law, Laue Equations, Reciprocal Lattice, Braggs Condition, Brillouin Zones, atomic Scattering, Geometrical Structure Factor, Experimental X-Ray Diffraction, Methods of Crystal Structure, Laue Method, Rotary Crystal Method, Powder or Debye Scherrer Method, Weber Feckner Method.

Unit III: Materials

Materials World, Materials classification, Functional materials, bulk materials, fine materials and nanomaterials. Crystal, Glasses, Metals, Polymorphism, Solid Solutions and Alloys: Phase Transitions: Overview of Crystal Structure – Property Relations: Neumann's Law: Thermal Properties: Optical Properties: Electrical Properties; Dielectric Properties: magnetic Properties: Mechanical Properties, Solar cells, ceramics, photonics, carbon nanotubes.

Unit IV: Polymers

Introduction and significance of polymer characteristics for property determination: Molecular modeling, Introduction: Definition, Reason for composites, classification of composites, Raw materials, classification, Chemistry, Properties and applications. Matrix: Thermoplastics-Raw materials, Physical and chemical properties, Thermal behavior and mechanical properties, Thermosets-Epoxy; Curing reactions, hardener, Gel time Viscosity Modifications, Prepreg making, Unsaturated polyester resin; catalyst, curing reaction, Viscosity modifier, Alkyd resin, Vinly ester, polyimides, Physical and chemical properties, Thermal behavior, Mechanical Properties and uses, Elastomeric composites.

Unit V: Biomaterials

Common biomaterials and their applications, Protien adsorption in biomaterials; surface modification of biomaterials; biocompatibility testing; cell-biomaterial interaction; inflammation hypersensitivity, carcinogenesis; cardiovascular grafts, orthopedic applications; drug delivery and gene therapy; microencapsulation; cardiovascular tissue engineering. Biosynthesis, Bioimaging, Hypothermia, Biomaterials and gene therapy – in vivo imaging of quantum dots, biophotonics.

Unit VI: Materials Preparation

Solid states routes; mechanical mixing; grinding; solution techniques, seeded growth of crystals, Evaporations, precipitation; Top seeded solution growth; sol-gel techniques; high temperature solution; hydrothermal solvothermal methods; Melt methods- super cooling, Czechorlskii methods; Skull melting. Vapour phase methods, CVD; CVT; MBE; Plasma; Laser ablation. Crystal growth of selected functional materials – quartz, diamond, chalcogenides, GaAs, Si, Graphene.

Unit VII: Materials Characterization

Thermal analysis: TGA; DTA; DSC; dilatometry; (Thermal expansion) Principles and applications. Electron imaging techniques; SEM; TEM; FESEM; STM; AFM; SPM; HRTEM; HRSEM, Particle size measurement, surface area measurement, DC polarization, AC impedance measurements.

Unit VIII: Nanomaterials

Defining nanodimensional materials-size effects in Nanomaterials-Application and technology development—supramolecular machines-Fundamentals of energy transfer and photon motion manipulation-Solar energy harvesting—Fundamentals of electron motion manipulation-Electron pumping and molecular wires-General methos available for the synthesis of nanomaterials-Manipulation of Nanopartices-Nanofabrication-Methods-Bottom up methods-Photolithography-Scanning probe methods-Soft lithography. Quantization effect.

Unit IX: Functionalization of Nanomaterials

Chemical functionalization-Recent advances in Thiol-Au and Silane Chemistry-Layer-by-Layer synthesis of multilayer assemblies Applications-Quantum dots-nanocores and applications. Detailed description of the fabrication of functionalised Gold Nanocores and their application in cancer therapy. Devices, Nanodevices.

Unit X: Environmental Effects on materials

Materials for high performance renewable energy production, storage, conversion and usage. Materials for concentrated solar power, Fule cells. Atmospheric Corrosion, Oxidation in Gaseous Environments, Ellingham Diagrams, Role of Protective Scale, Molten Salt Corrosion, Environmental degradation of ceramics, Degradation of Polymeric Materials, Microbial corrosion, Corrosion of Bio-Implants, Corrosion Prevention methods. Environmental effects from the chemical processes industry (like Pulp mill operations, bleach plants, boilers, paper machine, water treatment plants in the pulp and paper industry and others), infrastructure, and transportation industry.

SYLLABUS FOR Ph.D ENTRANCE TEST MATHEMATICS

UNIT-1 ALGEBRA

Groups, Lagrange's Theorem, Homomorphism and isomorphism, Normal subgroups and factor groups, The fundamental theorem of homomorphism, Two laws of isomorphism, Permutation groups and Cayley's theorem, Sylow's theorems.

Rings, Integral domains and Fields, Homomorphisms, Ideals and Quotient Rings, Prime and Maximal ideals, Euclidean and principal ideal rings, Polynomials, Zeros of a polynomial, Factorization, Irreducibility criterion, Adjunction of roots, Algebraic and transcendental extensions, Finite fields, Separable and inseparable extensions, Perfect and imperfect fields, Theorem on the primitive element.

Vector Spaces, Subspaces, Linear combinations and systems of linear equations, Linear dependence and linear independence, Bases and dimension, Maximal linearly independent subsets.

Linear transformations, Null spaces and ranges, The matrix representation of a linear transformation, Composition of linear transformations and matrix multiplication, Invertibility and isomorphisms, The change of coordinate matrix, The dual space, Eigenvalues and eigenvectors, Diagonalizability, Invariant subspaces and the Cayley-Hamilton theorem, Inner products and norms, The Gram-Schmidt orthogonalization process and orthogonal complements, The adjoint of a linear operator, Normal and self-adjoint operators, Unitary and orthogonal operators and their matrices, Orthogonal projections and the spectral theorem, Bilinear and quadratic forms, The diagonal form, The triangular form, The Jordan canonical form; The minimal polynomial, The rational canonical form.

UNIT-2 REAL ANALYSIS

Numerical sequences, Convergent sequences, Cauchy sequences, Upper and lower limits. Series of real numbers series of non-negative terms, the number 'e', tests of convergence, Multiplications of series, Re-arrangements, Double series, infinite products.

Finite, countable and uncountable sets, The topology of the real line. Continuity, Uniform continuity, Properties of continuous functions, Discontinuities, Monotonic functions,

Differentiability, Mean value theorems, L' Hospital rule, Taylor's theorem, Maxima and minima, Functions of bounded variation, The Riemann-Stieltje's

integral, Criterion for integrability, Properties of the integral, Classes of integrable functions, The integral as the limit of a sum, First and second mean value theorems, Integration and differentiation.

Sequences and series of functions, Uniform convergence, Uniform convergence and continuity, Uniform convergence and integration, Uniform convergence and differentiation, Power series, The exponential and logarithmic functions, The trigonometric functions.

Improper integrals and their convergence, Functions of several variables, Partial derivatives, Continuity and differentiability, The chain rule, Jacobians, The Implicit function theorem, Taylor's theorem, The maxima and minima, Lagrange's multipliers.

UNIT-3 COMPLEX ANALYSIS

Analytic functions, Cauchy-Riemann equations, Harmonic functions, Polynomials and Rational functions, Elementary theory of power series, sequences, series, uniform convergence of power series, Abel's limit theorem, The elementary functions, Topology of the complex plane, Linear fractional transformations, Cross-ratio, Symmetry, Elementary conformal mappings, Line integrals, Rectifiable arcs, Local properties of analytic functions, Cauchy's theorem for a rectangle, Cauchy's theorem in a Circular disk, Cauchy's integral formula.

The residue theorem, Argument principle, Evaluation of definite integrals, Harmonic functions - Definition and basic properties, Mean value property, Poisson's formula, Schwarz's theorem, Reflection principle, Power series expansions, The Weierstrass theorem, The Taylor series, The Laurent series.

Partial fractions, Mittag - Leffer's theorem, Infinite products, Canonical products, The Gamma and Beta functions, Sterling's formula, Entire functions, Jensen's formula, Hadamard's theorem.

UNIT-4 ORDINARY AND PARTIAL DIFFERENTIAL EQUATIONS

Linear Second Order Equations, Initial value problem, Existence and uniqueness by Picard's theorem, Wronskian, Separation and comparison theorems, Poincare phase plane analysis, Method of variation of parameters.

Power series solutions, Solution near ordinary and regular singular point, Convergence of the formal power series, applications to Legendre, Bessel, Hermite, Laguerre and hypergeometric differential equations with their properties.

Partial differential equations, Cauchy problems and characteristics, Classification

of second order PDE's, Reduction to canonical forms, Equations of mathematical physics and their solutions.

Boundary value problems, Transforming Boundary value problem of PDE and ODE, Sturm - Liouvile system, Eigen values and eigen functions, Simple properties, Fourier expansion in eigen functions, Parseval's identity, Green's function method.

UNIT-5 TOPOLOGY

Topological spaces, Basis for a topology, The order topology, The product topology on $X \times Y$, The subspace topology, Closed sets and limit points, Continuous functions, The product topology, The metric topology, The quotient topology, Connected spaces, Connected sets on the real line, Path connectedness, Compact spaces, Compact sets on the line, Limit point compactness, Local compactness.

The countability axioms, The separation axioms, Urysohn's lemma, Tietze's extension theorem, Urysohn's metrization theorem, Partitions of unity, Tychonoff's theorem on the product of compact spaces. Local finiteness, Paracompactness, Normality of a paracompact space.

The Fundamental group and the fundamental group of a circle, The fundamental group of the punctured plane, Essential and inessential maps, The fundamental theorem of algebra.

UNIT-6 ELEMENTS OF FUNCTIONAL ANALYSIS

Metric completion, Banach's contraction mapping theorem and applications, Baire' category theorem, Ascoli - Arzela theorem.

Linear spaces and linear operators, Norm of a bounded operator, The Hahn - Banach extension theorem, Stone - Weirstrass theorem.

Open mapping and closed graph theorems, Principle of Uniform Boundedness.

Hilbert spaces- The orthogonal projection, Nearly orthogonal elements, Riesz's lemma, Riesz's representation theorem.

UNIT-7 DIFFERENTIAL GEOMETRY

Plane curves and space curves, Frenet-Serret formulae, Simple closed curves, The isoperimetric inequality, The four vertex theorem, Smooth surfaces, Tangents, Normals and orientability, Quadric surfaces, The lengths of curves on surfaces,

Isometries of surfaces, Conformal mappings of surfaces, Surface area, Equiareal maps and a theorem of Archimedes.

Curvature of surfaces - The second fundamental form, The curvature of curves on a surface, Normal and principal curvatures.

The Gaussian and the mean curvatures, The Pseudo sphere, Flat surfaces, Surfaces of constant mean curvature, Gaussian curvature of compact surfaces, The Gauss' map.

UNIT-8 MEASURE AND INTEGRATION

Outer measure, Measurable sets and Lebesgue measure, A nonmeasurable set, Measurable functions.

The Lebesgue Integral of a bounded function over as set of finite measure, The integral of a non-negative function, The general Lebesgue integral.

Differentiation of monotonic functions, Functions of bounded variation, Differentiation of an integral, Absolute continuity.

Measure spaces, Measurable functions, Integration, Signed measures, The Radon - Nikodym theorem, Measure and outer measure, Outer measure and measurability, The extension theorem, Product measures.

UNIT-9 NUMBER THEORY

Congruences, Residue classes, Theorems of Fermat, Euler and Wilson, Linear congruences, Elementary arithmetical functions, Primitive roots, Quadratic residues and the law of quadratic reciprocity, Prime numbers, The Fundamental theorem of arithmetic, The series of reciprocals of primes, The Euclidean algorithm, Fermat and Mersenne numbers, Farey series, Farey dissection of the continuum, Irrationality of m^{th} root of N, e and π .

The Mobius function, The Euler' function and Sigma function, The Dirichlet product of arithmetical functions, Multiplicative functions, Euler summation formula, Some elementary asymptotic formulas, The average orders of d(n), $\sigma(n)$, $\phi(n)$, $\mu(n)$. An application to the distribution of lattice points visible from the origin.

Finite continued fractions, Convergent of a continued fraction, Continued fractions with positive quotients. Simple continued fractions, The representation of an irreducible rational fraction by a simple continued fraction, The continued

fraction algorithm and Euclid's algorithm. The difference between the fraction and its convergents, Infinite simple continued fractions, The representation of an irrational number by an infinite continued fraction, Equivalent numbers and periodic continued fractions, Some special quadratic surds.

UNIT-10 GRAPH THEORY

Graphs, Vertices of graphs, Walks and connectedness, Degrees, Operations on graphs, Blocks, Cutpoints, Bridges, Cutpoint graphs, Sub-graphs, Paths and cycles, Connected graphs, Connected components, Adjacency and incidence matrices.

Properties of trees, Center, Connectivity, Connectivity and line connectivity, Menger's theorem, Partitions, Coverings and independence number.

Euler tours, Euler graphs, Hamiltonian paths, Hamiltonian graphs ,Closure of a graph, Planar graphs, Euler's formula, Vertex colouring, Chromatic number, Chromatic polynomial , R - Critical graphs.

UNIVERSITY OF MYSORE Syllabus for Ph.D. .Entrance Exam MICROBIOLOGY

UNIT 1: Microbial Taxonomy and Diversity

Microbial World, Concepts and Scope, Classifying and Naming Microorganisms, ICNB Rules, Major Characteristics used to Classify Microorganisms, Importance and Conservation of Microbial Diversity, Metagenomics, *In situ* Conservation and *Ex situ* Conservation, Role of Culture collection centers in conservation.

UNIT 2: Microbial Physiology

Microbial Energetics, Microbial enzymes, Metabolism of Carbohydrate, Alternate pathways of Carbohydrate Metabolism, Gluconeogenesis, Utilization of sugars other than glucose, Lipid metabolism, Nitrogen metabolism, Nucleic acid metabolism, Photosynthetic bacteria, Autotrophic Mechanisms in bacteria, Microbial Stress Responses to different conditions.

UNIT 3: Microbial Genetics

Generalized reproductive cycles of microbes: Viruses, Bacteria, *Neurospora*, *Saccharomyces*, *Chlamydomonas* and *Acetabularia*. Viral Genetics: Phage Phenotypes, Phenotypic Mixing, Bacterial Genetics: Bacterial Transformation, Bacterial Conjugation, Hfr conjugation. Transduction: Generalized and specialized transduction, Mutation and mutagenesis, Fungal and algal genetics.

UNIT 4: Immunology

Immunity, Innate immunity: physical, biochemical and genetic factors involved in governing innate immunity, Acquired immunity, humoral or antibody mediated immunity, cell mediated immunity. Immunological disorders: Hypersensitivity Type I to Type IV, Immunodeficiency diseases; AIDS and other acquired or secondary immunodeficiencies, HIV – 1 and associated opportunistic infections, autoimmune diseases, Antigens and Antibodies, Immunogenicity versus Antigenicity, Factors that influence immunogenicty Antigen processing and presentation, properties of antigen, Super antigen, Hapten; Haptens and the study of antigenicity Microbes as antigen Antigen recognition and MHC molecules. Antibodies – structure and function, clonal selection, antibody diversity, monoclonal antibodies and its clinical applications, Antibody engineering (Construction of monoclonal antibodies Lymphoma and other diseases by genetically engineered antibodies.

UNIT 5: Environmental Microbiology

Microbiology of air, water and soil, Sources of water pollution, Biological indicators of water pollution, Water and air borne diseases. Determination of potable quality of water, Microbes in extreme environment and their survival mechanisms, Microbes in the degradation of wastes,

Microbial degradation of pesticides, Xenobiotics, bioremediation - advantages and disadvantages, Geomicrobiology: Microbes in metal extraction, mineral leaching and mining.

UNIT 6: Food Microbiology

Concepts and scope, Detection of food-borne microorganisms, Microbial spoilage of foods, Food poisoning and intoxication, Food borne diseases, Food preservation, Microbial indicators of food safety and quality, Food laws and standards.

UNIT 7: Agricultural Microbiology

Introduction to Agricultural Microbiology, Plant pathology, Diagnosis of plant diseases, Parasitism and disease development, Entry of pathogens to the host, Effect on physiology of host, Plant disease epidemiology, Environment and Plant diseases, Defense Mechanism of Plant Disease, Plant Diseases and their management, Host pathogen interaction, Biofertilizer, PGPR, Biopesticides.

UNIT 8: Medical Microbiology

Milestones in the development of Medical Microbiology, Microbial Infections, Urinary tract infections, Sexually transmissible infection, Oral cavity and respiratory infection, Gastrointestine infection, Nosocomial infections, General concepts for specimen collection and handing of specimen, Epidemiology, Pathogenesis, Spectrum of disease, Laboratory diagnosis and Prevention. Diseases caused by Viruses, Bacteria, Fungi, Chlamydiae, Protozoa and emerging diseases,

UNIT 9: Industrial Microbiology

Concepts and Scope of industrial Microbiology, Fermentation, Development of inocula, Fermenters, Batch and Continuous fermentation, Industrially important microorganisms, strain improvement and preservation, Media for industrial fermentation, sterilization, upstream processing, downstream processing, Industrial production of energy fuels (solvents), organic acids, enzymes (amino acids), food additives, Health care products (antibotics, vitamins), probiotics, biomass production (SCP), hydrocarbons, recombinant proteins, quality control of fermented products, IPR, Patents, Biosafety and Entrepreneurship.

UNIT 10: Molecular Biology and Genetic Engineering

Concept and scope of Molecular Biology and Genetic engineering, Microbes in Molecular Biology, DNA as Genetic material, DNA replication, Differences in prokaryotic and eukaryotic DNA replication, Protein synthesis, Gene expression, Regulation of gene expression in prokaryotes, eukaryotes and bacteriophages, Gene silencing, Importance of gene cloning and future perspectives, Enzymes in genetic engineering, Cloning vectors, Applications of Genetic Engineering, Antisense technology, Safety of rDNA technology, Restriction and regulation for the release of GMOsinto Environment, Ethical, Legal, Social and Environmental Issues related to rDNA technology.

PH.D. ENTRANCE EXAMINATION SYLLABUS FOR MOLECULAR BIOLOGY-2011

UNIT 1: BASIC BIOLOGY

UNIT 2: MOLECULES OF LIFE, METABOLISM

UNIT 3: BIOCHEMICAL TECHNIQUES, ENZYMOLOGY

UNIT 4: MOLECULAR PHYSIOLOGY

UNIT 5: MOLECULAR CELL BIOLOGY, IMMUNOLOGY

UNIT6: MOLECULAR GENETICS, MOLECULAR BASIS OF DEVELOPMENT AND DIFFERENTIATION

UNIT 7: MOLECULAR PATHOLOGY AND SIGNAL TRANSDUCTION

UNIT 8: GENE EXPRESSION

UNIT 9: GENETIC ENGINEERING

UNIT10: GENOMICS AND PROTEOMICS

UNIT 1: BASIC BIOLOGY:

- i. Classification: Principles of classification, ICBN rules, Binomial and trinomial nomenclature, Whittaker's five kingdom concept
- ii. Plant Biodiversity: Classification and General characters of major groups of plants and evolutionary relationships among these groups, Meristems, Simple and complex tissues, leaf, stem and wood anatomy
- iii. Animal Biodiversity: Classification and General characters of major groups of animals and their evolutionary relationships. Different types of tissues. Skeletal, Nervous, Circulatory and Reprodutive system of Man.
- iv. Microbial Diversity: Classification of Bacteria: as per Bergey's Mannual, Bacterial cell structure, Microbial growth. Cell division and genetic recombination
- v. Viral Diversity: Classification of viruses based morphology, Nucleic acids and Host , ICTV.

