

**M.Sc., III Semester:**  
**OPEN ELECTIVE-(For Science discipline students).**  
**CONCEPTS OF ZOOLOGY.**

**48 Hrs**

**1. Introduction:**

**8 Hrs**

a) Branches of animal science: Taxonomy, Animal Physiology, Genetics, Developmental Biology, Evolution, Ethology, Ecology, Applied Zoology, Entomology, Histology, c) Indian Wildlife- Status, Causes of wildlife depletion, Wildlife corridors, Conservation strategies- *In situ* and *Ex situ* d) e) Animals and human welfare.

**2. Animal Taxonomy:**

**4 Hrs**

a) Carl Linnaeus – Taxonomic hierarchy: Kingdom, Division, Phylum, Class, Order, Family and Binomial nomenclature

**3. Animal cells and Tissues :**

**8 Hrs**

a) Brief description of animal cell (light and ultra structure) b) Functions of cell organelles c) Structure and functional diversity in animal cell d) Cell division: Types and significance e) Structure and functions of basic tissues.

**5. Structure and functions of organ systems:**

**16 Hrs**

a) Human alimentary canal and outlines of digestion and absorption  
b) Respiration: Human respiration – exchange of gases.  
c) Circulation : Structure of human heart, Blood vessels and capillaries, composition of blood, blood coagulation.  
d) Excretion : Mammalian kidney and urine formation.  
e) Locomotion in vertebrates – Swimming, walking running, flying  
f) Nervous system and their functions, A brief account of human endocrine system  
g) Reproduction : Asexual and sexual reproduction, significance of sexual reproduction, outlines of human reproduction and fertility control

**6. Ecology and Environmental Biology:**

**8 Hrs**

a) Abiotic and Biotic factors b) Environmental Pollution – brief account of Air, Water and Noise pollution.

**7. Heredity:**

**4 Hrs**

a) Continuity of life – Mendel's laws b) Structure of chromosomes c) DNA and RNA

**TUTORIALS**

**2x16=32 Hrs**

**REFERENCES :**

1. Barnes, R. D. 1974. Invertebrate Zoology, III edition, W. B. Saunders Co., Philadelphia.
2. Barrington, E. J. W. 1976. Invertebrate structure and function. Thomas Nelson and Sons Ltd., London
3. Hyman L. H. 1940. The invertebrates Vol.1 Protozoa through Ctenophora, McGraw hill co., N. Y.
4. Hyman. L. H. 1968. The Invertebrates Vol.8 McGraw Hill Co., N. Y and London.
5. Parker, T. J. Haswell, W. A. 1961. Text book of Zoology, Vol.I, Macmillon Co., London.
6. Russel – Hunter, W.D 1969. A. biology of higher invertebrates, Mac millon Co., Ltd., London.
7. Barrington, E. J. W. 1965. The Biology of Hemichordata and Protochordata – Oliver and Boyd, Edinburgh.