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Zoology Syllabus for Uttarakhand State Civil Services Main Exam-2011

ZOOLOGY

PAPER-I

Non Chordata, Chordata, Ecology, Ethology, Biostatistics and Economic Zoology.

SECTION-A

Non Chordata and Chordata

1. General survey, classification and interrelationship of various phyla.
2. Protoza: Locomotion, Nutrition, Reproduction and human Parasite.
3. Porifera: Canal system and Phylogeny.
4. Cnidaria: Polymorphism; Coral reefs; Structure and affinities of Ctenophora.
5. Helminthes: Parasitic adaptations and host-parasite relationships.
6. Annelida: Adaptive radiation in Polychaeta.
7. Arthopoda: Larval forms and parasitism in crustacea; mouth parts of Insects; Vision and respiration in arthropods; Social life and metamorphosis in insects.
8. Mollusca: Torsion; Pearl formation.
9. Echiondermata: General organization, larval forms and affinities.
10. Chordata: Origin; Lung fishes; Origin of tetrapods.
11. Amphibia: Neoteny and parental care.
12. Reptilia: Skull types (Anapsid; Diapsid; Parapsid and Synapsid); Dinosaurs.
13. Aves: Origin, aerial adaptations and migration; Flightless birds.
14. Mammalia: Prototheria and Metatheria; Skin derivatives of Eutheria.

1. Cell Biology: Cell membrane, Active transport and Sodium-potassium ATPase Pu[illegible]n; Mitochondria, Golgibodies; endoplasmic reticulum; ribosome and lysosomes; Giant chromosomes, B-chromosomes & Prokaryotic and viral chromosomes, Chromosome mapping.
Gene concept and function: Watson-Crick model of DNA, Genetic code, Protein synthesis, Sex chromosomes and sex determination.
2. Genetics: Mendelian expression in prokaryptes and eukaryotes; Human Chromosomal abnormalities, gene and diseases; Eugenics; Genetic engineering: recombinat DNA technology and gene cloning.

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3. Evolution and Systematics: Theories of evolution; sources and nature of organic variation; natural selection; Hardy-Weinberg law; cryptic and sematic colouration; mimicry; isolating mechanisms and their role; insular fauna; concept of species and sub-species; principles of taxonomy; Zoological nomenclature and International code; Fossils; Geological eras; Phylogeny of horse and elephant; Origin and evolution of man; principles and theories of continental distribution of animals; Zoogeographical realms of the world.

Section (B)
Biochemistry, Physiology and Developmental biology

1. Biochemistry : Structure of carbohydrates, lipids (including saturated and unsaturated fatty acids), amino acids, proteins and nucleic acid; Glycolysis, Kerb's cycle, Oxidation and reduction, oxidative phosphorylation, Energy conservation and release, ATP, C-AMP; Types of Enzymes, mechanism of enzymes action; Immunoglobulins and immunity; vitamins, Inorganic metabolism.

2. Physiology (with special reference to mammals) : Composition of blood, blood groups in man, agglutionation; oxygen and carbon dioxide transport, hemoglobin, breathing and its regulation; Formation of urea and urine, acid-base balance and homoeostasis;
thermo-regulation in man; Nerve impulse conduction and transmission across synapse, neurotransmitters; Vision, hearing and olfaction; Types of muscles; Digestion and absorption of protein, carbohydrate, fat and nucleic acid, control of secretion of digestive juices; Balanced diet of man. Steroid, protein, peptide and amino-acid derived hormones, role of hypothalamus, pituitary, thyroid, parathyroid, pancrease, adrenal, gonads and pineal organ and their relationships; physiology of human reproduction, hormonal control of development in man; Pheromones in mammals.

3. Developmental Biology: Gametogensis, fertilization, types of eggs, cleavage and gastrulation in Branchiostoma, frog and chick; Fate maps of frog and chick; metamorphosis in frog; formation and fate of extra embryonic membrane in chick; amnion, allantois and types of placenta in mammals, organizer phenomenon, regeneration, Teratogenesis, organogenesis of brain. eye and heart; Aging.