UNIT 2: MOLECULES OF LIFE, METABOLISM

- i. Biomolecules: Composition, structure and function of biomolecules (carbohydrates, lipids, proteins, nucleic acids and vitamins).
- ii. Principles of biophysical chemistry: (pH, buffer, reaction kinetics, thermodynamics, colligative properties)
- iii. Conformation of proteins: (Ramachandran plot, secondary, tertiary and quaternary structure; domains; motif and folds).
- iv. Conformation of nucleic acids: (A-, B-, Z-,DNA, t-RNA)
- v. Metabolism: carbohydrates, lipids, amino acids and nucleotides
- vi. Bioenergetics, glycolysis, oxidative phosphorylation, coupled reaction, group transfer, biological energy transducers, Mitochondrial electron transport

UNIT 3: BIOCHEMICAL TECHNIQUES, ENZYMOLOGY:

- i. Isolation and Separation methods: Isolation and purification of RNA, DNA (genomic and plasmid) and proteins, different separation methods, Analysis of RNA, Principle and applications of chromatography and electrophoresis. Centrifugation: Subcellular fractionation using differential and gradient centrifugation.
- ii. Radiolabeling techniques: Properties of different types of radioisotopes normally used in biology, their detection and safety guidelines. Preparation of end labeled DNA, fluorescent labeling.
- iii. Spectroscopic techniques: Principle and instrumentation of colorimetry Spectrophotometry, fluorimetry. Beer- Lambert's law and its limitation, extinction co-efficient and its application.
- iv. Microscopic techniques: Visulization of cells and subcellular components by light microscopy, resolving powers of different microscopes, microscopy of living cells, scanning and transmission microscopes, different fixation and staining techniques for EM, freeze-etch and freeze-fracture methods for EM, FACS, Confocal microscopy and applications
- v. Enzyme Nomenclature: Nomenclature and IUB classification of enzymes
- vi. Enzyme Kinetics: -Rate of a reaction, order and molecularity. Michaelis Menten equation, Turnover number.
- vii. Enzyme Inhibition:- Competitive, non competitive, uncompetitive and product inhibition. Irreversible inhibition, suicide inhibition
- viii Mechnisms of Enzyme Catalysis:- Active site structure. Methods of determining active site structure isolation of ES complex, affinity labeling, chemical modification studies. Active site structure investigation

UNIT 4: PHYSIOLOGY

- i.Photosynthesis: Light harvesting complexes; mechanisms of electron transport; photoprotective mechanisms; CO2 fixation-C3, C4 and CAM pathways.
- ii. Respiration and photorespiration: Citric acid cycle; plant mitochondrial electron transport and ATP synthesis; alternate oxidase; photorespiratory pathway.
- iii. Nitrogen metabolism: Nitrate and ammonium assimilation; amino acid biosynthesis.
- iv. Plant hormones: Types, physiological effects and mechanisms of action.
- v. Solute transport and photoassimilate translocation: Uptake, transport and translocation of water from soil, through cells, across membranes, through xylem, transpiration; mechanisms of loading and unloading of photoassimilates.
- vi. Blood circulation:
- vii. Respiratory system and respiration: Types of respiration, transport of gases, exchange of gases, waste elimination..
- viii. Sensory physiology: Neurons, action potential, neural control of muscle tone and posture. Sense organs: Vision, hearing and tactile response.
- ix. Excretion: Formation of urine. Mechanism of urine concentration. Hormonal control of urine formation
- **x.** Thermoregulation: Effect of Temperature on biological system. Temperature relations of Poikilotherms and homeotherms, acclimation and acclimatization to cold and heat.
- xi. Digestive system: Digestion, absorption, energy balance, BMR.
- xii. Endocrinology: Endocrine glands, basic mechanism of hormone action,.

UNIT 5: MOLECULAR CELL BIOLOGY, IMMUNOLOGY

- i. Membrane structure and function: Structure of model membrane, lipid bilayer and membrane protein diffusion, osmosis, ion channels, active transport, ion pumps, mechanism of sorting and regulation of intracellular transport, electrical properties of membranes.
- ii. 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, Types of chrosomosomes
- iii. Organization of genes and chromosomes: Interrupted genes, gene families, structure of chromatin and chromosomes, unique and repetitive DNA, heterochromatin, euchromatin, transposons.
- iv. Cell division and cell cycle: Mitosis and meiosis, their regulation, steps in cell cycle, and control of cell cycle. Apoptosis, Cancer cells and stem cells.
- v. Cellular communication: General principles of cell communication, cell adhesion and roles of different adhesion molecules, gap junctions, extracellular matrix, integrins, neurotransmission vi. Cells and molecules involved in innate and adaptive immunity,
- vii. Antigens: chemical nature and properties, antigenicity and immunogenicity.
- viii. Antibodies: Structure, classes and function of antibody molecules, generation of antibody diversity, monoclonal antibodies,

ix. Antigen-antibody interactions: MHC molecules, antigen processing and presentation, activation and differentiation of B and T cells, humoral and cell-mediated immune responses, inflammation, hypersensitivity

UNIT6: MOLECULAR GENETICS, MOLECULAR BASIS OF DEVELOPMENT AND DIFFERENTIATION

- i. Mendelian principles: Dominance, segregation, independent assortment,
- ii. Alleles: multiple alleles, Lethal alleles, pseudoallele,
- iii. Extensions of Mendelian principles: Codominance, incomplete dominance, gene interactions, linkage and crossing over, sex linkage, sex limited and sex influenced characters, Linkage and construction of genetic maps, Evolution of gene concept (Benzer's work)
- iv. Extra chromosomal inheritance
- v. Mutation: Types, causes and detection, mutant types lethal, conditional, biochemical, loss of function, gain of function, insertional mutagenesis.
- vi. Structural and numerical alterations of chromosomes: Deletion, duplication, inversion, translocation,
- vii. Molecular basis development and differentiation: *Drosophila*: Primary axis formation during oogenesis. Generating dorsal ventral pattern in embryo. Segmentation and the anterior posterior body plan, segmentation genes, homeotic selector genes.
- viii. Morphogenesis and organogenesis in plants: Embryogenesis, Organization of shoot and root apical meristem; transition to flowering, floral meristems and floral development in *Arabidopsis* and *Antirrhinum*.

UNIT 7: MOLECULAR PATHOLOGY AND SIGNAL TRANSDUCTION

- i. Host parasite interaction: Recognition and entry processes of different pathogens like bacteria, viruses into animal and plant host cells, pathogen-induced diseases in animals and plants, Mechanism of disease resistance in plants.
- ii. Human diseases: Nutritional deficiency diseases vitamin, mineral and protein-calorie. Symptoms, diagnosis and treatment, Diseases of the liver-causes of liver diseases, hepatitis, cirrhosis jaundice, diagnosis and treatment, Heart-CVD, CHD, atherosclerosis, Diabetes types, GTT, Role of insulin, origin and progression. Complication. Control / treatment, Endocrine disorders disorders of under and over production of hormones
- iii. Cell signaling: Types.
- iv. Hormones and their receptors: Cell surface receptor, signaling through G-protein coupled receptors, secondary messengers.
- vi. Regulation of signaling pathways: MAPK pathway, stress pathway, cytokine pathway.
- vii. Signaling in Bacteria: Chemotaxis and quorum sensing.
- viii. Signaling in Plants: Signaling through stress and light. .

UNIT 8: GENE EXPRESSION

- i. DNA replication
- ii. RNA synthesis and processing
- iii. Genetic code
- iv. Protein synthesis and processing
- v.Post- translational modification of proteins: Signal cleavage, disulphide bond formation, Glycosylation, folding of nascent protein, role of chaperons
- vi. Regulation of gene expression:

Regulation in prokaryotes: Lac operon: structure and regulation, tryptophan operon: attenuation control.

Regulation at the level of DNA structure: Super coiling, DNA methylation, role of nucleosome structure of eukaryotic DNA in gene expression.

Regulation at the level of Transcription –Transcription factors, Regulation at the level of RNA processing, RNA export and RNA stability.

Regulation at the level of Translation: e.g. Regulation of Ferretin and Transferrin mRNA. Role of upstream AUG codons, translational introns, protein splicing, inteins.

vii. DNA Binding Protein Motifs: Zinc finger, Leucine Zipper, Helix-Turn-Helix and other morifs

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UNIT 9: GENETIC ENGINEERING

i. Molecular cloning:

Restriction endonucleases: Types, blunt end and staggered cut, Ligation

Gene transfer methods: Transformation, Tnansfection, Electroporation, Biolistic method.

Vectors - plasmids, phage, cosmids and phagemid, yeast cloning vectors, plant vectors, bacterial artifical chromosome, SV40, shuttle vectors, phagemids, construction of expression vectors

Recombinant DNA techniques, *Agrobacterium* mediated transformation colony hybridization, plaque hybridization.

- ii. PCR: Concept, methodology, types and applications
- iii. Expression: Heterologous expression, Expression of recombinant proteins using bacterial, animal and plant vectors; generation of genomic and cDNA libraries; *in vitro* mutagenesis and deletion techniques, gene knock out in bacterial and eukaryotic organisms; protein sequencing methods, DNA sequencing methods, micro array based techniques.
- iv. Blotting techniques Dot blot, southern, northern, western blot, DNA foot print assay, DNA finger print assay and gel retardation assay, nuclease protection assay.
- v. RNAi: Antisense construct, Micro RNA and their applications.
- vi.Cell Culture: Plant cell culture: Micropropagation, callus culture, haploid production, somatic embryogenesis, somatic hybridization and cybridization, somaclonal variation. Animal Cell Culture:

Culture techniques, media preparation of primary culture, cell lines, characterization of cultures, cell doubling time, applications

vii. Applications of Genetic Engineering.

viii. Biosafety: Laboratory methodologies, Handling of GMOs, Testing, Evaluation, Toxicity, Allergenic & Animal ethical issues, Disposal methodologies, Natural guidelines, role of IBSC, RCGM and GEAC.

UNIT 10: GENOMICS AND PROTEOMICS

- i. Genomics and its types: Structural Genomics, Functional Genomics,
- ii. Genome sequencing :Raw genome sequence data, EST, Polymorphisms , SNPs, Types of physical maps. Genomic databases.
- iii. Genome of *E.coli*, *Arabidopsis thaliana, C.elegans, D. Melanogaster*, Zebra fish, Human.
- iv. Sequence alignment and database searches: DNA sequence analysis, Homology sequence analysis using BLAST, FASTA, Pairwise alignment, ORF Plotting, Gene Finding, Translation.Multiple sequence alignment using CLUSTAL W.
- v. Phylogenetic Analysis :Phylogenetics data analysis, Tree building methods, Rooted tree, un rooted tree, Distance method
- vi. Introduction to proteomics:, Protein digestion techniques, Mass Spectrometers for protein and peptide analysis. Protein identification by peptide mass fingerprints, peptide sequence analysis by tandem mass spectrometry.
- vii. Protein sequence analysis using softwares: Protein expression profiling, , protein complexes. Mapping protein modifications. Protein secondary structure analysis, Molecular visualization of protein 3D structure.

viii. Basics of Molecular modeling and Drug designing

University of Mysore

Syllabus for Ph. D. Entrance Exam MUSIC

.

Unit 1. Origin and development of Indian Music

a) Vedic-(pre and post) b) Madieval period, c) Modern period

Unit 2. Different periods of history of Karnataka Music

a) Ancient, b) Madieval, c) Modern, d) Golden Era, e) important milestones of music.

Unit 3. Different Mela systems of Karnataka Music

Unit 4. Origin and development of Raga

a) Raga classification-Janaka and Janya ragas, b) Sampoorna & Asampoorna melas.

Unit 5. Origin and development of Tala.

a) Sulaadi sapta tala, b) Shadangas & Shodashaangas, c) Marga & Desi talas, d) Navasandhi tala.

Unit 6. Manodharma Sangitha

a) Ragaalaapana-different stages, b) Tana-different kinds, c)Pallavi-structure-presentation different types of pallavis, d) Neraval or Saahitya vinyasa, e) Swara kalpana.

Unit 7. Classification of Musical Instruments-Tata-Sushira-vanaddha-Ghana vadyas, Origin and evolution of all groups of Instruments.

Unit 8. Comparative studies of Karnataka Music-Hindustani Music-Western Music.

Unit 9. Study of important Musical Treatises.

- a) Natyashastra, b) Brihaddesi, c) Sangita Ratnakara, d) Manasollasa,
- e) Sangita Sudha, f) Dattilam, Sangita Saramrita, Sri Tatvanidhi, Sangita Kalpdrama g) Chaturdandi prakaashika, g) Vivekachintamani,
- h) Sangita sampradaya Pradarsini, Sangita sara sa

Unit 10. Music and Science- a) Music & Physic, b) Music & Mathematics

- c) Music and Psychology, d) Music & Medicine
- e) Inventions & Innovations in music

UNIVERSITYOF MYSORE

SYLLABUS FOR Ph.D. ENTRANCE TEST

PHYSICAL EDUCATION AND SPORTS SCIENCES

I. Physical Education and Movement Education:

Concept of Physical Education. Physical Education as a Discipline and profession. Concept of movement Education. The nature of movement Education. Significance of human movement. Historical determinants of Physical Education. Scope of Physical Education. Aim and objectives of Physical Education.

II. Health and Fitness:

Need for study of health education. Scope of health Education. Aim and objectives of Health Education. Concepts of total fitness and wellness. Physical Fitness, Motor fitness and Motor ability and their components. Health related and skill related physical fitness. Body composition and its assessment. Overweight and obesity and their health implications. Basics of Nutrition.

III. Exercise Physiology

Origin of Exercise Physiology and Historical Development. Energy Sources. Concepts of Neuromuscular system, Cardio-respiratory system, Skeletal system, Endocrine system. Effects of exercise and training on the above. Concept of Fatigue and staleness. Use and abuse of Drugs Environment and Exercise.

IV. Measurement and Evaluation

History of Measurement in Physical Education. Need for Tests, measurement and evaluation in Physical Education. Tests of Physical Fitness, Motor Fitness and Motor ability. Skill and knowledge tests. Anthropometric measurement and their importance. Criteria of a good test. Test Administration.

V. Management in Physical Education and Sports

Meaning, objectives and importance of management in Physical Education and Sports. Principles of Management. Human Resources management and supervisions. Fiscal management: Budgeting and fund raising. Facility management and planning for facilities. Even management and office management. Principles of purchase and care of equipment.

VI. Sports Training

Meaning, Aim and Tasks of Sports Training. Characteristic and Principles of Sports Training. Concepts of Load, Adaptation and recovery. Training means and methods. Importance of Strength, Endurance. Speed, Flexibility and their forms. Methods of development of the above qualities. Brief concepts of Talent identification, planning and coordinative abilities.2

VII. Sociological basis of Physical Education and Sports.

Nature and Scope of Sociology in Physical Education and Sport. Types of group and structure of groups. Methods of Sociology. Concepts of leadership, socialization, social stratification and social mobility, competition, cooperation and cohesiveness. Women and Sports Professionalization and commercialization of /in sports. Sports and politics.

VIII. Psychological Basis of Physical Education and ports.

Need for study of Psychology in Physical Education and Sports. Branches of Psychology. Psychology as a science. Methods of Psychology. Brief concepts and theories of personality, motivation, Learning, Transfer of learning, aggression, arousal, anxiety and stress. Stress Management/coping strategies.

IX. Research Methods and Processes

Need for research in Physical Education and Sports. Purposes, Types /methods of research. Scope of research in Physical Education and Sports. Defining and formulating the research problem. Criteria of a research problem. Review of related literature. Sources of literature. Formulation of Hypothesis. Significance of Hypothesis. Testing of Hypothesis. Research design and sampling design. The structural ingredients of a research proposal. Data analysis and research reporting.

X. Statistics in Research

Definitions, meaning and scope of statistics in research in Physical Education and Sports. Statistical data and its organization. Frequency distribution, Graphical representation of data. Measures of, Central tendency, dispersion and relationship. Norms and their uses. Measures of relative position. Correlation and regression. Analysis of variance (ANOVA).

REFERENCES:

- 1) Bookwalter, Karl E. and Harold J. Vaderzwaag. Foundations and Principles of Physical Education. Philadephia: W.B.Saunders company, 1969.
- 2) Bucher, Charles A. Foundations of Physical Education. St.Louis: The C.V.Mosby Company, 1968.
- 3) Lockhart, Allene S. and Howard S. Shusher (Eds) Contemporary readings in Physical Education. 3rd Edition; Dubuque, IOWA: WMC Brown Company Publisher, 1974.
- 4) Melwin H. Williams. Nutrition for ;health Fitness and Sports, New York: McGraw –hill company
- 5) Scott, K. Powers and Stephen L. Dodd. Total fitness: Exercise, nutrition and wellness: Boston. Allyn and Bacon, 1999. ...3

- 6) Strand N. Bradford, Scantling and Martin Johnson. Fitness Education. Arizona: Gorsuch Scaris Brick, Publishers, 1997.
- 7) Charles A Bucher and Maron L. Krotee. Management of Physical Education and Sports. St.Louis: The C.V. Mosby Co. 1998.
- 8) Jensen, Clayne R. Administrative Management of Physical Education and Athletic Programs. Philadelphia: Lea and Febiger, 1983.
- 9) Alderman, R.B. Psychological Behaviour in sport. Philadelphia: W.B.Saunders Company, 1974.
- 10) Kamlesh, M.L. Psychology in Physical Education and sports. Delhi: Metropolitan Book Co. Pvt. Ltd., 1988.
- 11) Clarke, David H. and Clarke H.Harrison. Research Processes in Physical Education. 2nd edition; Englewood cliffs, New Jersey: Prentice-Hall Inc., 1984.
- 12) Kamalesh, M.L. Research Methodology in Physical Education and Sports, New Delhi: Metropolitan Book Co. Pvt. Ltd. 1999.
- 13) Kerlinger, Fred N. Foundations of Behavioral Research. 2nd edition; Delhi: Surjeet publication,1983.
- 14) Thomas, Jerry R. and others, Research in Physical Activity., Sydney: Allyn Bacon Publishers, 1983.
- 15) Marten, Rainer, Coaching Guide to Sports Psychology, Illinois: Human Kinetic Publishers Inc. 1987.
- 16) Robert, S. Weinberg and Daniel Gould., Foundations of Sport and Exercise Psychology, Canada: Human Kinetics, 1995.
- 17) Barrow, Harold M. and Rose Mary McGee. A Practical Approach to Measurement in Physical Education. Philadelphia: Lea and Febiger, 1979.
- 18) Clarke, H. Harrison and David H. Clarke. Application of Measurement to Physical Education. Englewood cliffs NJ: prentice: Hall Inc., 1987.
- 19) Mathews, K. Donald Measurement in Physical Education Philadelphia: W.B. Saunders Co., 1973.
- 20) Cratty, Bryant J. Social dimensions of Physical activity. Englewood cliffs, New Jersey: Prentice Hall Inc. 1967.
- 21) Dharam vir. Sports and Society: Readings in the sociology of ports. New Delhi: classical publishing company, 1989.

