



Department of P.G. Studies and Research in Wildlife and Management

Ph.D Entrance Exam Syllabus

PART – A: COGNATE SUBJECTS

Unit -1: Plant Systematics: Introduction to angiosperm systematics and evolution: Morphology and Taxonomy of major groups, Plant identification and use of Taxonomic literature. Principles of plant nomenclature, Types and methods, Citation of authorities and name changes. Floral diversity and botanical regions of India. Classification of algae and plants (up to major families only).

Unit -2:Animal Systematics:Animal Taxonomy: Development of modern taxonomy; Pre-Darwinian approaches, The discovery of Phylogeny. New systematic and future scope. Characteristics and classification of, Mammals, Reptiles, Amphibians and Fishes up to orders with suitable examples. [Classification of Protozoans, Non-chordates (major classes with Insects upto orders) and Chordates (major orders)]

Unit-3 : Natural resource conservation: Concept of conservation with special reference to forest and wildlife management, conservation verses preservation. forest and wildlife as natural resources. Conservation movement in India, socio-economic and political realities, different phases of the conservation and how it has impacted people at large. Concept of stakeholders. International conservation bodies; IUCN UNDP, FAO, WWF.

Unit 4: Ecology: definition, branches of ecology. Ecosystem; Basic concepts and structure of ecosystem, Functioning of ecosystem, energy flow and nutrient cycles, food chains, food webs, trophic levels, autotrophs, heterotrophs, saprotrophs, biological cycles, structure and function of some Indian ecosystems. **Community ecology:** Nature of communities; community structure and attributes; edges and ecotones. Species interactions, **Habitat and niche:** Concept of habitat and niche; Types of Niche, Ecological succession: Types; mechanisms; changes involved in succession; concept of climax. **Population ecology ;** Characteristics of population ecology, k & r selected species,

Unit 5: Ethology; Definition & Types of Behaviors (including Innate & Learned), Cues / triggers to behavior , Genetic basis of behavior, Behavior & Ecological success (adaptation, Niche realization) Sociobiology, Animal Societies, Establishment of Hierarchies, Animal Communications , Social behaviors and Parental care. Methods of observing and recording animal behaviors; Sampling Behaviours, Methods of observing Behaviour , Time-activity budgets, Ethograms, Social interaction, matrices and their analysis

Unit 6: Wildlife diseases: Infectious diseases; Rabies, Rinderpest, Foot and Mouth, viral encephalitides, yellow fever, new castle, Psittacosis/Ornithosis, African swine flue, Kyasanur diseases. Bacterial diseases: Anthra, Brucellosis, Clostridiosis, Listeriosis. Non-infectious diseases wildlife diseases: Diseases of the digestive, respiratory, excretory and nervous system. Factors of disease dissemination in wildlife and animal health monitoring.

Unit 7: Wildlife conservation: Economic, ecological, aesthetic, Scientific, Recreational, Medicinal. Wild life categories: Endangered, Threatened, Vulnerable, rare; data deficient categories, Red data book. Causes of wildlife depletion: Degradation and destruction of natural habitats, Exploitation for commercial purposes, Deforestation, Agricultural expansion and grazing, Urbanization and industrialization, Forest fires. National parks, Wildlife

sanctuaries, wildlife reserves, privately owned wildlife reserves & Biosphere reserves, Single species / single habitat based conservation programmes (e.g. Project tiger, Project Elephant, Valley of flowers, etc.). Role of NGOs in conservation; International NGOs; UNEP, GEF, WCS, Bird Life International Important NGOs in India & their contributions , WWF, ATREE, BNHS, WTI, Kalpavriksha etc. Important NGO movements ,Chipko movement, Narmada BachavoAandholan, PaniPanchayats, Seed Movement etc. Wildlife Trade and Laws ; Wildlife protection Act of India, CITES, TRAFFIC, RED Data Book, Measures to control poaching & wildlife trade. Regulations & Acts related to protected areas; General concepts of Private forests, Reserve forests, Sanctuaries, National Parks, Wildlife reserves, Coastal Regulation Zone, Protected Areas Network.

Part – B:Research Methodology

Unit 8: Research Methodology: Definition, Importance and meaning of research, Types of research, Characteristics of research, Steps in research, Identification, Selection and formulation of research problem, Research questions, research designs, formulation of hypothesis. Sampling – Sampling theory, Techniques, types of sampling, sampling size, sampling steps, errors- sampling and non –sampling, merits and limitations of sampling. Processing and storage of samples, handling of chemicals, specimens etc.,

Unit- 9 : Biostatistics: Introduction: statistical terms, Sampling methods, classification of data, presentation of data, Frequency distribution: Class interval, relative frequency, percentage frequency, cumulative frequency, types of frequency distribution-normal, skewed, binomial and poisson distribution. Central tendency: Arithmetic mean, geometric mean, median, mode, Measures of Dispersion: Definition, range, mean deviation, standard deviation, coefficient of variability, standard error, degrees of freedom, confidence limit. Graphic representation of biometric data: histogram, frequency polygon, frequency curve, Ogive scatter or dot diagram, bardigram, pie chart. or sector diagram. Tests of Significance: t- test, z-test, chi square test. Correlation: types of correlation, Correlation and reserves, methods of studying correlation, coefficient of determination, significance test for 'r', coefficient of non-determination, coefficient of alienation,partial correlation, multiple correlation. Analysis of Variance. Regression analysis: regression line, regression equation, procedure of regression test, partial, curvi linear and multiple regression.