

3. BIOLOGY (Comprising Botany & Zoology)

(A) वनस्पति शास्त्र (BOTANY)

Structural organization of cell, cell theory. Light and Electron Microscopic view of cell. Structure and functions of cell organelles : Nucleus Mitochondria, Chloroplast Endoplasmic reticulum, Golgi complex-lysosome, microbodies microfilaments Ribosomes. Centrioles and Plasmids, Eukaryotic Chromosome (Morphology) cell and plasma membrane. Difference between plant and animal cell Division, cell cycle significance of mitosis and meiosis.

Mendel's Laws of inheritance, Monohybrid and dihybrid cross; linkage and crossing over of genetic material DNA replication, genetic code transcription and gene regulation.

Difference between prokaryote and Eukaryotes : Structure reproduction and economic importance of viruses Mycoplasma, Bacteriophage, Cyanobacteria (Nostoc) and Bacteria.

Five Kingdom classification Binomial Nomenclature : External morphology and life cycle of Spirogyra mucor, Funaria Selaginella and pinus.

Elementary knowledge of microsporogenesis megasporogenesis. Fertilisation endosperm and embryo development in Angiosperms.

Tissue and tissue systems, meristematic and permanent tissue, Mineral nutrition-essential elements and their functions: uptake of minerals transport of water and solutes. Transpiration Photosynthesis and Respiration: Importance, mechanism and factors affecting these processes: Photorespiration.

Enzymes and growth hormones with reference to their classification. Chemical nature, mode of action importance. Elementary idea of photoperiodism and phytochrome.

Ecosystem - Structures and function, Major ecosystems i.e. lake and Forest; Food chain, Food Web and Energy flow, Ecological crisis- Role of man in polluting Environment - Air Water and Soil.

Role of plants in human welfare : A general knowledge of plant products of economic value-Drugs, Fibers, Cereals.

Wheat and Rice, Pulses (gram), Oil seeds (Ground nut), Sugarcane, Coal and Petroleum.

Food preservation-Methods and importance.

Principle of plant breeding and its role in improvement of crops. Biotechnology; scope and importance in Agriculture and industries manufacture of cheese. Yoghurt Alcohol Antibiotics.

(B) प्राणीशास्त्र (Zoology)

MULTICELLULARITY - STRUCTURE AND FUNCTION OF ANIMAL LIFE :

- Structure and function of Animal tissues Epithelial, Connective Muscular, Skeletal and Nerve.
- Histology of Mammalian organs - Stomach, Intestine, Liver, Kidney, Lung, Testes and Ovary.
- Structure and Physiology of different organ systems of Human body. Skin, Digestive system, Respiratory System. Circulatory system.
- Skeleton, Joints, Muscles on the basis of movement Receptors.