- 22) Marten, Rainer. Social Psychology and Physical activity. New York: Harper and Row Publishers, 1975.
- 23) Popenoe, David. Sociology. 2nd Edition; Englewood cliffs, New Jersey: Prentice Hall Inc., 1974.
- 24) Snyder, Eldon E. and Eloner Spreitzer. Social aspects of sports. Englewood cliffs, New Jersey Prentice Hall Inc., 1978.
- 25) Mc Ardle, William D, Frank I Katch and Victor L. Katch. Exercise Physiology: Energy Nutrition and Human Performance. 4th Edition; Philadelphia: Lippincott William and Wilkins, 1998.
- 26) Noble, Bruce J. Physiology of Exercise and Sports. St. Louis: Mosby College Publishing, 1986,
- 27) Shaver, Larry G. Essentials of Exercise Physiology: New Delli: Surgeet Publication, 1982.
- 28) Wilmore, Jack H. and David L.Costill. Physiology of Sport and Exercise Champaign. Human Kinetics, 2002.

UNIVERSITY OF MYSORE Syllabus for Ph.D. .Entrance Exam

PHYSICS

1. Mathematical Methods of Physics

Dimensional analysis. Vector algebra and vector calculus. Linear algebra, matrices, Cayley-Hamilton Theorem. Eigenvalues and eigenvectors. Special functions (Hermite, Bessel, Laguerre and Legendre functions).

Fourier transforms and integral equations: Integral transforms, Fourier integral inversion theorem. Convolution theorem. Integral equations: Types of linear integral equations. Neumann series, separable kernels.

Tensor analysis: Algebra of Tensors, Metric tensor. Raising and lowering of indices. Christoffel symbols. Covariant differentiation; grad, divergence, curl and Laplacian in arbitrary curvilinear coordinates.

2. Classical Mechanics

Mechanics of a system of particles: Center of mass. Conservation of linear and angular momentum in the absence of (net) external forces and torques. The energy equation and the total potential energy of a system of particles.

Motion of a particle in a central force field: Binet equation for central orbit, inverse square law force—Kepler's problem. Poisson brackets and canonical transformations. Non-inertial frames and pseudoforces.

Constraints and their classifications, Generalized co-ordinates, virtual displacements, Lagrangian equation of second kind, examples. Generalized momenta, Hamilton's equations, examples; cyclic co-ordinates. Poisson brackets; equations of motion in the Poisson bracket notation.

3. Electromagnetic Theory

Electrostatics: Gauss's law and its applications, Laplace and Poisson equations, boundary value problems. Magnetostatics: Biot-Savart law, Ampere's theorem. Electromagnetic induction. Maxwell's equations in free space and linear isotropic media; boundary conditions on the fields at interfaces. Scalar and vector potentials, gauge invariance. Electromagnetic waves in free space. Dielectrics and conductors. Reflection and refraction, polarization, Fresnel's law, interference, coherence, and diffraction. Dynamics of charged particles in static and uniform electromagnetic fields. Dispersion relations in plasma. Lorentz invariance of Maxwell's equation. Radiation from moving charges and oscillating dipoles; retarded potentials.

Lasers: spontaneous and stimulated emission, Einstein A & B coefficients. Optical pumping, population inversion, rate equation. Modes of resonators and coherence length.

4. Quantum Mechanics

Wave-particle duality. Schrödinger equation (time-dependent and time-independent). Eigenvalue problems (particle in a box, harmonic oscillator, etc.). Tunneling through a barrier. Wave-function in coordinate and momentum representations. Commutators and Heisenberg uncertainty principle. Dirac notation for state vectors. Motion in a central potential: orbital angular momentum, angular momentum algebra, spin, addition of angular momenta; Hydrogen atom. Stern-Gerlach experiment. Time independent perturbation theory and applications. Variational method. Time dependent perturbation theory and Fermi's golden rule, selection rules. Identical particles, Pauli exclusion principle, spin-statistics connection. Spin-orbit coupling, fine structure. Elementary theory of scattering: phase shifts, partial waves, Born approximation. Relativistic quantum mechanics: Klein-Gordon equation and Dirac equation.

5. Thermodynamic and Statistical Physics

Laws of thermodynamics and their consequences. Thermodynamic potentials, Maxwell relations, chemical potential, phase equilibria. Phase space, micro- and macro-states. Microcanonical, canonical and grand-canonical ensembles and partition functions. Free energy and its connection with thermodynamic quantities. Classical and quantum statistics, distribution functions. Ideal Bose and Fermi gases. Principle of detailed balance. Blackbody radiation and Planck's distribution law. First- and second-order phase transitions. Bose-Einstein condensation. Diffusion equation. Random walk and Brownian motion.

6. Atomic and Molecular Physics

Quantum states of an electron in an atom. Electron spin. Relativistic corrections for energy levels of hydrogen atom, hyperfine structure and isotopic shift, width of spectrum lines, LS & JJ couplings. Zeeman, Paschen-Bach & Stark effects. Electron spin resonance. Nuclear magnetic resonance, chemical shift. Frank-Condon principle. Born-Oppenheimer approximation. Electronic, rotational, vibrational and Raman spectra of diatomic molecules, selection rules. Microwave spectroscopy: The classification of molecules. The rotational spectra of rigid and non-rigid rotators. The microwave oven. Infrared spectroscopy: The Born-Oppenheimer approximation. The diatomic vibrating rotator, example of the CO molecule. The vibrations of polyatomic molecules; skeletal and group frequencies. Experimental technique (FTIR).

7. Special theory of relativity

Lorentz transformations, relativistic kinematics and mass—energy equivalence. Real coordinates in Minkowski space time. Definition of 4-tensors. The Minkowski scalar product. Orthogonality of 4-vectors. Raising and lowering of 4-tensor indices. Time like, null, and space like vectors and world-lines. The light-cone at an event.

The proper-time interval along the world line of a material particle. The instantaneous (inertial) rest-frame of a material particle and the components of 4-velocity, 4-acceleration and the 4-momentum vector in this frame. Statement of Newton's second law of motion in this frame. Determination of the fourth component of the 4-force along the world line of

the particle. Motion of a particle under the conservative 3-force field and the energy integral. The rest energy and the relativistic kinetic energy of a particle.

8. Nuclear and Particle Physics

Basic nuclear properties: size, shape and charge distribution, spin and parity. Binding energy, semi-empirical mass formula, liquid drop model. Nature of the nuclear force, form of nucleon-nucleon potential, charge-independence and charge-symmetry of nuclear forces. Deuteron problem. Evidence of shell structure, single-particle shell model, its validity and limitations. Rotational spectra. Elementary ideas of alpha, beta and gamma decays and their selection rules. Fission and fusion. Nuclear reactions, reaction mechanism, compound nuclei and direct reactions.

Nuclear reactors: Slowing down of neutrons, logarithmic decrement in energy, condition for controlled chain reactions, Homogeneous spherical reactor, Critical size. Effect of reflectors. Breeder reactor. Gas filled detectors and scintillation detectors.

Classification of fundamental forces. Elementary particles and their quantum numbers (charge, spin, parity, isospin, strangeness, etc.). Gellmann-Nishijima formula. Quark model, baryons and mesons. C, P, and T invariance. Parity non-conservation in weak interaction.

9. Condensed Matter Physics

X-ray crystallography: Crystalline state. Miller indices. External symmetry of crystals; symmetry operations. Two and three dimensional point groups. Lattices; Three-dimensional lattices; crystal systems and Bravais lattices. Screw and glide operations. Space groups; Diffraction of X-rays by crystals: Laue equations. Reciprocal lattice. Bragg equations. Equivalence of Laue and Bragg equations. Diamagnetism and its origin. Paramagnetism. Quantum theory of paramagnetism. Ferromagnetism. Curie-Weiss law. Spontaneous with temperature. Ferromagnetic magnetisation and its variation Antiferromagnetism. Two sub-lattice model. Experimental facts. Type I and type II supercnductors. Phenomenological theory. London equations. Meissner effect. High frequency behaviour. Thermodynamics of superconductors. Entropy and Specific heat in the superconducting state. Intrinsic Semiconductors. Crystal structure and bonding. Expressions for carrier concentrations. Fermi energy, electrical conductivity and energy gap in the case of intrinsic semiconductors. Extrinsic Semiconductors. Variation of Fermi energy with temperature and impurity concentration in the case of impurity semiconductors.

10. Electronics

Operational amplifiers: inverting amplifier, noninverting amplifier, Summing, scaling and averaging amplifiers, voltage to current converter with grounded load, current to voltage converter, integrator, differentiator. Log and antilog amplifiers, Wave form generators, phase shift oscillator, Wein bridge oscillator. mono-stable and astable multivibrators, First and second order Low pass and High pass filters.

Digital electronics: Boolean Laws and Theorems, Families of gates, RS and JK flip-flops, The Master-Slave JK Flip-Flop, D and T flipflops. Decoders-BCD decoders, Encoders.

UNIVERSITY OF MYSORE Syllabus for Ph.D. .Entrance Exam POLITICAL SCIENCE

1. PUBLIC ADMINISTRATION

Basic Concepts and Principles, Theories of administration, administrative behaviour, recent trends in public administration.

2. INDIAN ADMINISTRATION

Features of Indian Administrative System, Civil Services in India, Rural and Urban Local Governments, Attempts at administrative reforms in India.

3. Indian Government and Politics

Basic Philosophy and Structure of Indian Constitution, Government Machinery, Indian Federal System, Constitutional review.

4. Karnataka Government and Politics

Politics and administration in Princely Mysore State, Karnataka Unification Movement, Congress and non-Congress, Coalition Governments in Karnataka, Socio-Political Movements, attempts at administrative reforms in Karnataka, regional imbalances.

5. POLITICAL THEORY

Ideology, Liberalism, Communism, Socialism, Fascism, Egalitarianism, Different Concepts of justice, Social and Rational Choice Theory, Debate on End of ideology.

6. POLITICAL THOUGHT

Greek, Roman and Medieval Political Thought, Medieval Controversy,

Modern Political Thought, Liberal Political Thought, Indian Political Thought.

7. HUMAN RIGHTS IN INDIA: THEORY AND PRACTICE

Concept and Forms of Human Rights, Constitutional Rights, Machinery For Human Rights, Human Rights and Civil Society in India.

8. INTERNATIONAL RELATIONS

Theory and Theory Building in International Relations, Political Idealism and Realism in International Relations, Scientific and Tradition Controversy, Theories of International Relations.

9. RESEARCH METHODOLOGY AND COMPUTER APPLICATION

Nature and Forms of Social Science Research, Steps in Research, Techniques and Analysis in Social Research, Statistics, Computer Application.

10. COMPARATIVE GOVERNMENT AND POLITICS

Need for Study of Comparative Government and Politics, Constitutionalism, Political Culture and Political Socialization, Political Modernisation, Parties and Pressure Groups in USA, South Africa and Germany.

University of Mysore

Syllabus for Ph. D. Entrance Exam

. POLYMER SCIENCE

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Unit 1: General - Introduction to polymers with emphasis on important concepts such as - monomer, functionality and physical state (amorphous and crystalline), classification of polymers on the basis of source, elemental composition, heat, pressure, chemical reactivity, chemical/monomer composition, geometry and stereo regularity. Nomenclature of Polymers.

Unit 2.Chemistry and Mechanism of Polymerization - Definition of polymerization, factors affecting polymerization, Addition polymerization (free radical, ionic and co-ordination polymerizations), Condensation polymerization, Ring opening polymerization. Redox Polymerisation, Living radical polymerization,

Copolymerization – Co-polycondensation. Plasma polymerization, Photo polymerization, Electrochemical polymerization, Metathesis polymerization, Group transfer polymerization, ATRP, Reversible addition- fragmentation chain transfer polymerization, dendrimer.

Unit3. Specialty polymers- Functional polymers, LCP, Conducting polymers, degradable Polymers.

Engineering polymers: Unsaturated polyester resin, Epoxy resins, Phenolics, Amino resins, Alkyds. Properties and applications of engineering polymers: Nylons, Polyesters, PAN, PC, PU, ABS, Polyacrylates and allied polymers, Fluoropolymers, modification of industrial polymers.

Unit 4.Concept of polymer molecular weight: importance of molecular weight control. Arthemitic mean-molecular weight average Mw, Mn, and Mv. Molecular weight distribution and its importance from the point of applications.

Determination of molecular weight - End group analysis, cryoscopic method, ebulliometric metric methods, membrane osmometry, vapour phase osmometry, light scattering, ultracentrifugation & viscometry.

Unit 5.: Polymer Processing

Processing of Polymers: Moulding – compression moulding, injection moulding, blow moulding, rotational moulding, thermoforming. Extrusion – coextrusion, film extrusion, pultrusion, calendering, casting, coating.. Reaction Injection Moulding (RIM)- Principle and Application Structural reaction injection molding, resin transfer molding, foaming, laminates. Moulding of DMC and SMC and other thermoset processing operations.

Unit 6.Polymer Testing

Mechanical properties:

Tensile properties, compression properties, flexural properties, shear properties, impact resistance, toughness, tear resistance, abrasion resistance and hardness.creep, stress relaxation, fatigue properties, flexing, and resilience

Flammability properties: oxygen index, critical temperature index, smoke density flammability test, ignition properties, and surface burning characteristics.

Electrical properties: insulation resistance, volume resistivity, surface resistivity, break down voltage, dielectric strength, arc Resistance, dielectric constant, power factor.

Optical properties: gloss, haze, refractive index, and degree of yellowness, transmittance, photoelectric properties, and color.

Miscellaneous properties: MFI, MVI, specific gravity, bulk density, ESCR, weathering properties, toxicity, resistance to chemicals, abrasion, tearing, Co-efficient of friction, VST, HDT, Nondestructive testing methods.

Unit 7.: Spectroscopic methods: UV-Visible spectroscopy - Principle & theory

Applications- qualitative and quantitative analysis, purity, cis-trans-conformation, molecular weight determination, polymer degradation analysis.

Fourier transform infrared spectroscopy: principle & theory,

Applications – Establishment of chemical structure of polymers, reaction kinetics, polymer linkages, hydrogen bond formation, purity, copolymerization, qualitative and quantitative results.

Nuclear magnetic resonance: (¹H and ¹³C NMR) principle, theory, applications-stucture (chemical), purity, tacticity, etc.

Unit 8.Thermal methods:

DSC: theory, principle & interpretations of DSC thermogram, Applications- heat of fusion and degree of crystalanity or isotacticity. Random copolymer structure. Block copolymer structure. Polymer mixture melting point depression by diluents, crystallization, melt crystalisation, cold crystalisation. Tg, Tm, determination of blend composition, purity, identification of unknown, degree of crystallization, degree of cure, rate of cure studies (kinetics of curing) plasticizer effect, (Broido method, Kissinger method, Ozawa method, B&D method)

Thermogravimetric analysis: principle, theory, Applications- purity, fiber content, composition of copounded rubber, identification of polymers and rubbers, thermal stability, thermal degradation, kinetics of thermal degradation, IPDT, etc,

Principles of DMA and TMA-applications.

Unit 9.Chromatographic technique: Gel permeation chromatography- theory, principles, Applications- qualitative and quantitative analysis, molecular weight determination and molecular weight distribution, purity, composition, polymerization kinetics, depolymerization, identification of unknown, etc.

X-ray diffraction: SAXS, WAXS, theory, principle, Application- Chain conformation, chain packing, disorder in crystals, degree of crystalinity, microstructural parameters, degree of orientations.

Principles of optical microscopy, SEM, TEM, AFM. Applications - Morphology of polymers, crystalization behavior, phase separation.

Unit 10: Structure-property relationship

Polymer properties- Approach and the concept. Chemical structure of polymers – Introduction, shapes and energy consideration, copolymers, heteroatomic polymers. Physical structure of polymers – introduction, melt viscosity, interchain and — intrachain forces; glass transition temperature; crystallinity; elastomers, fibers, plastics and their correlation with Tg and Tm (structural features). Physical properties of polymers in relation to chemical structure: volumetric properties – volume and density, thermal expansion; calorimetric properties – heat capacity, enthalpy and entropy; transition temperatures – Tg, Tm, and relationship between Tg and Tm of polymers; solubility – the solubility parameter, solubility limits.

UNIVERSITY OF MYSORE Syllabus for Ph.D. .Entrance Exam PSYCHOLOGY

Unit 1: Cognitive Psychology and Cognitive Science

Introduction to cognitive Psychology and Cognitive Science; Cognition and Brain: Basic Principles; Behavioral, Electrophysiological, and Neuroimaging methods; Attention and consciousness; Memory: Visual Memory, STM and Working memory, and Long term Memory; Language, Brain and Cognition; Speech Recognition; Language Development; Reading development; Reading process; Reasoning and Decision making; Gene-Brain-Behavior Link.

Unit 2. Psychological Testing Clinical Assessmentand Clinical Assessment

Functions, origins, and application of psychological testing; Item development and item validation; Development of norms and the meaning of test scores; Reliability and Validity of tests; Types of tests. Principles and methods of clinical assessment; Assessment of cognitive functions; Assessment of personality; Assessment of deviance and pathology.

Unit 3: Biological basis of behavior

Neurons; Nerve impulse propagation; Structure and functions of Nervous system; Diversity of life; Structure of genes; Protein synthesis; Cell division; Mendel and post Mendellian developments; Evolution; Behavior genetics – Introduction and Methods.

Unit 4. Research Methodology & Statistics

Variables; Hypothesis; Measurement and scales; General Principles of Research; Types of Research Designs; Sampling methods; Analyzing and reporting results; Quantitative methods; Analyzing and reporting results - Qualitative methods; computer and its use in data analysis

Probability; Binomial and Normal Distribution and Hypothesis Testing; Correlation and Regression; ANOVA, MANOVA and other Multivariate Statistics; Nonparametric Statistics.

Unit 5. Learning Theories

Functionalistic Theories (Thrndike, Skiiner, and Hull); Associationistic Theories (Pavlov, Guthrie, and Estes); Cognitive Theories (Gestalt, Piaget, Tolman, and Bandura); Biological Theories (Hebb, and Bolles).

Unit 6. Personality

Psychodynamic perspective (Freud, Jung, Edler, Horney, Erikson); Humanistic and Existential perspective (Erich Fromm, Carl Rogers, Maslow); Cognitive perspective (George Kelly, Rotter, Bandura); and Eastern perspective (Indian).

Unit 7. Child and Adult Psychopathology

Attention Deficit Disorder; Appositional Defiant and Conduct Disorder-causes and management; Childhood Anxiety and Depression Disorders; Enuresis, Encopresis, Sleep walking-Causes and Management; Learning Disability; Autism-causes and management; Mental Retardation-Types, Classifications-causes, prevention and Management

Theories and Models of Anxiety Disorders; Theories and Models of: Somatization, Somatoform and Dissociative disorders; Theories and Models of: Mood, Schizophrenia, and Delusional disorders; Models of personality disorder (Psychodynamic, Behavioral, Cognitive and Biological models).

Unit 8. Psychotherapy and Counseling

Psychoanalytic Technique; Techniques based on Counter Conditioning; Techniques based on Operant conditioning; Techniques based on Cognitive Behavioral Approaches: Beck, Ellis. Personcentred and Gestalt therapies; Family and marital therapies; Transpersonal approach; Body-centred therapy, Yoga and Holistic approach.

Individual counseling – approaches and techniques; Group counseling – approaches and techniques; Counseling for career planning and decision making, Life skills and counseling.

<u>Unit 9. Organizational Behavior and Organizational Development</u>Introduction to Organizational Behavior; Leadership and Teams at work; Motivation in Organization; Communication and Decision Making.

Overview of organization Development; The Process of Organization Development - Diagnosing the problems; Designing Interventions and Leading and Managing Change.

