



SYLLABUS FOR ZOOLOGY (XL: SECTION L)

(Optional Section)

Animal world:

Animal diversity, distribution, systematics and classification of animals, phylogenetic relationships.

Evolution:

Origin and history of life on earth, theories of evolution, natural selection, adaptation, speciation.

Genetics:

Principles of inheritance, molecular basis of heredity, mutations, cytoplasmic inheritance, linkage and mapping of genes.

Biochemistry and Molecular Biology:

Nucleic acids, proteins, lipids and carbohydrates; replication, transcription and translation; regulation of gene expression, organization of genome, Krebs's cycle, glycolysis, enzyme catalysis, hormones and their actions, vitamins.

Cell Biology:

Structure of cell, cellular organelles and their structure and function, cell cycle, cell division, chromosomes and chromatin structure. Eukaryotic gene organization and expression (Basic principles of signal transduction).

Animal Anatomy and Physiology:

Comparative physiology, the respiratory system, circulatory system, digestive system, the nervous system, the excretory system, the endocrine system, the reproductive system, the skeletal system, osmoregulation.

Parasitology and Immunology:

Nature of parasite, host-parasite relation, protozoan and helminthic parasites, the immune response, cellular and humoral immune response, evolution of the immune system.

Development Biology:

Embryonic development, cellular differentiation, organogenesis, metamorphosis, genetic basis of development, stem cells.

Ecology:

The ecosystem, habitats, the food chain, population dynamics, species diversity, zoogeography, biogeochemical cycles, conservation biology.

Animal Behaviour:

Types of behaviours, courtship, mating and territoriality, instinct, learning and memory, social behaviour across the animal taxa, communication, pheromones, evolution of animal behaviour.