YVUCET-2019: SYLLABUS
Test 115: Zoology
SECTION –A (Marks -30)

Biology of Invertebrates and Cell Biology

1.General Characters and classification of Major Invertebrate phyla with examples upto orders

2. Protozoa i) Polystomella -type study, ii) Trypanosoma life cycle only.

3. Porifera: Canal system, Histology & Spicules

4.Coelenterata: i) Obelia type study, ii) Polymorphism in Siphonophora, iii) Corals and Coral reef formation

5. Helminths - Fasciola - Detailed type Study

6. Annelida - i) Metamorphism, Comparative study of the following systems of Leech and Nereis, External Characters, Digestive System, Reproductive System, Coelom and Coelomoducts.

7.Arthropoda: Comparative study of: External features-Appendages-Respiration-Circulation - Excretion of Palaemon and Scorpion, Peripatus structure and affinities.

8.Mollusca-i) External Characters of Pila and Fresh Water Mussel (Shell, Mantle Complex and Foot-Comparative study), ii) Pearl formation, iii) Torsion in gastropoda

9.Echinodermata: Starfish: detailed study

10.Hemichordata: Balanoglossus-External Features, Tornaria larva-Affinities of Hemichordata

11. Important Invertebrate larval forms: Amphiblastula, Ephyra larva, Trochophore, Nauplius, Zoea, Mysis, Veliger, Glochidium, Echinopluteus, Ophiopluteus, Auricularia and Doliolaria

Cell Biology:

1.Ultra structure of Animal Cell

2.Structure and function of the following cell organelles (i) Plasma Membrane: Membrane, Transport of small molecules, Cell Junctions and Cell adhesion. (ii) Cytoskeleton. (iii) Golgi Complex, (iv) Lysosomes, (v) Role of mitochondria in cellular energy transactions. (vi) Chromosomes-Structure and type, Salivary gland chromosomes.

3.Microscopic techniques for the study of cells-fixation, sectioning, staining and preparation of microslide.

Biomolecules of the cell :

Nucleic acids:

Watson and crick model of DNA – Nucleoside, Nucleotide, Structure of RNA, Types of RNA – r RNA, tRNA and mRNA

SECTION : B
(Marks -30)

Biology of Chordates Genetics, Evolution and Zoogeography

A. BIOLOGY OF CHORDATES

1.General characters and outline classification upto the level of order. **(i)PROTOCHORDATA:** a)Structure and Affinities of Amphioxus. b)Life history of an Ascidian.

(ii)CYCLOSTOMATA: General characters of cyclostomes and differences between Myxin and Petromyzon.

(iii) Comparative study of the following systems with reference to Scoliodon (pisces), Rana (Amphibia) Calotes (Reptilia), Columba (Aves) and Lagomorpha (Mammalia).

1.Skeletal system: skull of Reptiles, Aves and Mammals.
2.Respiratory system: Aquatic and Terrestrial animals.
3.Circulatory system: Heart and aortic arches comparative study.
4.Nervous system - Brain comparative study.
General Topics: 1. Parental care in Amphibia, **2.** Dentition in Mammals
Developmental Biology: 1. Gastrulation in Amphioxus, Frog and Chick. **2.**Foetal membranes of chick, **3.** Development of chick upto 24 hrs, **4.** Placenta in Mammals (Formation and types)

B.GENETICS:

1. Gene interaction with 3 examples, 2.Sex determination. 3.Sex linked inheritance. 4.Blood group inheritance. 5.Fine structure of gene. Concept of function of operon gene. Cloning lethal genes. 6.Chromosomes and human diseases.

C.EVOLUTION AND ZOOGEOGRAPHY:

1. Modern synthetic theory of Evolution, Mutations, Genetic basis of Evolution, Genetic Drift (Hardy Weinberg's Law), Isolation and speciation.
2. Characteristics of the following Zoogeographic regions and their fauna.
1.ORIENTAL REGION, 2. ETHIOPIAN REGION, 3.AUSTRALIAN REGION

SECTION: C
(Marks -40)

Animal Physiology, Behavior and Ecology

A.ANIMAL PHYSIOLOGY : Animal Physiology pertaining to
1. Nutrition: Types of nutrition in animals, Autotrophic, Heterotrophic, Vitamins and Minerals.
2. Digestion in Mammals.
3. Respiration: Brief account on types of respiratory mechanisms, respiratory pigments, gas transport with reference to mammals.
4. Circulation: Composition and functions of blood, Coagulation of blood: Myogenic and Neurogenic hearts, mammalian heart - structure and function, Blood pressure and its role and exchange of materials in capillaries.
5. Osmo-regulation: Pertaining to aquatic animals only.
6. Excretion: 1) Classification of animals based on end products of excretion. 2) Formation of nitrogen wastes, 3) Nephron : Structure and Function.
7. Nervous transmission: Structure of neuron, action potential, production and propagation of nerve impulse and synaptic transmission.
8. Muscle contraction
9. Endocrine glands: Pineal body, Hypothesis, Hypothalamus, Thyroid, Parathyroid, Thymus, Adrenal, Gut, Pancreas, Testis and Ovary-in mammals.
10. Hormonal control of reproduction in mammals.
11. Concept of Homeostasis.

C.ANIMAL ECOLOGY

1. Physico-chemical factors of the animal Environment: Temperature, light, pressure, atmospheric gases i.e., oxygen and carbon dioxide, biogeochemical cycles: nitrogen, carbon and phosphorus cycles.
2. Animal community and Animal population: Ecosystems (Ecological succession, Ecological pyramids, energy flow in an ecosystem), Animal associations (Parasitism, Commensalism, Symbiosis, Environment and adaptive features of animals inhabiting, deep sea, cave, and desert.
3. Environmental pollution.
4. Wild life, wild life sanctuaries and national parks of India.