Unit 10. Organizational Psychology and Human Resource Development

The field of organizational behavior (history, subject matter, and scope); Leadership and Teams at work; Motivation in Organization; Communication and Decision Making; Training and development; Need Assessment, Training Design & Implementation; Evaluating the training Effectiveness; Performance Appraisal; HR Planning and recruitment; Future challenges: Indian & Global.

List of Books for reading:

- **1.** Cognitive Psychology: Applying the science of mind 2nd Edition- Bridget Robinson-Riegler & Greg L. Robinson-Riegler. Pearson Education, New Delhi, 2008
- 2. Cognitive Psychology: A Student's Handbook, 6th Edition Michael W. Eysenck, and Mark T. Keane. Taylor and Francis Inc., New York, 2005.
- 3. Cognitive Psychology: Connecting mind, research, and everyday experience (2nd edition). Goldstein, E. B. Thomson/Wadsworth., 2008.
- 4. Research design and methods A process approach. 5th Edition. Kenneth S. Bordes & Bruce New York: Tata-McGraw Hill, 2002.
- 5. Rethinking methods in Psychology. Jonathan A. Smith, Rom Harré & Luk Van Langenhove. New Delhi: Sage Publications, 1995.
- 6. *Statistics for Psychology* Arthur Aron, Elaine Aron, Elliot J. Coups. 4th Edition New Delhi: Pearson Education, 2007
- 7. Psychological Testing Anne Anastasi and Susana Urbania, New Delhi: Pearson Education. 7th edition,
- 8. *Psychological Testing- Principles, Applications and Issues* Robert M. Kaplan & Dennis P. Saccuzzo. New Delhi: Cengage Learning India Pvt. Ltd. 2009. 6th Edition.

- 9. Introduction To Theories Of Learning . Hergenhahn New Delhi: Pearson Education 2008
- 10. *Personality and personal growth*. Robert Frager & James Fadiman. New Delhi: Pearson Education. 2007. 6th edition.
- 11. Organization Development and Change, Cummings & Worley, 2006, Seventh Edition, Thompson Asia
- 12. Ramnarayan, Rao, T V, & Kuldeep Singh (1998) Organization Development, Interventions & Strategies (edited), Sage Publications
- 13. Organization Behavior 2nd Ed. Steven L. Mc Shane & Mary Ann Von Glinow. Mc-Graw Hill (College Package Edition), 1999.
- 14. Behavior in Organization Psychology 9th Ed. Jerald Greenberg & Robert Baron
- 15. Organizational Behavior 10th Ed. Stephen P Robbins. New Delhi: Prentice Hall India, 2007.
- 16. Abnormal Psychology and Modern life. C. R. Carson & N. J. Butcher 2007. Harper & Collins.
- 17. Abnormal Psychology. R. G. Meyer (1990). Allyn & Bacon. Inc.
- 18. Model for Clinical Psychopathology. C. Eisdorfer et al. MTP Press Ltd.
- 19. Clinical Psychology: The Study of Personality and Behavior. Edward Arnold
- 20. *Handbook of Psychological Assessment* Groth Marnath. John Wiley & Sons, New York., 2nd edition
- 21. Genetics Monroe W. Strickberger, New Delhi: Prentice Hall India, 2004. 3rd Edition
- **22.** Counseling and Psychotherapy- Theories and interventions. 4th Edition. D. Capuzzi & D. R. Gross. New Delhi: Pearson Education, 2008.
- 23. *Introduction to Counseling and Guidance*. 6th Edition Robert L. Gibson & Marianne H. Mitchell. New Delhi: Pearson Education, 2006.
- 24. *Counseling and Psychotherapy- Theories and interventions*. 4th Edition. D. Capuzzi & D. R. Gross: New Delhi: Pearson Education, 2008.
- 25. Human Resource and Personal Management. K. Ashwathappa. New Delhi: Tata McGraw Hill.
- 26. *Personnel Management*. C. B. Mamoria & S. V. Gankar. New Delhi: Himalaya Publishing Co. 2004.
- 27. Organization Behavior . Steven L. Mc Shane & Mary Ann Von Glinow. Mc-Graw Hill 1999.
- 28. Behavior in Organization Psychology 9th Ed. Jerald Greenberg & Robert Baron
- 29. Organizational Behavior 10th Ed. Stephen P Robbins. New Delhi: Prentice Hall India, 2007.
- 30. Management of Organizational Behavior (Utilizing Human Resources) 7th Ed. Paul Hersey, Kenneth H Blanchard & Dewey E Johnson.

UNIVERSITY OF MYSORE Syllabus for Ph.D. Entrance Exam PUBLIC ADMINISTRATION

- 1. **Public Administration**: Meaning, Nature, Scope and Significance of Public Administration, evolution of Public Administration as an academic discipline, Recent Developments in Public Administration New Public Administration, New Public Management, Good Governance, E-Governance, Globalization and Public Administration.
- 2. **Administrative Thought**: Kautilya, Woodrow Wilson, F.W.Taylor, Eltoa Mayo, Classical Theory Fayol, Gullick and Urwick, Weber's Bureaucratic Model and Post Weberian Thinkers.
- 3. **Indian administration**: evolutions of Indian administration, constitutional framework, impact of privatization, control over administration, administrative reforms.
- 4. **Financial Administration in India** concept Nature, Scope and Significance, Structure and Functions of Financial Ministry, Budget as a Political Instrument, Control Over Financial Administration, Control Over Public Expenditure Estimates Committee And PAC.
- 5. **Social welfare Administration**: Concept, Scope, Evolution, Welfare Administration Of Vulnerable And Marginalized Sections, Women And Child Welfare, Polices And Programmes Of Welfare Administration, Role of NGO's.
- 6. **Comparative Public Administration**: Meaning, Scope, Significance And Evolution, Approaches To The Study Of Comparative Public Administration, Administrative Systems In Comparative Perspective China, UK and India.
- 7. **Development Administration**: Concept, Nature And Significance, Ecology, Development Debate, Area Development, Bureaucracy And Development, Sustainable Development, Recent Trends In Development Administration –Anti Development Thesis, State Vs Market Debate, Women And Development [SHGs]
- 8. **Public Personnel Administration**: Meaning, Nature, Scope And Significance, Evolution Classification Of Civil Services, Recruitment, Promotion, Pay, Service, Retirement Benefits, Discipline And Punishment, Administrative Ethics.
- 9. **Local Self Governments in India**: Concept, Nature, Significance And Evolution, Committees And Commissions On Rural And Urban Governance And Their Recommendations, 73rd And 74th Amendment Acts, Problems Of Rural And Urban Government In India.
- 10. **Research Methods In Public Administration**: Nature And Forms Of Research In Public Administration, Steps In Research, Techniques And Analysis, Statistics, Computer Applications.

UNIVERSITY OF MYSORE Syllabus for Ph.D. Entrance Exam Russian Literature

Unit – 1.

Elementary level of general Linguistics covering Morphology, Syntax etc

Unit - 2.

Ancient Indian Literature : Ramayana, Mahabharatha, Mrichakatika Mālavikāgnimitram Abhijñānaśākuntalam

Unit - 3.

Ancient Greek literature: The Iliad, The Odyssey, The Oedipus rex, The Antigone. Arestotle's Poetics

Unit - 4.

Indian Literature in English: Kanthapura, The Autobiography of an Unknown Indian, Swami and Friends, The Guide, Midnight's Children, God of Small Things.

Unit - 5.

The plays of Shakespeare: The Canterbury Tales, Parliament of Fouls, Hamlet, Hamlet, Romeo and Juliet, Othello, King Lear, Macbeth, Antony and Cleopatra, and The Tempest.

Unit - 6.

English literature from XVI century till XX Century, Doctor Faustus, Volpone, Paradise Lost, The Way of the World, Rape of the Lock, Gulliver's Travels, Lyrical Ballads, Rime of the Ancient Mariner" Ode to the West Wind, Oliver Twist, The great Expectations

Unit - 7.

Literary genre: poetry, drama, prose, epic, lyric, dramatic. Comedy, tragedy, farce, comedy of manners, burlesque, satire. melodrama, fiction parody

Unit - 8.

Russian Literature up to Gorky: A.C. Pushkin (The Station Master), Gogal (The Overcoat), Lermontov (Fathers and Sons), F.M. Dostoyevsky (The Crime and Punishment), Tolstoy (Resurrection), M. Gorky (The Mother).

Unit – 9.

Soviet Literature up to 1990: Doctor Shivago, How the Steel was tempered, And Quite Flows the Don, The Executioners Block.

Unit - 10

Elementary Russian Grammar. Syllabus of Certificate Course in Russian

University of Mysore

Syllabus for Ph. D. Entrance Exam SANSKRIT

	Subjects	Texts Books	Syllabus
Unit -I	Alankara Sastra	Texts: a-Kuvalayananda b-Dhvanyaloka – c-Kavya Prakasha	Origin and Development of Alankarasastra and Text authors
Unit -II	Veda & Vedic Literature	Text: a. Vaidika Sahitya charitre (Anantarangachar)	Samhitas – Brahmanas- Aranyakas ,Vedangas
Unit- III	Darsana	Text a-Sarvadarshana Sangraha b- Bharateeya Darshana (Kannada)	Astika Darsanas Nastika Darsanas , Six systems of Indian Philosophy
Unit - IV	Vyakarana	Siddhata Kaumudi	Karaka Prakarana Samasa Prakarana Krudanta Prakarana , Taddita Prakarana Mahabhasya paspasahnikam
Unit- V	Linguistics	Bhasha sastra and Sahitya charitre .Eiteted by K Krishnmurthy , Ranganatha Sharma. H.K. Siddagangiah History of Language by Tharapuravala	Origin of Language Different Theories regarding Origin of Language Classification of Language
Unit - VI	Drama & Dramaturgy	Natya Shastra	Bharata's Natyasastra (6thChapter) Kalidasa Abhijnanasakuntalam Uttararamacharitam Dasarupakas
Unit-VIII	Classical Sanskrit - Literature	Kavyasta Samskruta sahitya charitre	Mahakavyalaksana Pancha Mahakavyas
			Khanda Kavyas Gadya Kavyas Kavyamimamsa of Rajashekhara
Unit- VIII	Smrti and Dharma sutra	Yajnavalkya Smrti Vyavahara Adhyaya	Manu smriti – Raja Darma 7 th Chaper Apastamba Dharma sutras – 1 st

			Chapter Gautama Dharmasutras-1 st book
Unit - IX	Upanisat and	Text	Dasopanisat
	Bhagavadgeta	Upanishad Bhavadhare	Bhagavadgita
			Chapter 2 & 3)
Unit-X	Manuscript logy	Basic elements of	Origin of Hastapritsastra-
		Manuscriptology	Importance of Manuscripts –
		Prof Shivaganeshmurthy	Collection and preservation of
			Manuscripts –
			causes for the destruction of
			manuscripts-
			Editing – Principles of Critical
			editing –
			Important manuscripts Libraries in
			India

UNIVERSITY OF MYSORE Syllabus for Ph.D. Entrance Exam SERICULTURE

Units	Syllabus
1.	Introduction to Sericulture: History and status of mulberry and non-mulberry sericulture in India. Silk production in India and other countries; export and import. Scope of sericulture in India vis-à-vis other agricultural crops, employment potential and income generation, role of women in sericulture. Sericulture organization and extension in India.
2.	Structure, organization and functions of cell organelles. Cell cycle and regulation. Structure and organization of chromatin. Special chromosomes. Structure and chemistry of nucleic acids. Classification and synthesis of protein. Genetic code.
3.	Principles and methods of plant breeding. Host plants of mulberry and non-mulberry silkworms. Botanical description and systematics of genus <i>Morus</i> . Mulberry cultivars - tropical and temperate regions, irrigated and rainfed conditions. Anatomy of mulberry leaf, stem and root. Reproductive biology of mulberry.
4.	Mulberry propagation and cultivation. Soils for mulberry cultivation - Soil profile and classification. Physical, chemical and biological properties of soils. Establishment and maintenance of mulberry gardens. Package of practices. Pests and diseases of mulberry and their management. Plant nutrition.
5.	Classification and characteristic features of insects; classification of sericigenous insects; characteristic features of order Lepidoptera. Metamorphosis in insects. Silkworm respiratory, digestive, circulatory, excretory and nutrition physiology. Neuroendocrine system in insects.
6.	Classification of silkworms. Morphology and life cycle of mulberry and non- mulberry silkworms. Anatomical features of <i>Bombyx mori</i> . Gametogenesis and embryonic development of <i>B. mori</i> . Silkworm seed organization and its significance. Process of silkworm egg production.
7.	Silkworm rearing: Planning for silkworm rearing, rearing houses and equipments, disinfection and hygiene and incubation. Young and late-age silkworm rearing - Qualitative and quantitative requirements of mulberry leaves, bed spacing, cleaning, moulting, mounting and environmental condition. Cocoon harvesting and marketing. Pests and diseases of silkworm and their management.
8.	Principles and methods of animal breeding. Silkworm breeding, new concepts of silkworm breeding, biochemical genetics and breeding. Hereditary traits of <i>B. mori</i> egg, larva, cocoon, pupa and moth.
9.	Textile fibers – synthetic and natural. Insect and non-insect fauna producing silk. Types of silk produced in India. Physical and commercial characteristics of cocoons. Cocoon sorting, stifling and cooking. Silk reeling - charaka, cottage basin, multi-end, automatic and semi-automatic. Silk testing and grading. Cocoon markets and silk exchanges. Wet processing and weaving.
10.	Methods and application of plant tissue culture. Animal cell culture and its application. Transgenic plant and animals. Tools and techniques of molecular biology.

UNIVERSITY OF MYSORE Syllabus for Ph.D. Entrance Exam SOCIAL WORK

Unit – I

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

Social Work Profession: Goals, Philosophy, Values, Ethics and Skills of Social Work and their application, 'Sarvodaya' and Gandhian Social Work

Philosophy and Principles of Social Work and their application.

Role of Social Work in the Remedial, Preventive and Developmental Models.

Definition, Relevance and Scope of Integrated Approach to Social Work Practice, Skills and Techniques.

Social Work Education – Content, Training, Supervision, Problems and challenges.

Unit –II

Meaning and Characteristics of Society, Community, Social Group and Social Institution; Social Structure and Social Stratification; Theories of Social Change and Social Disorganisation.

Tribal, Rural and Urban Communities, Weaker and Vulnerable Sections and Minority Groups.

Population, Poverty, Unemployment, Underdevelopments; Problems of

Developing Economies and Consequences of New Economic Policy.

Concept of Welfare State, Indian Constitution – Features, Fundamental Rights and Directives Principles of State Policy and Planning in India – Five-Year Plans.

Concept and Causative Factors of Indian Social Problems – Analysis. Intervention in Social Problems – Government and Voluntary Efforts at Micro-and Macro-levels.

Role of the Social Workers in identifying Social Problems and Development of Appropriate Strategies.

Unit – III

Human Behaviour, Human Needs, Human Motivation and Problems of Human Behaviour and Coping and Defense Mechanisms.

Human Growth and Development in the Lifespan of Individual.

Learning, Socialization and Theories of Personality

Stress and Stress Management.

Unit - IV

Social Case Work – Concept, Objectives and Principles.

Social Case Work Process - Intake, Social Study, Social Diagnosis, Social Treatment, Termination and Evaluation.

Approaches in Case Work – Psychoanalytical, Psycho-Social, Problem-solving, Behaviour Modification, Crisis Intervention, and Eclectic Approach. Techniques and Skills in Social Case Work;

Interviews, Home Visit, Resource Mobilization, Referral, Environmental Modification. Case Work Relationship, Communication, Types of Recordings in Case Work.

Counseling: Concept, Theories and Techniques

Role of Social Case Worker in Various Settings. Case Management, Scope of Social Case Work Practice in India

Unit - V

Social Group Work: Concept, Definition, Objectives and Goals of Social Group Work. Principles, Skills and Values of Social Group Work.

Stages of Group Development and Use of Programmes for Group Development; Orientation-Stage, Working-Stage, Termination Stage - Programme Planning, Implementation and valuation.

Study of Group Process – Group Dynamics, Members' Behaviour, Leadership and Role of the Worker in Various Settings.

Approaches and Models in Group Work Practice –Therapeutic / Social Treatment. Development Group and Task-oriented Group.

Recording in Social Group Work, Scope of Social Group Work in Various Settings.

Unit - VI

Community as a Social System, Classification of Communities, Power Structure within Communities.

Concept, Principles and Objectives of Community Organisation.

Models of Community Organisation, Scope of Community Organisation Practice in India.

Community Development and Community Organisation.

People's Participation in Community Programmes, Local Leadership.

Social Action as a Method of Social Work: Concept, Strategies and Techniques.

Management and Governance of Human Service Organisation – Welfare and Development Organisations and Services.

Government and Voluntary Organisations and need for their Partnership.

Project Management, Monitoring and Evaluation.

Unit - VII

Definition, Nature, Scope and Purposes of Social Work Research.

Research Designs: Survey Research, Case Study, Steps in Social Work Research – Problem Formulation, Operationalization of Variables, Hypotheses, Universe and Sampling, Tools and Techniques of Data Collection, Data Analysis and Report Writing.

Statistics - Its use and Limitation in Social Work Research - Measures of Central Tendency, Measurer of Dispersion, Chi-square Test, t-test, Correlation. Use of Computers in Social Work Research

Unit - VIII

Social policy – Concept and Scope, Distinction between Social and Economic Policies, Place of Ideology and Values.

Evolution of Social Policy in India; Review of Major Policies and Programmes viz. Education, Health, Shelter, Environment, Social Security, Employment, Family, Child, Women and Youth Welfare, Welfare of the Weaker Sections, Elderly and Disabled.

Characteristics of Social Welfare Organizations - Size, Nature, Design, Legal Status, Rules and Procedure and overall Policy.

Management of Social Welfare Organizations (Government and Voluntary).

Programme and Project Management – Identifying overall and Specific Needs, Project Formulation, Monitoring and Evaluation, Recording and Accountability.

Unit - IX

Concept of Social Justice – Its relationship with Social Legislation; Civil Rights; Human Rights; and Issues of Social Justice.

Legislations pertaining to Women and Children.

Legislations pertaining to Social Defense, Social Security and Social Assistance.

Legislations pertaining to Persons with Disability, the Underprivileged and Health related Legislations. Legislation related to Rights of Consumers and Right to Information.

Role of Social Worker in promoting Social Legislation, Human Rights and Social Justice.

Unit - X

Social Development – Meaning, Concept and Indicators

Approaches and Strategies - Growth and Equity, Minimum Needs, Quality of Life.

Concept of Human Development and Human Development Index.

Global Efforts for Human Development. Concept of Sustainable Development, People-Centered Development

Social Work and Social Development.

Problems of Social Development in India.

Planning in India – Five-year Plans.

UNIVERSITY OF MYSORE

Syllabus for Ph.D. Entrance Examination **SOCIOLOGY**

UNIT -1

Importance, Nature and Types of Sociological Theories

Theoretical Perpectives

Structural: Radcliff Brown and Levi Strauss. Functional: Emile Durkhiem and Robert Merton.

Theories of Social Action: Max Weber and Pareto.

