

GULBARGA UNIVERSITY, KALABURAGI**DEPARTMENT OF STUDIES AND RESEARCH ZOOLOGY****M.Phil/Ph.D. Entrance Syllabus****2016-17 onwards**

- Unit-I: Principles of taxonomy, species concept, taxonomic procedures, taxonomic characters, ICNZ, Phenetics, cladistics: General characters and classification of invertebrates-Protozoa to Echinodermata, Protochordata and Chordata; Flagella and ciliary movement in Protozoa, filter feeding in Polychaeta, Mollusca, Echinodermata, Symbiotic nutrition; Advanced and primitive nervous system; larval forms of free living and parasites.
- Unit-II: Genome; Biochemistry of cell, protein, carbohydrates, lipids and nucleic acid, gene transcription, genetic code, genetic engineering, mutation, molecular organization and function of endoplasmic reticulum, Golgi complex, lysosomes, mitochondria, chloroplast, carcinogenesis, apoptosis.
- Unit-III: Data processing and plotting, Excel, power point presentation, word processing coral draw, Net working, cloud computing, chromatography, electrophoresis, cytophotometry, cell sorting, spectroscopy, radio isotopes, ANOVAs, mean, standard deviation/error, t-test.
- Unit-IV: Origin of chordate, protochordata, life cycles of Salpa, Amphioxus, Doliolum; retrogressive metamorphosis; lateral line system, migration in fishes; breeding behaviour & parental care of living amphibian, neoteny, migration in birds and adaptive radiation in marsupials.
- Unit-V: Embryonic origin of gene theory, cloning in mammals, stem cell research, early embryonic development, fertilization, structure of gametes, cellular and biochemical process during early fertilization, cleavage, blastulation in Drosophila, Amphioxus, frog, mouse; regeneration in hydra, planarian and salamander limb, teratology, ageing.
- Unit-VI: DNA replication, polymerases, ligases, circular DNA and its replication; transcription in eukaryotes, classes of RNA molecular-messenger, soluble, ribosomal and transfer; overlapping genes, Ribosomes, types of mutation, bacteriophages, DNA recombination and repair and genetic transposition.
- Unit-VII: Importance of wildlife, biogeographic region of India, endangered fauna of India, project tiger, Gir lion; zoos, wildlife sanctuaries, National parks; biosphere reserves and their role in conservation of wildlife; Values of biodiversity, genetic diversity, species

diversity, ecosystem diversity, hotspots of biodiversity; threat to biodiversity, endangered, vulnerable, rare and threatened species and conservation of biodiversity.

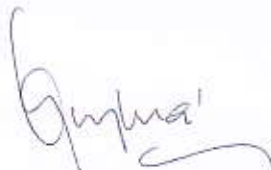
Biogeochemical cycles, renewable and non-renewable resources, food chain, food web, energy pyramids; air, water, soil and thermal pollution, biotransformation, bioaccumulation and biomagnification, ozone layer, acid rain and global warming.

Unit-VIII: Physiological control of androgens, epididymus, vas deferens, prostate gland, biology of spermatozoa, spermatogenesis, mechanism of ovulation, luteogenesis, luteinization, estrous cycle in mammals, menstrual cycle, implantation, placenta, surrogate pregnancy; biosynthesis and biological action of the pituitary gland, pineal gland, thyroid gland, adrenal gland, cyclic AMP and nerve growth factor.

Unit-IX: Osmoregulation in different animal group, circulation in body fluids and their regulation, respiratory organs-mechanism of respiration, homeostasis, hibernation, patterns in nitrogen excretion, neurotransmitters, transmission of nerve impulse in nerves and across synapses, enzyme kinetics and regulation of enzyme activity.

Unit-X: Sericulture, apiculture, aquaculture, vermiculture, dairy breeding and management, dairy pathology, poultry pathology and lac culture.

Unit-XI: Accommodative and associative learning, kinesis, taxis, reflexes, motivation and conflict behaviour, sign stimuli, aggression, dispersal, mate selection, social organization in insects and primates, circadian and circannual rhythms, pheromones in vertebrates and hormone in insect metamorphosis.


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