

## **B. Sc. Part II- Zoology Theory**

### **PAPER-I**

#### **PROTOCHORDATES, ANIMAL DISTRIBUTION AND ECOLOGY**

##### **PROTOCHORDATA (Urochordata, and Cephalochordata)**

- General characters, anatomy and histology
- Post embryonic development of Amphioxus and Ascidian

##### **ANIMAL DISTRIBUTION**

- Geological and geographical distribution of animals
- Zoo-geographical regions of the world with their faunal characteristics with special reference to mammals

##### **ECOLOGY**

- Structure and function of ecosystem
  - Ecological, environmental factors and limiting factors
  - Trophic levels, Energy flow and concept of pyramids
  - Biogeochemical cycles
  - Adaptation of animals in deserts and freshwaters

**PAPER-II**  
**VERTEBRATA**

**Agnatha**

- General characters and classification

**Gnathostomata**

General characters, classification and comparative anatomy of the

- Integumentary,
- Circulatory,
- Digestive,
- Respiratory
- Nervous systems with special reference to **Scoliodon, Rana, Varanus, Columba and Lepus.**
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**Special topics**

- Parental care, origin and evolution of Amphibia
  
- Sphenodon as living fossil
  
- Biting mechanism of poisonous snakes; snake venom and antivenom
  
- Flight adaptation of birds

**PAPER-III**  
**GENETICS AND CELL BIOLOGY**

**GENETICS**

- Mendel's law of inheritance
- Linkage, crossing over and chromosome mapping
- Sex linkage and sex determination in *Drosophila* and man
- Dosage compensation and Lyon's hypothesis
- Blood group and haemoglobin genetics in man
- Inborn errors of metabolism in man
- DNA and RNA structure
- Evidence that nucleic acids are the genetic material-transformation in pneumococcus
- Hershey-Chase experiment
- RNA as genetic material in small viruses
- Replication of DNA-Messelson and Stahl's experiment
- Genetic code
- Molecular basis of mutation

**CELL BIOLOGY**

- Principles of fixation and staining.
- Fundamentals of TEM and SEM
- Cell cycle, mitosis and meiosis
- Nucleus, Nuclear membrane and nucleolus
- Structure and chemical composition of eukaryotic chromosomes
- Nucleosome structure
- Structure and functions of plasma membrane
- Golgi apparatus, mitochondria, lysosomes, endoplasmic reticulum and ribosomes.