Theories of Conflict: Karl Marx, Dehrendorf

Theories of Social Change: Factors and Process of Social Change

UNIT -2

Importance of Social Research

Stages and Types of Social Research, Problems of objectivity in Research

Research Procedure, Social Survey, Hypothesis, Research Design

Tools and Techniques of Data Collection

Methods of Social Research: Case Study, Historical and Descriptive Methodology

Qualitative and Quantitative

Research Report, Research Proposal

Meaning of Statistics - Descriptive and inductive, Importance of Statistics in

Social Research

<u>UNIT -3</u>

Theories of Social Stratification: Structural, Functional and Marxist

Forms of Social Stratification: Race, Caste, Class and Ethnicity

Factors of Social Stratification:

Determinants of Social Mobility: Education, Occupation and Income Processes of

Social Mobility:

Westernization, Sanskritization and Urbanization

UNIT-4

Marginalization and Exclusion
Marginalized Groups in India
Scheduled Castes, Scheduled Tribes, Minorities and OBCs
Views of Jyotiba Phule, Periyar, B.R. Ambedkar and Ram Manohar Lohiya
Central and State Government of Karnataka Schemes

<u>UNIT - 5</u>

Reform Movements – Brahma Samaj, Prarthana Samaj, Sathyashodhak Samaj, Arya Samaj and Kabir Panth.

Protest Movements: Jainism, Buddhism, Sikhism, Veerashaivism and Dalit Movement in India

Backward Classes Movement in Karnataka

Peasant Movement in India and in Karnataka

UNIT - 6

Community Development Programme
Panchayat Raj
Green Revolution, Impact of Industrialization
Self Help Groups,
Impact of Globalization on Rural Society
Casteism, Poverty, Indebtedness and Unemployment

UNIT - 7

Understanding Indian Society
Multi group, Multi cultural,
Unity in diversity,
Unique features of Indian Society.
Bases of Socio-economic inequality – Caste, Class, Gender

UNIT-8

Interrelationship between education and Socialization

Agencies of Socialization: Family, Peer group, School and Media.

Barriers of equal access: Caste, Class, Tribe and Gender.

Education and Social Mobility.

Contemporary Educational Scenario in India.

<u>UNIT -9</u>

Globalization: Challenges

Growing socio-economic disparities

Rural Urban development gaps,

Privatization and related problems.

<u>UNIT -10</u>

Contemporary critical issues in Indian society:

Population,

Regional imbalances,

Violence against marginalized groups,

Corruption,

Terrorism,

Environmental degradation



KUVEMPU INSTITUTE OF KANNADA STUDIES MANASAGANGOTRI, MYSORE 570 006

PH.D. ENTRANCE TEST

SOUTH INDIAN STUDIES

SYLLABUS

UNIT : 1	POLITICAL HISTORY OF SOUTH INDIA
UNIT : 2	SOUTH INDIAN ART AND ARCHITECTURE AND SOUTH INDIAN EPIGRAPHY
UNIT : 3	CULTURAL HISTORY OF SOUTH INDIA
UNIT : 4	COMPARATIVE DRAVIDIAN LINGUISTICS
UNIT : 5	RESEARCH METHODOLOGY
UNIT : 6	RELIGIOUS MOVEMENTS IN SOUTH INDIA
UNIT : 7	TAMIL LANGUAGE AND LITERATURE
UNIT :8	KANNADA LANGUAGE AND LITERATURE
UNIT : 9	TELUGU LANGUAGE AND LITERATURE
UNIT : 10	MALAYALAM LANGUAGE AND LITERATURE

UNIT 1: POLITICAL HISTORY OF SOUTH INDIA

- A. Introduction-Sources : Archaeological and Literary Sources, Geographical aspects
- B. Political History of Shatavahana, Kadambas, Gangas, Chalukyas, Rasthrakutas Pallavas, Cholas, Vijayanagara
- Political History of Bahamani and Bijapura States, Allauddin Bahaman Shah,
 Firoz Shah, Mohamad Gavan, Administration
 Bijapur Adilshahi's Ali Adil Shah, Adil Shah Administration
- Political History of Provincial Administrators
 Nayakas of Keladi, Chitradurga and Coorg,
 Wodeyar's of Mysore: Chikadevaraya, Chamaraja,
 Krishnaraja-III, Krishnaraja-IV, Administration
 Hyder Ali and Tippu Sultan: Administration

UNIT 2: SOUTH INDIAN ART AND ARCHITECTURE AND SOUTH INDIAN EPIGRAPHY

- A. Introduction Fundamentals of Indian Art
 Beginning of South Indian Temple Architecture
 The Three Schools Nagara, Dravida & Vesara
- B Introduction, Definition, Meaning and Scope of Epigraphy History of the Study of South Indian Inscriptions
- C. Ancient Scripts, Indus valley scripts and its Decipherment, Characteristics of Scripts
- D. Indo-Muslim Art under Bahamani Shahis Bijapur, Bidar and Golkonda

UNIT 3: CULTURAL HISTORY OF SOUTH INDIA

- A. Introduction: Sources: Archaeological and Literary, Economic life land tenures Agriculture, Industries Trade and Commerce Irrigation, Finance
- B. Administration; Central, Provincial and Local Government Law and Justice
- C. Religious life Hinduism, Shaivism, Vaishnavism,
- D. Buddhism & Jainism

UNIT 4: COMPARATIVE DRAVIDIAN LINGUISTICS

- A. Comparative Linguistics and its purposes, The term Dravida, History of Dravidian Linguistics
- B. Characteristics features of Proto Dravidian, South Dravidian, Central Dravidian, North Dravidian
- C. Dravidian Phonology Vowels and Consonants i/e and u/o alternation, development of *K, *C
- D. Dravidian Noun Morphology Gender System pronoun Cases, Numericals, Adjectives
 Dravidian Verb Morphology Transitive intransitive Verbs, Past and non-past markers, Pronominal Terminations, Negative verbs.

UNIT 5: RESEARCH METHODOLOGY

- A. Types of Research Objects of Research. Qualities of a researcher
- B. Field work in Research Synopsis Identification of sources Research Hypotheses
- C. Questionnaires Interviews Analysis of Data
- D. Working Bibliography Footnotes and References The completed Bibliography

UNIT 6: RELIGIOUS MOVEMENTS IN SOUTH INDIA

- A. Vedic Religion, Vedas Upanishads, Epics
- B. Buddhism & Jainism, Origin Spread History and Tenets
- C. Shaivism Virasaivism, Nayanars, Vachanakaras
- D. Vaishnavism Alwars Haridasas, Islam and Christianity

UNIT 7: TAMIL LANGUAGE AND LITERATURE

- A. Antiquity of Tamil Literature, Sangam Literature, Tholkappiam, Ethic Literatur Ancient epics Cilappatikaram, Manimekalai
- B. Bhakti Literature Saiva, Vaishnava, Jaina Literature
- C. Medieval Literature Kamba Ramayanam, Kalampagam, Pillait tamil, kuravanji, pallu
- D. Modern Literature Poetry, short Stories, Novels

UNIT 8: KANNADA LANGUAGE AND LITERATURE

- A: Antiquity of Kannada Language
 Different stages of Development of Kannada Language
- B. Antiquity of Kannada Literature-prepampa period Kavirajamarga-vaddaradhane
- C. Champu, Vachana, Regale
- D. Shatpadi, Kirthane, Tripadi, Sangathya, Modern Kannada Literature

UNIT 9: TELUGU LANGUAGE AND LITERATURE

- A. Antiquity of Telugu Language and Literature
- B. Pre-Nannaya period Sivakavi Period Tikkanna and Errana
- C. Srinatha, Sri Krishnadevaraya, Ashtadiggajas Yakshagana - Raghunatha Nayaka - Vemana
- D. Modern Literature: Novel Drama, poetry

UNIT 10: MALAYALAM LANGUAGE AND LITERATURE

- A. Antiquity of Malayalam Literature Folk Literature
- B. Influence of Tamil Pattusahitya, Manipravala, Kilippatlu, Attakkata and Thullal Sahitya in Malayalam Literature
- C. Modern Literature Novels Short stories Drama Poetry
- D. Kavitrayas Contemporary famous writers and their contributions

REFERENCES:

Neelakanta Shastri, K.A. 1935 A History of South India, Madras

Altekar, A. S. 1924 Educations in Ancient India, Banaras

Nagaswamy, R. 1979 South Indian Studies, Madras

South Indian Studies : Ed. by H.M.Nayak & B.R. Gopal

Indian Architecture (Vol – 1) : Percy Brown

Fundamentals of Indian Art : S. N. Dasagupta

South Indian Temples : C. Sivarama Murthy

Pallava Cave Architecture : K. R. Srinivasan

Nayak H M & 1990 South Indian Studies, Geeta Book House, Mysore

Gopal B. R (Ed.)

Hiralal Jain Cultural Heritage of India

NilakantaSastri K A 1935 Development of Religion in South India

Diwakara R R 1968 Karnataka Through the Ages, Bangalore

Shivanna K S 1986 Land, Peasants and People of Medieval Karnataka, B'lore

Jagadish Iyangar PV 1925 South Indian Custom, Madras

Agesthia Lingam S Dravidian Linguistics

and Kumarswami Raja N

Kushalappa Gowda Dravidian Case System

Busnagi Rajannan 1968 Fundamentals of Research

America Studies Research Centre, Hyderbad

Sharma K R 2002 Research Methodology

National Publishing House, New Delhi

Meenakshmi Sundaram 1965 History of Tamil Literature, Delhi

Prema Nandakumar 1977 Poems of Subramanya Bharati

Sitapathi G. V. 1968 History of Telugu Literature

Sahitya Academi, New Delhi

K. M. George A Survey of Malayalam Literature

		. J .
ಮುದ್ದಾ ಚಾರಿ, ಬಿ.	1974	ದಕ್ಷಿಣ ಭಾರತದ ಇತಿಹಾಸ, ಮೈಸೂರು
ಶೇಖ್ ಅಲಿ, ಬಿ. ಆರ್. ಮತ್ತು ರಂಗಸ್ವಾಮಯ್ಯ. ಆರ್.		ದಕ್ಷಿಣ ಭಾರತದ ಇತಿಹಾಸ, ಪ್ರಸಾರಾಂಗ, ಮೈಸೂರು
ಹರಿದಾಸ ಭಟ್ಟಾಚಾರ್ಯ (ಸಂ)		ಯುಗಯಾತ್ರೀ ಭಾರತೀಯ ಸಂಸ್ಕೃತಿ ಪ್ರಸಾರಾಂಗ, ಮೈ ವಿ ವಿ
ಕರ್ನಾಟಕ ಪರಂಪರೆ ಸಂ.1, 2		ಕನ್ನಡ ಮತ್ತು ಸಂಸ್ಕೃತಿ ಇಲಾಖೆ ಬೆಂಗಳೂರು
ತಿಪ್ಪೇರುದ್ರಸ್ವಾಮಿ ಎಚ್	1968	ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ ಸಮೀಕ್ಷೆ ಮೈಸೂರು
ಚಿದಾನಂದಮೂರ್ತಿ ಎಂ	1966	ಕನ್ನಡ ಶಾಸನಗಳ ಸಾಂಸ್ಕೃತಿಕ ಅಧ್ಯಯನ
ಕೃಷ್ಣಶರ್ಮ ಬೆಟಗೇರಿ	1955	ಕರ್ನಾಟಕ ಜನಜೀವನ ಧಾರವಾಡ
ಕೆಂಪೇಗೌಡ ಕೆ		ತೌಲನಿಕ ದ್ರಾವಿಡ ಭಾಷಾವಿಜ್ಞಾನ, ಪರಿಚಯ ಭಾಗ–1
ನಾಗರಾಜಯ್ಯ, ಹಂಪ		ದ್ರಾವಿಡ ಭಾಷಾವಿಜ್ಞಾನ
ಸಂಗಮೇಶ ಸವದತ್ತಿಮಠ		ದ್ರಾವಿಡ ಭಾಷಾ ವ್ಯಾಸಂಗ, ಕನ್ನಡ ಭಾಷಾ ವ್ಯಾಸಂಗ
ತಂಗ ಮಣಿಯನ್		ದ್ರಾವಿಡ ಭಾಷೆಗಳ ತೌಲನಿಕ ಅಧ್ಯಯನ
ಮಾಧವ ಪೆರಾಜೆ (ಅನು)		ತೌಲನಿಕ ದ್ರಾವಿಡಭಾಷಾವಿಜ್ಞಾನ
ಸಂಗಮೇಶ ಸವದತ್ತಿಮಠ	2006	ಕನ್ನಡ ಸಾಹಿತ್ಯ ಸಂಶೋಧನ : ಮಾರ್ಗ ಮತ್ತು ಇತಿಹಾಸ ಧಾರವಾಡ
ಗೋಪಾಲ್ ಬಾ ರಾ	1990	ಇತಿಹಾಸಶಾಸ್ತ್ರ ಮತ್ತು ಸಿದ್ಧಾಂತ ಪ್ರಾಸಾರಾಂಗ ಮೈ ವಿ ವಿ
ಸದಾನಂದಕನವಳ್ಳಿ ವೀರಣ್ಣರಾಜೂರ (ಸಂ)	1998	ಮಹಾಮಾರ್ಗ ಧಾರವಾಡ
ವೆಂಕಟರತ್ನಂ ಎ ವಿ & ಪದ್ಮ ಎಂ ಬಿ		ಇತಿಹಾಸ ಸಂಶೋಧನಾ ಮಾರ್ಗ ಮೈಸೂರು
ಶಿರೂರ ಬಿ ವಿ	2000	ಸಂಶೋಧನ ಸ್ವರೂಪ ಹುಬ್ಬಳ್ಳಿ
ಸುಂದರಂ ಆರ್ ವಿ ಎಸ್ ತಾರಾನಾಥ (ಸಂ)	2006	ಸಂಶೋಧನ ಪಥ ಮೈಸೂರು ವಿ ವಿ ಮೈಸೂರು
ಪ್ರಭುಶಂಕರ (ಅನು)		ಭಾರತೀಯ ತತ್ತ್ವಶಾಸ್ತ್ರದ ರೂಪುರೇಷೆಗಳು
ಶ್ರೀನಿವಾಸನ್ ಜಿ		ವೇದಾಂತ ಪರಿಚಯ
ಎಡ್ವಿನ್ ಡಿಸೋಜಾ		ಕ್ರೈಸ್ತ ತತ್ತ್ವದರ್ಶನ
ಶ್ರೀಕಂಠಯ್ಯ ಬಿ. ಎಂ.		ಇಸ್ಲಾಂ ಸಂಸ್ಕೃತಿ
ಮಣಿಯನ್ ಟಿ	1992	ತಮಿಳು ಭಾಷಾ ಚರಿತ್ರೆ, ಮೈಸೂರು

ಶ್ರೀನಿವಾಸ ಪಾ. ಶ. (ಅನು)	2007	ತಿರುಕ್ಕುರಳ್, ಪ್ರಿಯದರ್ಶಿನಿ ಪ್ರಕಾಶನ, ಬೆಂಗಳೂರು			
ಲಿ ಬಿಳಿಗಿರಿವಾಸನ್	2003	ಅಪ್ಪರ್, ಸಾಹಿತ್ಯ ಅಕಾಡೆಮಿ, ಬೆಂಗಳೂರು			
ವರದರಾಜನ್ ಮು	1980	ತಮಿಳು ಸಾಹಿತ್ಯ ಚರಿತ್ರೆ (ಅನು)ಸಾಹಿತ್ಯ ಅಕಾಡೆಮಿ,			
ನವದೆಹಲಿ					
ವೆಂಕಟರಾಮಪ್ಪ ಕೆ.		1982 ಕನ್ನಡ ಸಾಹಿತ್ಯ, ಮೈಸೂರು ವಿಶ್ವವಿದ್ಯಾನಿಲಯ,			
ಮೈಸೂರು		1702 00000000000000000000000000000000000			
ಶ್ರೀಕಂಠಯ್ಯ, ಬಿ. ಎಂ.	1941	ಕನ್ನಡ ನಾಡಿನ ಚರಿತ್ರೆ, ಮೈಸೂರು			
ನರಸಿಂಹಾಚಾರ್, ಆರ್. 1973					
1575	0.000	ಕನ್ನಡ ಸಾಹಿತ್ಯ ಪರಿಷತ್ತು, ಬೆಂಗಳೂರು			
ಮುಗಳಿ, ರಂ. ಶ್ರೀ.		ಕನ್ನಡ ಸಾಹಿತ್ಯ ಚರಿತ್ರೆ, ಉಷಾ ಸಾಹಿತ್ಯ ಮಾಲೆ, ಮೈಸೂರು			
ಮುಗಳಿ, ರಂ. ಶ್ರೀ.	1976	ಕನ್ನಡ ಸಾಹಿತ್ಯದ ಇತಿಹಾಸ			
ಶಾಮರಾಯ, ತ. ಸು.	1993	ಕನ್ನಡ ಸಾಹಿತ್ಯ ಚರಿತ್ರೆ, ಮೈಸೂರು			
ಕನ್ನಡ ವಿಶ್ವಕೋಶ		ಸಂಪುಟ 1 ರಿಂದ 14 ಮೈಸೂರು ವಿಶ್ವವಿದ್ಯಾನಿಲಯ,			
ಮೈಸೂರು					
ಕನ್ನಡ ಸಾಹಿತ್ಯ ಚರಿತ್ರೆಯ ಸಂಪುಟ	ಬಗಳು	ಕುವೆಂಪು ಕನ್ನಡ ಅಧ್ಯಯನ ಸಂಸ್ಥೆ, ಮೈ.ವಿ.ವಿ. ಮೈಸೂರು			
ವೀರಣ್ಣ, ಸಿ.		ಕನ್ನಡ ಸಾಹಿತ್ಯ ಚಾರಿತ್ರಿಕ ಬೆಳವಣಿಗೆ			
ಸುಂದರಂ ಆರ್ ವಿ ಎಸ್	1982	ತೆಲುಗು ಭಾಷೆ ಮತ್ತು ಸಾಹಿತ್ಯ ಮೈ ವಿ ವಿ ಮೈಸೂರು			
ಸುಂದರಂ ಆರ್ ವಿ ಎಸ್	2005	ದಕ್ಷಿಣ ಭಾರತೀಯ ಸಾಹಿತ್ಯ ಮೈಸೂರು			
ಮೋಹನ್ ಜಿ ಎಸ್	2007	ಕನ್ನಡ–ತೆಲುಗು ಭಾಷಾಸಾಹಿತ್ಯ ಬಾಂಧವ್ಯ ಬೆಂಗಳೂರು ವಿವಿ			
ಕಾರುಪಲ್ಲಿ ಜಾನಕಿರಾಮಯ್ಯ	2007	ವೀರಶೈವಾಂಧ್ರ ವಾಙ್ಮಯ ಗದಗ			
ಭೀಮಸೇನರಾವ್ ಡಿ ಕೆ	1942	ಹದಿಮೂರನೆಯ ಶತಮಾನದ ಕರ್ನಾಟಾಂಧ್ರ ಮಹಾರಾಷ್ಟ್ರ ಸಾಹಿತ್ಯಾವಲೋಕನ ಹೈದರಾಬಾದ್			
ವೆಂಕಟರಾಮಪ್ಪ ಕೆ	1974	ಶ್ರೀಕೃಷ್ಣದೇವರಾಯನ ಕಾಲದ ಕರ್ನಾಟಾಂಧ್ರ ಸಾಹಿತ್ಯ ಸಮೀಕ್ಷೆ ಕನ್ನಡ ಅಧ್ಯಯನ ಸಂಸ್ಥೆ ಮೈ ವಿ ವಿ			
ವೆಂಕಟರಾಮಪ್ಪ ಕೆ	1971	ಪಂಪ–ನನ್ನಯ್ಯ : ಒಂದು ಸಮೀಕ್ಷೆ ಕನ್ನಡ ಅಧ್ಯಯನ ಸಂಸ್ಥೆ ಮೈ ವಿ ವಿ ಮೈಸೂರು			
ಭಾರತೀಯ ಸಾಹಿತ್ಯ ನಿರ್ಮಾಣಕಾರರು ಮಾಲೆಯಲ್ಲಿ ಬಂದ ತೆಲುಗಿಗೆ ಸಂಬಂಧಿಸಿದ ಎಲ್ಲ ಕೃತಿಗಳು					
ಎನ್. ಅನಂತರಂಗಾಚಾರ್	1970	ಸಾಹಿತ್ಯ ಭಾರತಿ ಮೈಸೂರು			
ಪಿ. ಕೆ. ಪರಮೇಶ್ವರನ್ ನಾಯರ	D 6	ಮಲಯಾಳ ಸಾಹಿತ್ಯ ಚರಿತ್ರೆ			
ಯು. ಪಿ. ಉಪಾಧ್ಯಾಯ ಮತ್ತು ಸುಶೀಲಾ ಉಪಾಧ್ಯಾಯ	1973	ಮಲಯಾಳ ಭಾಷೆ ಮತ್ತು ಸಾಹಿತ್ಯ ಮೈಸೂರು ವಿಶ್ವವಿದ್ಯಾನಿಲಯ ಮೈಸೂರು			

UNIT 1

SPEECH - LANGUAGE PRODUCTION

Physiology of speech production

. Physiology of speech – (a) Respiration: methods of respiratory analysis (b) Laryngeal function: Laryngeal movements, vocal resonance (c) Neuromotor mechanism of the articulatory, phonatory & respiratory systems, electrophysiology of the larynx.

