SYLLABUS

THEORY SYLLABUS

UNIT – I : CELL BIOLOGY-I

- **Methods in Cell Biology** : Principles and applications of light (simple, compound & phase contrast) and electron (SEM & TEM) microscopes
  Fixation & fixatives, staining techniques (simple and double staining)
- **Organisation of Cell** : Concept of Prokaryotic and Eukaryotic cell, extra nuclear and nuclear organization of cell.
- **Plasma membrane** : Structure with particular references to Fluid Mosaic Model. Osmosis, active and passive transport, endocytosis and exocytosis.
- **Endoplasmic reticulum** : Structure, types, associated enzymes and functions.
- **Mitochondria** : Structure, mitochondrial enzymes and the role of mitochondria in respiration. Mitochondrial DNA.
- **Golgi complex** : Structure, associated enzymes and functions.

UNIT – II : CELL BIOLOGY-II

- **Lysosomes** : Lysosomal enzymes, Polymorphism and functions.
- **Ribosomes** : Types of ribosomes, their structure and functions.
- **Centrosome** : Structure and functions.
- **Nucleus** : Structure and functions of nuclear membrane, nucleolus and chromosomes. Euchromatin & Heterochromatin.
- **An elementary idea of cell transformation in Cancer** : Introduction, difference between normal and cancer cells, types of cancer, basic idea of transformation.
- **An elementary idea of cellular basis of immunity** : Cellular & Humoral immunity, Elementary idea of cells & organs of immune system.

UNIT – III : PROTOZOA TO COELENTERATA

- Detailed study of the following protozoan types :
  Amoeba Paramecium and Plasmodium
- Classification upto orders with ecological notes and economic importance (if any) of the following :
  Entamoeba Trypanosoma, Giardia, Noctiluca, Eimeria, Opalina, Vorticella, Balantidium and Nyctotherus.
- Detailed study of the following animal types :
  Parazoa (Porifera) : Sycon *(Scypha)*
  Cnidaria (Coelenterata) : *Obelia*
- Classification upto orders with brief ecological notes and economic importance (if any) of the following :
  Parazoa (Porifera) : *Grantia, Euplectella, Hyalonema and Spongilla*
  Cnidaria (Coelenterata) : *Hydra, Sertularia, Plumularia, Obelia, Tubularia, Bougainvillea, Porpila, Velella, Physalia, Rhizostoma Millipora, Aurelia, Alcyonium, Tubipora, Zoanthus, Metridium Madrepora, Favia, Fungia and Astrangia*

UNIT – IV : PLATYHELMINTHES TO ANNELIDA

- Detailed study of the following animal types :
  Platyhelminthes : *Fasciola, Taenia*
  Aschelminthes : *Ascaris*
  Parasitic adaptations in Helminths
- Classification upto orders with brief ecological note and economic importance (if any) of the following :
  Platyhelminthes : *Dugesia, Schistosoma and Echinococcus*
  Aschelminthes : *Ascaris, Oxyuris, Wuchereria*
- Detailed study of the following animal type :
  Annelida : *Pheretima*
- Classification upto orders with brief ecological note and economic importance (if any) of the following :
  Annelida : *Nereis, Polynoe, Eunice, Arenicola, Aphrodite, Amphitrite Chaetopterus, Tubifex and Pontobdella.*