Aerodynamics of speech production

. Aerodynamics of speech production: Upper airway dynamics, lower airway dynamics, aerodynamics of vowels, aerodynamics of consonants: stops, fricatives, nasals.

Acoustics of speech and spectrography

- . Acoustics of speech: Acoustic phonetics: acoustics of vowels, Acoustics of consonants.
- . Spectrography [a] spectography in normal speech [b] place, manner, voicing and aspiration identification.
- Infant cry analyses.

Suprasegmentals

- . Intonation characteristics, development, tests of intonation.
- . Stress types (syllable-timed, stress timed, syllable, word), development, use of stress, physiology of stress, measurement of stress.
- . Rhythm development, isochrony, measurement of rhythm, rhythm in various languages, tests of rhythm, rhythm in stuttering.

Acoustic correlates in clinical population and research

- . Spectrographic patterns in clinical population: Disorder of voice, phonology & fluency,
- . Applications of spectrography in basic & applied research
- . Suprasegmental features in different types of speech & language disorders Multi-lingual & cultural variations

UNIT 2

NEUROBIOLOGY OF SPEECH - LANGUAGE, COGNITION AND BRAIN

Neurobiological correlates of speech, language and cognition

- . Neuroanatomical & neurophysiological correlates of speech & language including subcortical mechanisms in (a) Normals- children & adults (b) Persons with language disorders-children & adults
- . Language, cognition & Brain (a) Inter-relationships between language, cognition & brain: neurolinguistics & neural models (b) Cognitive models of language function (c) Neuroanatomical correlates of cognition and language

Influence of aging

- . Neurobiology of aging and its effect on speech & language.
- . Language & cognition its relationship with aging.

Cognitive processing

- . Cognitive psychology: Information processing & electrophysiological basis memory & attention processes & its implications for speech and language disorders.
- . Cognitive processes in the acquisition & disorders of language (a) Role of attention (b) Memory (short-term, verbal, non-verbal) (c) Reasoning, judgement & metacognition.

Assessment

- . Investigative procedures for assessment of speech & language mechanisms (a) Neurological status (b) Biological status.
- . Assessment of cognitive processes with reference to language function.

Intervention

Team intervention for cognitive & communicative rehabilitation – (a) Effects of surgical, pharmacological & electrophysiological treatment on language & cognition (b) Cognitive/ metacognitive therapy with reference to language functions.

UNIT 3

SPEECH-LANGUAGE PROCESSING

Neural correlates of speech

- . Processing of prosodic features, hemispheric lateralization, types of dysprosody in various disorders
- . Neural basis of Suprasegmentals & dysprosody

Speech Processing

Basic issues in speech perception: (a) Linearity, segmentation, lack of invariance (b) Units of perceptual analysis: phoneme, syllable, word or beyond (c) Variability or perceptual constancy in speech (d) Perceptual organization of speech

Theoretical approaches to speech perception

. Theoretical approaches to speech perception – (a) Invariant feature or cue-based approaches (b) Motor theory of speech perception (c) Direct-realistic approach to speech perception (d) TRACE

Spoken word recognition

- . Phonetic perception: perception of vowels, stop consonants, nasals, fricatives and other speech sounds.
- . Spoken word recognition Methodology and issues
- . Visual word recognition (a) Models & theories (b) Word & non- word naming (c) Acquired dyslexia (d) Role of phonology

Processing linguistic units

- Perception of phonetic contrasts: native and foreign language contrasts, variable speech signal,
- . Cognitive attributes in infant speech perception
- . Processing prosodic cues
- . Processing of phonological, morphological, syntactic, semantic & pragmatic aspects of language.

UNIT 4

MAXILLOFACIAL ANOMALIES AND PHONOLOGICAL DISORDERS

Phonology & Phonological processes

- . Phonology –phonological acquisition, phonological disability.
- . Phonological processes different types, its analysis and phonological process pattern in various communication disorders

Phonological development and Coarticulation

- . Theories of phonological development
- . Metaphon theory
- . Metalinguistic abilities in phonological disorders
- . Coarticulation Types (anticipatory, carry over), Models (feature based, syllabic and allophonic based, target based, phonologically based) Physiological studies on coarticulation, effects of coarticulation (position and juncture effect, feature effect, transition effect, direction effect).

Assessment and management of phonological disorders

- . Application of phonological theories in evaluation & management of phonological disorders.
- . Application of metaphon theory to the rehabilitation of phonological disorders.
- . Clinical application of distinctive feature analysis principles, practice and clinical application of phonemic analysis.
- . Coarticulation in speech disorders measurement of coarticulation and remediation.

Maxillofacial anomalies: Assessment and remediation

- Maxillofacial anomalies
- . Anomalies related to various articulators & compensatory articulation
- Acoustical, perceptual & physiological aspects of articulation in subjects with (a) cleft palate (b) glossectomy & mandibulectomy (c) hearing impaired subjects.

Assessment and rehabilitation of Maxillofacial anomalies

- . Velopharyngeal dysfunction types, assessment and remediation.
- . Rehabilitation in maxillofacial anomalies medical, surgical, prosthesis and speech therapy.

UNIT 5

CHILD LANGUAGE DISORDERS

Language acquisition and models

- . Current theories of language acquisition
- . Models of language acquisition and their applications in child language disorders.
- . Present status & prospects of child language disorders.

Language disorders in children

Developmental and acquired language disorders in children- Linguistic, pragmatic, prosodic, behavioral and literacy characteristics in children with: (a) Mental Retardation (b) Hearing Impairment (c) Autism and Pervasive Developmental disorders (d) Specific Language Impairment (e) Aphasia (f) Dyslexia (g) Attention Deficit Hyperactivity Disorders (h) Seizure and other related disorders

Pscycholinguistic and neurolinguistic correlates in child language disorders

. Psycholinguistic, neurolinguistic and cognitive processes in child language disorders.

Assessment and Management of child language disorders

- . Co-morbidity of child language disorders Differential diagnosis & assessment of: (a) Cognitive linguistic (b) Psycholinquistic & (c) Neurolinguistic parameters.
- . Management- medical, surgical, linguistic, behavioral, remedial, physio-occupational & special educational perspectives.

Multilingual and multicultural issues

- . Multilingual & cultural issues and its relevance in:
 - [a] assessment of child language disorders
 - [b] management of child language disorders

UNIT 6

FLUENCY AND ITS DISORDERS

Aspects of fluency disorders

- . Factors affecting development of and dimensions of fluent speech
- . Physiological, linguistic, prosodic basis of fluency & its disorders.
- . Auditory processing in fluency and its disorders.
- . Theories of fluency disorders Recent advances.

Articulatory and Laryngeal dynamics in fluency disorders

- . Articulatory dynamics in fluency disorders.
- . Laryngeal dynamics in fluency disorders.

Processing in fluency disorders

- . Neurological processing in fluency disorders
- . Speech motor control in fluency disorder.

Assessment and management - fluency disorders

- . Severity of stuttering Theoretical foundations for assessment & methods.
- . Prevention, relapse of stuttering & related issues.
- . Therapies of fluency disorders Recent advances.

Cluttering and efficacy of fluency therapies

- Cluttering Recent advances.
- . Efficacy of fluency therapies.

UNIT 7

APHASIA AND ADULT LANGUAGE DISORDERS

Aphasia and non-aphasic language disorders

- . Classification systems in Aphasia Cortical v/s subcortical types Traditional v/s linguistic approaches
- . Non-aphasic language disorders in adults-causes, types, characteristics & classification of: (a) Traumatic Brain Injury (b) Dementia (c) Acquired Dyslexias (d) Alcohol induced language disorders (e) Metabolic disorders of language

Cognitive-linguistic impairments

- . Linguistic impairments in Aphasias Phonological, semantic deficits, agrammatism & paragrammatism.
- . Non-linguistic impairments in aphasias
- . Cognitive-linguistic-communicative impairments in non-aphasic language disorders in adults
- . Semantic disabilities types of semantic disability, semantic analysis of disordered speech and language.
- Pragmatics –pragmatic disability and their types.

Assessment

- . Investigative & assessment procedures in clinical aphasiology (a) Language tests (b) Linguistic analysissubjective/objective tests (c) Functional profiles.
- . Differential diagnosis of non-aphasic language disorders in adults on the basis of neurodiagnostic, cognitive, linguistic, communicative speech motor and behavior deficits.
- . Assessment of non-aphasic language disorders in adults-procedures for neurological, cognitive linguistic, communicative, speech motor and behavioral measurements.

Management

- Management of aphasia Neurological, linguistic & communicative, physiotherapeutic, vocational & social aspects.
- Management of non-aphasic language disorders in adults-Interdisciplinary approach (a) Pharmacotherapy (b) Behavior therapy (c) Physiotherapy (d) Cognitive and communicative rehabilitation procedures.

Other issues

. Aphasia in multilinguals, illiterates, left-handers & sign language users, right hemisphere disorders, schizophasia, traumatic brain injury (TBI), primary progressive aphasias (PPA) & language disorders.

UNIT 8

VOICE AND ITS DISORDERS

Vocal fold physiology

- . Vocal fold physiology, neurophysiology of the Larynx, vibratory modes of vocal folds
- . Models of vocal fold vibration one-mass model, two-mass model, multiple mass model
- . Development of the vocal fold
- . Mechanical properties of the vocal fold
- . Measurement of vocal fold vibration
- . Electroglottography in understanding the movements of the muscles of vocal folds.

Pathophysiology of voice

- . Pathophysiological changes in different voice disorders.
- . Acoustical, aerodynamic & perceptual aspects of pathological voices.

Assessment of voice and its disorders

- Voice evaluation: Aerodynamic tests vital capacity, mean airflow rate, maximum duration of sustained blowing.
- . Tests for assessing functions of the resonatory system, acoustic analysis, psychoacoustic evaluation and tests for laryngeal measurements (Model frequency, frequency range, Jitter, Intensity, Intensity range, Shimmer, Glottogram, Harmonic analysis) and other measures (LTAS, Nasality Measurements).

Management of voice and its disorders

- . Ageing and voice disorders. Management.
- . Neurogenic voice disorders. Differential diagnosis and management.
- . Endocrinal voice disorders & voice disorders related to transsexuals.
- . Rehabilitation of laryngectomee Recent advances.
- . Acoustical, perceptual & physiological aspects of laryngectomee speech.
- Medical and surgical intervention in voice disorders.
- . Vocal rehabilitation

Professional voice users

- . Elite and non elite professional voice users causes, prevention, remediation, vocal hygiene, vocal exercises.
- . Respiratory & phonatory bases of singing
- . Posture, resonance and articulation issues related to professional voice and its care.

UNIT 9

MOTOR SPEECH DISORDERS

Sensory motor bases of motor speech disorders

- . Correlates of oral sensor- motor dynamics
 - (a) Neural substrates
 - (b) Findings in dysarthrics and apraxics.

Motor speech control

- . Models of speech processing in motor speech disorders
- . Their relevance in understanding Dysarthria and apraxia.

Types, Assessment and management of Dysarthria

- . Dysarthria in children & adults –types
- . Assessment of dysarthria: methods, differential diagnosis between age related changes and motor speech disorders.
- Management Prosthetic, medical & surgical management (a) Issues related to vegetative therapy/sensory motor training for oral musculature (b) Principles of physiotherapy & occupational therapy in speech therapy (c) Speech correction facilitatory approaches & compensatory approaches.

Types, Assessment and management of Apraxia

- . Apraxia: verbal and nonverbal in children & adults –types
- . Assessment of apraxia: methods, differential diagnosis
- . Management Various approaches, specific and non specific remedial approaches

Dysphagia

- . Normal swallow physiology and stages of swallow
- . Dysphagia in children & adults: Etiology, types
- . Assessment Objective and subjective methods
- . Remediation: Surgical options, Direct and indirect management options

UNIT 10

AUGMENTATIVE AND ALTERNATIVE COMMUNICATION

Components of AAC

- . AAC components Classification, Symbol sets and systems
- . Aided AAC Types, and their structure: Standardized & non-standardized.
- . Unaided AAC- Types and their structure

Technology and other issues in AAC

- . Technology in aided and unaided AAC: Low and high tech aids
- . Relevance of electronics & computers high tech aids
- . Technology in Indian context.

Language issues in AAC

- . Processing of signals, signs & symbol in AAC users.
- . Inner language, comprehension and use of language in:
 - [a] Unaided AAC users and
 - [b] Aided AAC users
- . Multilingual and multicultural context

Assessment in AAC

- . Models and Types of assessment
- . Selection of modes,
- . Vocabulary selection/language & oral/motor considerations
- . Applicability with different speech-language disorders

Management in AAC

- . Team effort in the implementation of AAC.
- . AAC: general intervention principles in different types of speech-language disorders.
- . AAC intervention for children & adults with communication disorders Type specific selection considerations.
- . Partnership issues and generalization.
- . AAC in Indian context.

UNIVERSITY OF MYSORE Syllabus for Ph.D. Entrance Exam SPEECH AND HEARING

1) ADVANCES IN SPEECH SCIENCE.

- a) Life span changes in speech mechanism including developmental milestones
- b) Physiology of Speech production: Respiratory System, Laryngeal System, Coordination of respiratory and laryngeal systems in phonation, Articulatory and Resonatory systems.
- c) Theories and models of speech production.
- d) Principles, instrumentation and measurement procedures.
- e) Speech Analysis and Synthesis Techniques, limitations and applications.
- f) Analysis of infant cry.
- g) Recent trends in speech science measurement and application.

2) PHONOLOGICAL AND MOTOR SPEECH DISORDERS.

- a) Clinical phonology, theories of phonology, disorders of phonology in different clinical populations, recent developments in evaluation of phonology, treatment Practices
- MSD in Children Neurophysiology and functional development of motor control, Primitive postural and oropharyngeal reflexes, associated and communication problems. Assessment and Intervention – Early communication development. Speech language therapy. Neuro developmental approaches.
- c) MSD in adults: Assessment Procedures, review of different types of dysarthria and apraxia, differential diagnosis, Prognostic issues and treatment procedures for the different types of dysarthrias.

3) VOICE AND LARYNGECTOMY.

- a) Neuroanatomy and Neurophysiology of larynx.
- b) Recent advances in measurement of voice and vocal fold function.
- c) Brief review of voice disorders in children and adults.
- d) Perceptual, acoustic, aerodynamic and physiological characteristics of pathological voices. Differential diagnosis of voice disorders.

- e) Recent advances in voice therapy and treatment outcomes.
- f) Professional voice users Assessment and management.
- g) Review of current literature and research designs in voice disorders.
- h) Types and characteristics of laryngectomy surgery.
- i) Management of laryngectomy-Esophageal speech, tracheo esophageal speech, artificial laryns, pharyngeal and buccal speech.

4) FLUENCY AND ITS DISORDERS.

- a) Neurophysiological and neuropsychological bases of normal fluency and stuttering.
- b) Different perspectives of stuttering.
- c) Theoretical issues in measurement of stuttering. Treatment outcomes in stuttering. Relapse, Prognosis and maintenance.
- d) Recent advances in management of stuttering.
- e) Neurogenic Stuttering
- f) Cluttering relationship between cluttering and stuttering. Treatment of cluttering.
- g) Review of current literature and research designs in fluency disorders.

5) CHILDHOOD LANGUAGE DISORDERS AND ADULT LANGUAGE DISORDERS.

- a) Language development in exceptional circumstances: extreme deprivation, bilingual language exposure, twins, visual handicap, Williams syndrome (disassociation between language and cognitive functions), Hearing loss, Dyspraxia, Learning disabilities, Dysphasia, Acquired childhood aphasia.
- b) Assessment and management of developmental language disorders. Specific assessment and intervention approaches.

- c) Counseling, principles of counseling types of counseling individual, group and family, parental, vocational, educational, and rehabilitative behavioral counseling in the context of speech, language disorders.
- d) Assessment and Diagnosis in Neuro language disorders. Advances in aphasia rehabilitation, Assessment of treatment efficacy in aphasia. Right hemisphere brain damage, Dementia, Traumatic Brain Injuries, Primary Progressive aphasia, Sub-cortical aphasias and Schizophasia. Alternative and Augmentative Communication for the language disordered.

6) AUDITORY PHYSIOLOGY

- a) Anatomy and physiology of ear: External ear, Middle ear, Inner ear
- b) Anatomy and physiology of Afferent Auditory Pathway: Auditory nerve, Central auditory pathways, Auditory cortex
- c) Theories of hearing
- d) Anatomy and physiology Efferent pathways
- e) Vestibular system anatomy & physiology

7) <u>PSYCHOPHYSICS OF AUDITION</u>

- a) Psychoacoustics review
- b) Theory of signal detection
- c) Loudness
- d) Pitch
- e) Differential sensitivity for frequency and intensity and time
- f) Perception of quality/timbre and complex tones
- g) Masking and critical band concept
- h) Adaptation
- i) Temporal perception
- j) Binaural hearing

8) SPEECH PERCEPTION AND ITS DISORDERS

- a) Introduction to speech perception, Acoustics of speech in relation to production.
 Coding of speech in the auditory pathway.
- b) Theories of speech perception
- c) Methods used to study speech perception
- d) A) Perception of vowels and consonants in infants and adults
 - B) Effects of co-articulation on speech perception
- e) Perception of speech through the visual and tactile modes and through cochlear implants
- f) Dichotic listening
- g) Memory and speech perception
- h) Speech intelligibility
- i) Perception of speech in the hard of hearing
- j) Information processing skills
- **k**) Word recognition, Sentence comprehension, Processing of phonological morphological, syntactic, semantic and pragmatic aspects of language

9) DIAGNOSTIC UDIOLOGY:

- a) Hearing screening: cost benefit analysis, sensitivity vs specificity, efforts of who and govt of india, genetic counseling, public awareness programs
- b) Oaes and immittance
- c) Classification, generators and general principle in recording of auditory evoked potentials
- d) Factors affecting recording and interpretation of early responses, middle latency response, long latency response, endogenous potentials
- e) ASSR: introduction, factors affecting recording and interpretation of steady state evoked responses
- f) Correlation of audiological finding to histopathological findings in conductive hearing loss, genetic hearing loss, cochlear pathology and retro-cochlear pathology

- g) Assessment of auditory disorders in the special population such as deaf-blind, MR, autism, cerebral palsy, patients with hyperacusis
- h) Non audiological tests, x rays, pet, mri, ct scan, other tests, lab tests for differential of auditory disorders.
- i) Assessment of auditory processing disorders.
- j) Evaluation of patients with vestibular problems.

10) <u>REHABILITATIVE AUDIOLOGY:</u>

- a) Fundamentals of digital signal processing and communication system
- b) Advances in technology of hearing aids
- c) Evaluation of hearing aids
- d) Selection of special features in hearing aids with reference to specific clients
- e) Tinnitus maskers and their utility
- f) Alds
- g) Cochlear implants, middle ear implants and brainstem implants, and Bone anchored hearing aids (BAHA)
- h) Educational Audiology
- i) Special needs for rehabilitation of Children and Geriatrics.
- j) Tinnitus management
- k) Hair cell regeneration, gene therapy for hearing loss
- Management of CAPD cases: Choice of management based on audiological test results, Environmental modifications, Devices, Auditory perceptual training, Communications strategies, Cognitive \ language management, Measuring outcomes
- m) Sign language methods and types, Rehabilitative assessment of persons with hearing impairment, Hearing inventories, scales etc.,

UNIT 1

SPEECH - LANGUAGE PRODUCTION

Physiology of speech production

. Physiology of speech – (a) Respiration: methods of respiratory analysis (b) Laryngeal function: Laryngeal movements, vocal resonance (c) Neuromotor mechanism of the articulatory, phonatory & respiratory systems, electrophysiology of the larynx.

Aerodynamics of speech production

. Aerodynamics of speech production: Upper airway dynamics, lower airway dynamics, aerodynamics of vowels, aerodynamics of consonants: stops, fricatives, nasals.

Acoustics of speech and spectrography

- . Acoustics of speech: Acoustic phonetics: acoustics of vowels, Acoustics of consonants.
- . Spectrography [a] spectography in normal speech [b] place, manner, voicing and aspiration identification.
- Infant cry analyses.

Suprasegmentals

- . Intonation characteristics, development, tests of intonation.
- . Stress types (syllable-timed, stress timed, syllable, word), development, use of stress, physiology of stress, measurement of stress.
- . Rhythm development, isochrony, measurement of rhythm, rhythm in various languages, tests of rhythm, rhythm in stuttering.

Acoustic correlates in clinical population and research

- . Spectrographic patterns in clinical population: Disorder of voice, phonology & fluency,
- . Applications of spectrography in basic & applied research
- . Suprasegmental features in different types of speech & language disorders Multi-lingual & cultural variations

UNIT 2

NEUROBIOLOGY OF SPEECH - LANGUAGE, COGNITION AND BRAIN

Neurobiological correlates of speech, language and cognition

- . Neuroanatomical & neurophysiological correlates of speech & language including subcortical mechanisms in (a) Normals- children & adults (b) Persons with language disorders-children & adults
- . Language, cognition & Brain (a) Inter-relationships between language, cognition & brain: neurolinguistics & neural models (b) Cognitive models of language function (c) Neuroanatomical correlates of cognition and language

Influence of aging

- . Neurobiology of aging and its effect on speech & language.
- . Language & cognition its relationship with aging.

Cognitive processing

- . Cognitive psychology: Information processing & electrophysiological basis memory & attention processes & its implications for speech and language disorders.
- . Cognitive processes in the acquisition & disorders of language (a) Role of attention (b) Memory (short-term, verbal, non-verbal) (c) Reasoning, judgement & metacognition.

Assessment

- . Investigative procedures for assessment of speech & language mechanisms (a) Neurological status (b) Biological status.
- . Assessment of cognitive processes with reference to language function.

Intervention

Team intervention for cognitive & communicative rehabilitation – (a) Effects of surgical, pharmacological & electrophysiological treatment on language & cognition (b) Cognitive/ metacognitive therapy with reference to language functions.

UNIT 3

SPEECH-LANGUAGE PROCESSING

Neural correlates of speech

- . Processing of prosodic features, hemispheric lateralization, types of dysprosody in various disorders
- . Neural basis of Suprasegmentals & dysprosody

Speech Processing

Basic issues in speech perception: (a) Linearity, segmentation, lack of invariance (b) Units of perceptual analysis: phoneme, syllable, word or beyond (c) Variability or perceptual constancy in speech (d) Perceptual organization of speech

Theoretical approaches to speech perception

. Theoretical approaches to speech perception – (a) Invariant feature or cue-based approaches (b) Motor theory of speech perception (c) Direct-realistic approach to speech perception (d) TRACE

Spoken word recognition

- . Phonetic perception: perception of vowels, stop consonants, nasals, fricatives and other speech sounds.
- . Spoken word recognition Methodology and issues
- . Visual word recognition (a) Models & theories (b) Word & non- word naming (c) Acquired dyslexia (d) Role of phonology

Processing linguistic units

- Perception of phonetic contrasts: native and foreign language contrasts, variable speech signal,
- . Cognitive attributes in infant speech perception
- . Processing prosodic cues
- . Processing of phonological, morphological, syntactic, semantic & pragmatic aspects of language.

UNIT 4

MAXILLOFACIAL ANOMALIES AND PHONOLOGICAL DISORDERS

Phonology & Phonological processes

- . Phonology –phonological acquisition, phonological disability.
- . Phonological processes different types, its analysis and phonological process pattern in various communication disorders

Phonological development and Coarticulation

- . Theories of phonological development
- . Metaphon theory
- . Metalinguistic abilities in phonological disorders
- . Coarticulation Types (anticipatory, carry over), Models (feature based, syllabic and allophonic based, target based, phonologically based) Physiological studies on coarticulation, effects of coarticulation (position and juncture effect, feature effect, transition effect, direction effect).

Assessment and management of phonological disorders

- . Application of phonological theories in evaluation & management of phonological disorders.
- . Application of metaphon theory to the rehabilitation of phonological disorders.
- . Clinical application of distinctive feature analysis principles, practice and clinical application of phonemic analysis.
- . Coarticulation in speech disorders measurement of coarticulation and remediation.

Maxillofacial anomalies: Assessment and remediation

- Maxillofacial anomalies
- . Anomalies related to various articulators & compensatory articulation
- Acoustical, perceptual & physiological aspects of articulation in subjects with (a) cleft palate (b) glossectomy & mandibulectomy (c) hearing impaired subjects.

Assessment and rehabilitation of Maxillofacial anomalies

- . Velopharyngeal dysfunction types, assessment and remediation.
- . Rehabilitation in maxillofacial anomalies medical, surgical, prosthesis and speech therapy.

UNIT 5

CHILD LANGUAGE DISORDERS

Language acquisition and models

- . Current theories of language acquisition
- . Models of language acquisition and their applications in child language disorders.
- . Present status & prospects of child language disorders.

Language disorders in children

Developmental and acquired language disorders in children- Linguistic, pragmatic, prosodic, behavioral and literacy characteristics in children with: (a) Mental Retardation (b) Hearing Impairment (c) Autism and Pervasive Developmental disorders (d) Specific Language Impairment (e) Aphasia (f) Dyslexia (g) Attention Deficit Hyperactivity Disorders (h) Seizure and other related disorders

Pscycholinguistic and neurolinguistic correlates in child language disorders

. Psycholinguistic, neurolinguistic and cognitive processes in child language disorders.

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- . Co-morbidity of child language disorders Differential diagnosis & assessment of: (a) Cognitive linguistic (b) Psycholinquistic & (c) Neurolinguistic parameters.
- . Management- medical, surgical, linguistic, behavioral, remedial, physio-occupational & special educational perspectives.

Multilingual and multicultural issues

- . Multilingual & cultural issues and its relevance in:
 - [a] assessment of child language disorders
 - [b] management of child language disorders

UNIT 6

FLUENCY AND ITS DISORDERS

Aspects of fluency disorders

- . Factors affecting development of and dimensions of fluent speech
- . Physiological, linguistic, prosodic basis of fluency & its disorders.
- . Auditory processing in fluency and its disorders.
- . Theories of fluency disorders Recent advances.

Articulatory and Laryngeal dynamics in fluency disorders

- . Articulatory dynamics in fluency disorders.
- . Laryngeal dynamics in fluency disorders.

Processing in fluency disorders

- . Neurological processing in fluency disorders
- . Speech motor control in fluency disorder.

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- . Severity of stuttering Theoretical foundations for assessment & methods.
- . Prevention, relapse of stuttering & related issues.
- . Therapies of fluency disorders Recent advances.

Cluttering and efficacy of fluency therapies

- Cluttering Recent advances.
- . Efficacy of fluency therapies.

UNIT 7

APHASIA AND ADULT LANGUAGE DISORDERS

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- . Non-aphasic language disorders in adults-causes, types, characteristics & classification of: (a) Traumatic Brain Injury (b) Dementia (c) Acquired Dyslexias (d) Alcohol induced language disorders (e) Metabolic disorders of language

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- . Non-linguistic impairments in aphasias
- . Cognitive-linguistic-communicative impairments in non-aphasic language disorders in adults
- . Semantic disabilities types of semantic disability, semantic analysis of disordered speech and language.
- Pragmatics –pragmatic disability and their types.

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- . Investigative & assessment procedures in clinical aphasiology (a) Language tests (b) Linguistic analysissubjective/objective tests (c) Functional profiles.
- . Differential diagnosis of non-aphasic language disorders in adults on the basis of neurodiagnostic, cognitive, linguistic, communicative speech motor and behavior deficits.
- . Assessment of non-aphasic language disorders in adults-procedures for neurological, cognitive linguistic, communicative, speech motor and behavioral measurements.

Management

- Management of aphasia Neurological, linguistic & communicative, physiotherapeutic, vocational & social aspects.
- Management of non-aphasic language disorders in adults-Interdisciplinary approach (a) Pharmacotherapy (b) Behavior therapy (c) Physiotherapy (d) Cognitive and communicative rehabilitation procedures.

Other issues

. Aphasia in multilinguals, illiterates, left-handers & sign language users, right hemisphere disorders, schizophasia, traumatic brain injury (TBI), primary progressive aphasias (PPA) & language disorders.

UNIT 8

VOICE AND ITS DISORDERS

Vocal fold physiology

- . Vocal fold physiology, neurophysiology of the Larynx, vibratory modes of vocal folds
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- . Mechanical properties of the vocal fold
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- . Pathophysiological changes in different voice disorders.
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- . Ageing and voice disorders. Management.
- . Neurogenic voice disorders. Differential diagnosis and management.
- . Endocrinal voice disorders & voice disorders related to transsexuals.
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- . Acoustical, perceptual & physiological aspects of laryngectomee speech.
- Medical and surgical intervention in voice disorders.
- . Vocal rehabilitation

Professional voice users

- . Elite and non elite professional voice users causes, prevention, remediation, vocal hygiene, vocal exercises.
- . Respiratory & phonatory bases of singing
- . Posture, resonance and articulation issues related to professional voice and its care.

UNIT 9

MOTOR SPEECH DISORDERS

Sensory motor bases of motor speech disorders

- . Correlates of oral sensor- motor dynamics
 - (a) Neural substrates
 - (b) Findings in dysarthrics and apraxics.

Motor speech control

- . Models of speech processing in motor speech disorders
- . Their relevance in understanding Dysarthria and apraxia.

Types, Assessment and management of Dysarthria

- . Dysarthria in children & adults –types
- . Assessment of dysarthria: methods, differential diagnosis between age related changes and motor speech disorders.
- Management Prosthetic, medical & surgical management (a) Issues related to vegetative therapy/sensory motor training for oral musculature (b) Principles of physiotherapy & occupational therapy in speech therapy (c) Speech correction facilitatory approaches & compensatory approaches.

Types, Assessment and management of Apraxia

- . Apraxia: verbal and nonverbal in children & adults –types
- . Assessment of apraxia: methods, differential diagnosis
- . Management Various approaches, specific and non specific remedial approaches

Dysphagia

- . Normal swallow physiology and stages of swallow
- . Dysphagia in children & adults: Etiology, types
- . Assessment Objective and subjective methods
- . Remediation: Surgical options, Direct and indirect management options

UNIT 10

AUGMENTATIVE AND ALTERNATIVE COMMUNICATION

Components of AAC

- . AAC components Classification, Symbol sets and systems
- . Aided AAC Types, and their structure: Standardized & non-standardized.
- . Unaided AAC- Types and their structure

Technology and other issues in AAC

- . Technology in aided and unaided AAC: Low and high tech aids
- . Relevance of electronics & computers high tech aids
- . Technology in Indian context.

Language issues in AAC

- . Processing of signals, signs & symbol in AAC users.
- . Inner language, comprehension and use of language in:
 - [a] Unaided AAC users and
 - [b] Aided AAC users
- . Multilingual and multicultural context

Assessment in AAC

- . Models and Types of assessment
- . Selection of modes,
- . Vocabulary selection/language & oral/motor considerations
- . Applicability with different speech-language disorders

Management in AAC

- . Team effort in the implementation of AAC.
- . AAC: general intervention principles in different types of speech-language disorders.
- . AAC intervention for children & adults with communication disorders Type specific selection considerations.
- . Partnership issues and generalization.
- . AAC in Indian context.

UNIVERSITY OF MYSORE Syllabus for Ph.D. Entrance Exam STATISTICS

Unit 1: Events, Sample space, Probability measure and properties, Independent events, Conditional probability and Bayes' theorem, Measurable functions, random variables, sums, product and functions of random variables, sequence of random variables. Induced Probability measure, Distribution functions, Jordan decomposition theorem. Bivariate distributions-joint marginal and conditional distributions. Expectations and conditional Expectations.

Unit 2: Standard discrete and continuous univariate distributions and their properties, Probability generating function and moment generating function. Bivariate normal and Multinomial distributions,

Transformation technique. Sampling distributions, Chi-square, t, F, non-central chi-square, non-central t, non-central F and their properties. Bivariate Negative Binomial, Beta and Gamma distributions. Markov, Chebyshev, Hoelder, Minkowski, Jensen, Liapunov inequalities. Relationship between tail of distributions and moments.

Unit 3: Monotone convergence theorem, Fatou's lemma and dominated convergence theorem. Various modes of convergences of a sequence of random variables and their implications. Weak law of large numbers- Ko1mogorov's generalized WLLN, Khintchine's WLLN, Chebyshev's WLLN. Borel-Cantelli lemma, Strong law of large numbers - Ko1mogorov's SLLN's. Characteristic function - properties, Inversion theorems, Uniqueness theorem, Continuity theorem, Central limit theorem- Lindeberg-Feller, Levy-Lindeberg and Liapunov forms. Order Statistics- their distributions and properties, Extreme value distributions and their properties.

Unit 4: Sufficiency, completeness, Uniformly minimum variance unbiased estimators, C-R inequality, exponential class of densities and its properties, some special classes of distributions admitting complete sufficient statistics. Test function, Neyman- Pearson lemma for test functions. Uniformly most powerful tests for one sided alternative for one parameter exponential class of densities and extension to the distributions having monotone likelihood ratio property. Confidence Intervals, shortest expected length confidence intervals, relations with testing of hypotheses, uniformly most accurate confidence intervals.

Unit 5: Consistency and asymptotic normality (CAN) of real and vector parameters. Invariance of consistency under continuous transformation. Method of moments, method of maximum likelihood, Special cases such as exponential class of densities and multinomial distribution, Cramer-Huzurbazar theorem, method of scoring. Tests based on MLEs. Likelihood ratio tests, asymptotic distribution of log likelihood ratio, Wald Test, Score Test, locally most powerful tests. Pearson's chi-square test and LR test. Asymptotic comparison of tests. Asymptotic Relative Efficiency (Pitman's). Nonparametric tests.

Unit 6: Basic finite population sampling techniques (SRS WR/ WoR, stratified, systematic), related

problems of population mean estimation, allocation problems in stratified sampling. Unequal probability sampling: PPS WR / WoR methods (including Lahiri's scheme) and related

estimators of a finite population mean (Hansen-Hurvitz and Desraj estimators for a general sample size and Murthy's estimator for a sample of size 2). Ratio and regression estimators based on SRS WoR method of sampling, two-stage sampling with equal number of second stage units, double sampling, cluster sampling.

Unit 7: Gauss-Markov setup, normal equations and least squares estimates and their properties, estimation with correlated observations, least squares estimates with restriction and parameters. simultaneous estimates of linear parametric functions. Test of hypothesis for one and more than one parametric functions. Multiple comparison test like Tukey and Scheffe, simultaneous confidence interval. Simple linear regression, multiple linear regression, polynomial regression and use of orthogonal polynomials. Non-linear regression. Model adequacy, Multicollinearity, ridge and principal component regression. Validation of regression model.

Unit 8: Introduction to designed experiments; General block design and its analysis, BIBD, Youden square design. Analysis of covariance. Missing plot technique - general theory and applications. Variance components estimation - study of various methods; General factorial experiments, factorial effects: best estimates and testing the significance of factorial effects; study of 2^M and 3^M factorial experiments in randomized blocks. Complete and partial confounding.

Unit 9: Multivariate normal distribution, maximum likelihood estimators of parameters, distribution of sample mean vector, Wishart distribution and its properties. Sample correlation coefficient, partial and multiple Correlation coefficients. Application in testing and interval estimation. Hotellings- T^2 and its application in test on mean vectors for single and several multivariate normal populations. Multivariate linear regression model. Classification and discrimination procedures, Principal components.

Unit 10: Random walk and gambler's ruin problem. Discrete state space, discrete time and continuous time Markov Chains, Transience, Recurrence, Periodicity, Kolmogorov-Feller differential equations; Poisson process, birth and death process; Renewal theory: Elementary renewal theorem and applications. Statement and uses of key renewal theorem; study of residual life time process. Stationary process: weakly stationary and strongly stationary. processes: Moving average and auto regressive processes. Galton-Watson branching process, Martingales in discrete time.

SYLLABUS FOR ENTRANCE TEST Ph.D IN SUGART TECHNOLOGY

Unit 1

Sugarcane: origin, distribution of cane, major sugarcane producing countries, sugarcane cultivation and sugar production in India, Sugarcane: taxanomy and anatomy - stem, leaves, root system & the flower, cultivation practices; Preparation of land, period of sowing, planting, irrigation, fertilizer application, growth and maturity of crop, weeds, pests and deceases.

Unit 2

Non Sugars in Cane: Proteins and Amino Acids in cane and their role in processing, Non nitrogenous organic acids in cane and that formed during processing, nonsugars of high molecular weight (cellulose, lignin, pectin, starch), sugarcane wax and fatty lipids and their significance in processing. Inorganic non sugars in cane and their role in processing.

Unit 3

Colouring Compounds: Originally present in cane (chlorophyll, xanthophyll, carotene, anthocyanin) and which develop colour (polyphenols and amino compounds), coloured sugar decomposition products, measurement of color, colour removal by active carbons and ion exchange resins

Unit 4

Properties of Sucrose: Structure and Synthesis, hydrolysis, oxidation and reduction, alkaline and thermal degradation, solubility, density, viscosity, rotation of polarized light, electrical properties. Reducing Sugars: Physical and chemical properties, alkaline and acid decomposition reactions.

Unit 5

Cane Juice Clarification: reactions of clarification – formation and removal of various calcium compounds by liming & sulphitation, physical chemistry of clarification – coarsely suspended matter, Colloids: Types and properties of colloids, isoelectric point, zeta potential, colloids in cane juice, elimination of colloids in clarification process. Floc formation, physical reactions of flocculation, conditioning and subsidation. Factors affecting the clarification of juice.

Unit 6

Crystallization: effect of concentration, temperature, & stirring on rate of crystallisation, mechanism of crystal growth - diffusion, viscosity, colloids, crystallographic considerations. Decomposition of Sucrose and reducing sugars, solubility & supersaturation, nucleation and massecuite boiling schemes, crystallisation by cooling.

Unit 7

Evaporation: Formation of steam, total heat of water; latent heat and sensible heat; wet, dry saturated & superheated steam, de-superheated exhaust steam for evaporation, single effect evaporator, Rellieux's Principles, multiple effect evaporators - operation and working of quintuple effect evaporator, rising and falling film evaporators, factors affecting efficiency of evaporators.

Unit 8

Optical methods of sugar analysis: Optical Activity, specific rotation of sugars, principle of polarimetry, international sugar scale, normal weight of sugar; methods of simple polarization, Brix, Pol & Purity, spectrophotometric methods, sugar colour by ICUMSA

Unit 9

General characteristics of micro-organisms, growth, sterilization and disinfection; Brief study on Lactic acid bacteria and *Leuconostoc mesenteroides* and their significance in Sugar Industry. Microbial contamination in sugar factory - control methods, effect of dextran on sugar processing & its removal.

Unit 10

Water Treatment: Dissolved impurities in water, demineralisation, water treatment and water conditioning for boiler feed, Quality of feed water for high pressure boilers. **Waste Water Treatment**: Treatment of sugar factory and distillery effluents, norms of various constituents.

Corrosion: types, theories, effect of pH, nature of metal and dissolved oxygen on corrosion, corrosion inhibition, corrosion in a sugar factory.

UNIVERSITY OF MYSORE Syllabus for Ph.D. Entrance Examination THEOLOGY

Units:

1. Introduction to the Old Testament

- 1.1. Pentateuch
- **1.2.** Historical books
- 1.3. Wisdom Literature
- **1.4.** Prophets

2. Theology of the Old Testament

- 2. 1. History of biblical Theology (Old Testament)
- 2.2. Approaches to Old Testament Theology
- 2.3. Themes in Old Testament Theology

3. Introduction to the New Testament

- 3.1. Gospels
- 3.2. Book of Acts
- 3.3. Epistles
- 3.4. Revelation

4. The New Testament Theology

- 4.1. History of Biblical Theology (New Testament)
- 4.2. Approaches to New Testament Theology
- 4.3. Themes in the New Testament Theology

5. Biblical Hermeneutics

- 5.1. Approaches to Biblical Interpretation
- 5.2. Literature Genre of Biblical Scripture
- 5.3. Hermeneutical principles

6. Christian Theology

- 6.1. Systematic Theology
- 6.2. Indian Christian Theology
- 6.3. Contextual Theology
- 6.4. Historical Theology

7. History of Christianity

- 7.1 History of Early Christianity
- 7.2. History of Medieval Period
- 7.3. History of Reformation period
- 7.4. History of Modern Period
- 7.5. History of Christianity in India

8. Missiology

- 8.1. History of Christian Missions
- 8.2. Anthropology for Missions
- 8.3. Theology of Missions

9. Religions

- 9.1. Major world Religions
- 9.1. Modern Religious Secular Movements
- 9.3. Cultural Anthropology

10. Pastoral Theology and Counseling

- 10.1 Introduction to Pastoral Theology
- 10.2. Introduction to Psychology and Counseling

UNIVERSITY OF MYSORE Syllabus for Ph.D. Entrance Exam URBAN AND REGIONAL PLANNING

1.0 HUMAN SETTLEMENTS

Early human settlements – their evolution, form and structure, Changing pattern and form of human settlements - Historic cities and city planning principles, Impact of industrial revolution on city planning. Planning philosophy and thoughts by Patrick Geddes, Le Corbusier and Ebnezer Howard. city beautiful and its movements.

2.0 PHYSICAL PLANNING

Basic Principles, aims and objectives of Physical planning, planning as an interdisciplinary study. Interrelationship between physical and socio-economic planning. UDPFI Guidelines and new approaches to development plans. Planning for conservation of historical monuments and natural areas

3.0 REGIONAL PLANNING

Regional planning- Concept, Types and Classification of regions. Multilevel planning – Needs and methods of multilevel planning in India. Composite index, Ridgeline technique, Gravity potential technique, Boundary girdle method. Regional Development Theories- W. Christaller; Von Thunen; Losch; A. Weber and W. Isard.

4.0 ECOLOGY AND ENVIRONMENTAL PLANNING

Fundamentals of Eco-system and environment, Components of natural and built environment-types of pollution- air; water; noise and land – Their source and impact and abatement. Environmental Impact Assessment. Sustainable Development- Stakeholders Participation and their role.

5. 0 HABITAT AND HOUSING

Habitat – characteristics of rural and urban habitat- National Habitat and Housing policy. Appropriate Technology for housing. Housing in Five Year Plans, principles of community organization and participation in the design and implementation of housing programs. Cooperative Housing. Dimensions of rural and urban housing- Housing problems – Housing Finance – Institutional and individual response to housing.

6. 0 TRAFFIC AND TRANSPORTATION PLANNING

Forms of Transportation- Transportation system in India –Urban Road classification- Road characteristics, Traffic surveys – Speed, Volume, Intersection Design – Rotary and Signaling system, Parking, Urban Transportation Planning Process- Setting goals and objectives- Land

use and Traffic planning- Travel data. Trip generation and Trip Distribution – Mass Transportation. Rapid Transit System,

7. 0 PROJECT FORMULATION AND EVALUATION

Project Formulation -Basic approaches and principles- Project cycle -Stages in plan formulation and execution of the projects- Pre- feasibility studies.

Types of Evaluation – Pre-project; Concurrent Evaluation and Post Project Evaluation-Economic, technical, market, managerial and financial aspects- Principles of measuring Cost Benefit Analysis.

8. 0 URBAN REDEVELOPMENT AND URBAN POVERTY

Urban Renewal and Redevelopment- technique of conducting surveys to assess urban decay and degree of obsolescence. Urban Slums and Squatter Settlements - causes and consequences Problems of Urban Decay - causes and consequences. Urban Poverty and Poverty Alleviation Programmes.

9.0 PLANNING LEGISLATION

Overview and Basis of Law- Legislative Competence of State and Central governments to enact Town Planning Legislation Municipalities and Pachayats Acts: Powers and Functions of Local Bodies. 73rd and 74th Constitution Amendment Acts. Preparation of Master Plan as per the provisions of Karnataka Town and Country Planning Act, 1961, Development Control: Building bye-laws and Zoning Regulations and Subdivision Regulations

10.0 METROPOLITAN PLANNING

Urbanization trends in India, National Commission on Urbanization and its Policy, Physical, economic and demographic characteristics of Metropolitan centers in India. Phenomenon of Primate cities- Need for Metropolitan Decentralization. Metropolitan Plan- preparation and implementation- Structure Plan approach. JNNURM

UNIVERSITY OF MYSORE Syllabus for Ph.D. Entrance Exam URDU

SYLLABUS FOR THE Ph.D ENTRANCE TEST: URDU

<u>UNIT: I</u> <u>URDU SHAIRY</u>

GHAZAL: Wali, Meer, Ghalib, Momin, Iqbal, Hali, Hasrath, Fani, Asghar, Gondwi Jigar,

Moradabadi, Firaq, Majrooh Aur Nasir Kaazmi.

UNIT:2

NAZM: Quli Qutub Shah, Nazeer Akberabadi, Hali, Iqbal, Josh, Sardar Jaffery, Faiz, Makhdoom,

Noon Meem Rashid, Akhtarul Eeman

MASNAWI: Wajhi: Qutub Mushtari

Nusrathi: Ali Nama

Meer Hasan: Sahrul Bayan

Diya Shankar Naseem: Gulzar-E-Naseem

QASIDA: Mirza Rafi Sauda Aur Shaikh Ibrahim Zauq

MARSIYA: Anees Aur Dabeer

<u>UNIT:3</u> <u>URDU NASAR</u>

DAASTAN: Sabras – Wajhi

Bagh-O-Bahar-Meer Aman

Fasaana-E-Ajaaeb-Rajab Ali Baig Suroor

UNIT:4 NOVEL

Nazeer Ahmed: Ibnul Waqth Haadi Ruswa: Umrao Jan Ada

Premchand: Gaudaan

UNIT:5 AFSAANA NIGAR

Premchand, Krishan Chandar, Mantu, Rajender Sing Baedi, Ismath Chughtaaee aur

Qurratul Ain Hyder

<u>UNIT:6</u> <u>SAWANEH AUR KHAAKA</u>

HALI: Yaadgar-E-Ghalib JOSH MALEHABADI: Yadon Ki Barath

KHAAKA: Farhathulla Baig-Nazeer Ahmed Ki Kahani Kuch Unki Kuch

Meri Zubani

Abdul Hag: Chand Hamasar

Raseed Ahmed Siddiqi : Ganj Haaye Giran Maya Shahed Ahmed Dehlawi – Chand Adbi Shakhshten

<u>UNIT:7</u> <u>TANQEED</u>

HALI – Muqaddama Sher-O-Shairy SHIBLI – Muwazina—E-Anees-O-Dabeer AALAHMED SUROOR – Pehchand aur Parakh EHTESHAM HUSSAIN – Aks Aur Aainay KHALEELUR RAHMAN AAZMI – Mazameen-E-Nav KALEEMUDDIN AHMED – Urdu Tangeed Per ek Nazar

<u>UNIT:8</u> <u>KHUTOOTH, INSHAAIYA AUR MAZAMEERN</u>

Makateeb-E-Ghalib Edited by Khaleeq Anjum Chiragh Taley – Mushtaq Ahmed Yousuffi Mazameen-E-Pitras – Bukhari Pitras Mazameen-E-Sir Syed – Sir Syed Ahmed Khan

UNIT:9 DRAMA

Anarkali – Imtiaz Ali Taj Khana Jangi – Mohammed Mujeeb Aagra Bazar – Habeeb Tanveer Zehaak – Mohammed Hasan

<u>UNIT:10</u> <u>LISAANIATH</u>

Urdu Zabaan ka Aaghaz-O-Irtiqa Aaghaz Ke Mutalluq Mukhtalif Nazriye

UNIVERSITY OF MYSORE Syllabus for Ph.D. Entrance Exam WEST ASIAN STUDIES.

 Geographical Features - West Asia as a Contiguous Geographical Unit - Physical Features of West Asia Mineral Wealth - Oil, copper, Manganese, Bauxite Sulfur - A Survey of human settlements - Major countries of West Asia.

2. Pre-Islamic History

Indus Valley and Mesopotamia Pre-Aryan and Aryan Cultural Contacts Sassanid Empire and the Eastern Roman Empire. Pre-Islamic religions – Judaism, Christianity and Zorastrianism in West Asia.

3. Islamic Period

Rise of Islam – Teachings of Prophet Mohammad creation of the Caliphate Ummayad Khalifs Arab Conquest of Egypt, Syria, Jordan, Palestine, Iran and the Byzantine Empire.

- 4. Abbasid Caliphate Taxation Judicial system -Military Organization Trade and Commerce Crusades
- 5. Ottoman Empire The Rise of Ottoman Empire Muhammad II and Sulaiman Political Expansion Military Civil Administration
- 6. Intellectual and Cultural Life Translation of Greek, Persian and Indian Classics into Arabic Growth and spread of medicine, Philosophy, Mathematics Astronomy and Geography, Art, Architecture, Painting, Calligraphy and Music.

7. Agrarian Economy

Economic Profile of West Asia – Development of Agriculture in Turkey, Iran, Israel, Egypt and Saudi Arabia.

8. Industrial Development – Oil Resources, Oil Industry – Pricing; export – OPEC - Foreign aid and Development.

9. West Asia and the World:

Young Turks Revolution – Kemal Pasha, Eastern Question – Western Powers and West Asia -World War situation – formation of Israel, Palestine and Refuges Problems – Non-Alignment Movement and West Asia – Arab – Israeli Conflict – Peace Initiatives.

10. India and West Asia – Political, Diplomatic and Economic relations since independence.

UNIVERSITY OF MYSORE Syllabus for Ph.D. Entrance Exam WOMEN'S STUDIES

UNIT – 1

Introduction to women's studies – Nature, Scope and Objectives of women's Studies – origin and growth of Women's Studies in India – Feminism – Meaning – definition – different schools of Feminism – liberal – radical Marxist – socialist – Cyber Feminism – Black Feminism – Eco Feminism – Indian Feminism.

UNIT - II

Key concepts of Women's Studies – gender (gender roles, attributes, taboos) – matriarchy, patriarchy, gender division of labour, production and reproduction invisibility of women's work (including domestic)

UNIT - III

Women – religion – society – family – caste – marriage – major issues relating to Indian society (female feticide, declining sex ratio, rape, violence)

UNIT - IV

Women in Politics – Formal and Informal politics- Role of women in Panchayat Raj System – Urban Governance – 73 and 74th Constitutional Amendments.

UNIT - V

Women and Legal issues – women's rights as human rights – special laws – Anti – Dowry Act – PITA – property rights.

UNIT - VI

Women in different media – Women's issues in media – Media projection – Portrayal of women in advertisements.

UNIT VII

Need for Gender concerns in development – Women in Development (WID) – women and Development (WAD) – Gender and Development – (GAD)

UNIT VIII

Gender Gap – Gender Development Index (GDI) – Gender Mainstreaming – Policies and Programmes for women's development.

UNIT – IX

Empowerment of Women – Political – Economic – Social – The National Policy for the Empowerment of Women – International agencies for Empowerment of Women.

UNIT - X

Women and Art – Feminist theory of Creativity – Feminist Art History – Feminist Writing and other art forms – Feminist Writing and other art forms – Feminist Criticism.

UNIVERSITY OF MYSORE Syllabus for Ph.D. Entrance Exam ZOOLOGY

Unit 1: Systematics and Animal Diversity:

Systematics: Principles of Animal taxonomy, Carl Linnaeus taxonomic hierarchy, binomial nomenclature, species concept and taxonomic procedures; Major and minor phyla-diagnostic features with example for each phylum and their classification.

Non-chordata: Organization of Metazoans; amoeboid, flagellate and ciliary locomotion; hydrostatic movement; patterns of feeding and digestion in lower metazoans, respiratory organs and pigments, osmoregulation, excretory organs; primitive and advanced nervous system, sense organs and their importance; larval forms and importance of invertebrate fossils.

Chordata: Origin of chordates, systematic position of protochordates and vertebrates, nature of vertebrate morphology, homology and analogy, parallelism and convergence; classification of vertebrates, vertebrate integument and its derivatives; evolution of circulatory, respiratory and urinary systems; Development and organization of brain, spinal cord, nervous system and sense organs; Adaptive radiation of vertebrates.

Unit 2: Environmental Biology and Wildlife:

Environment : Abiotic and biotic factors, bio-geochemical cycles, population ecology, demography; air, water and soil pollution; Fresh and marine water ecology; Food chain and food web; Conservation and management of natural resources; Environmental education, Environmental monitoring and EIA; microbial ecology, ecological role of microorganisms.

Wildlife : Values of wildlife, causes of wildlife depletion, human-wildlife conflicts, wildlife and human welfare, conservation strategies - in-situ and ex-situ conservation, wildlife act and legislation, conservation projects in India, Biosphere reserves, National Parks, sanctuaries; Biodiversity profile of India and Karnataka, Biodiversity hotspots.

Unit 3: Developmental Biology - Molecular events during fertilization, nucleo-cytoplasmic interactions in development, cleavage and gastrulation, morphogenetic determinants, laying down embryonic body plan - Drosophila and mammals; competence, determination; induction, early embryogenesis in Drosophila - gap genes, pair rule genes, segment polarity genes and

Homeotic genes, post embryonic development; Role of ecdysone and thyroxin in metamorphosis; sources of cells for regeneration; teratogenesis.

Unit 4 : Biological chemistry – Chemistry of DNA and RNA, Watson-Crick model of DNA, cyclic nucleotides; vitamins as co-enzymes, trace elements; chemical bonds, Vander-waal's force, normality and molarity of solutions; chemistry and biological properties of carbohydrates and lipids; nomenclature of enzymes, enzyme dynamics, enzyme inhibition, ribozymes and abzymes; colorimetry, spectrophotometry, TLC, HPLC, electrophoresis, ELISA.

Unit 5: Applied Zoology-Insect pests of major crops, plant-insect interaction, insect pest control strategies, IPM; Insect vectors of diseases, epidemiology of - malaria, filariasis, leishmaniasis, Japanese encephalitis, dengue, chikungunya; silkworm races and culture practices, lac culture, venomous insects; fisheries of India, culture practices of-fish, prawn and oyster.

Unit 6: Basic and advanced genetics- Mendelian principles in haploid organisms (*Chlamydomonas* and *Neurospora*), tetrad analysis, dominance relationships, allelic variation and gene function, types of mutations, molecular mechanisms of mutations, methods of detection of mutations, P-mediated mutagenesis; genome in prokaryotes and eukaryotes, c-value paradox, split genes, mobile genetic elements, mapping of genome, linkage, molecular markers; comparative genomics of *C. elegans, Drosophila*, mouse and *Homo sapiens*; bacterial transformation, transduction and conjugation; morphogenesis and recombination in bacteriophages.

Unit 7 : Cell and Molecular Biology–Ultrastructure of cell organelles and their function; biology of cancer; biology of immune system; gene regulation in prokaryotes and eukaryotes; genetic code; DNA replication, transcription and translation in prokaryotes and eukaryotes, molecular mechanisms of DNA repair, principles and applications of recombinant DNA technology.

Unit 8: Reproductive Biology and Endocrinology—Functional morphology of female reproductive system - ovary and accessory organs; Functional morphology of male reproductive system - testis and accessory organs; Fertility control methods - barrier, surgical and hormonal;

Structure and function of endocrine organs - adrenal, pituitary, thyroid, parathyroid, pancreas, pineal, hypothalamus, ovary and tests; Mechanism of action of endocrine organs.

Unit 9 : Animal Physiology - Aerobic and anaerobic break down of glucose, stepwise release of energy and production of ATP, exchange (at respiratory surface) and transport of respiratory gases; Composition of blood, cardiac cycle, ECG; Different modes of nitrogen excretion, molecular organization of sarcomere and mechanism of muscle contraction; transmission of nerve impulse, sensory transduction, tolerance and resistance; osmoregulation in aqueous and terrestrial environment; thermoregulation.

Unit 10 : Organic Evolution : Darwinism and Neo-Darwinism; Population genetics; Hardy-Weinberg genetic equilibrium and its destabilizing forces; speciation, reproductive isolation, models of speciation, micro and macro-evolution; Neutral theory of evolution, molecular evolution, molecular clock, construction and types of phylogenetic trees.