NEW UNIFIED SYLLABUS

ZOOLOGY

PAPER-I—ANIMA DIVERSITY : NON-CHORDA AND CHORDATA, COMPARATIVE ANATOMY ANY PHYSIOLOGY OF NON-CHORDATES

UNIT-I **Taxonomy, Protozoa, Porifera**

Taxonomy—Elementary knowledge of Zoological Nomenclature and International Code. Classification of Animal Kingdom upto Phylum of acoelomate and coelomate non- chordates according to Parker and Haswell 7th edition.

Protozoa—Phylum Protozoa: General characters of the phylum and classification up to order with characters and suitable examples. Structure, life history and pathogenicity of malaria parasite (*Plasmodium vivax*). Protozoa and disease.

Porifera—Phylum Porifera: General characters of the phylum and classification up to order with characters and suitable examples. Type study of Sycon.

UNIT-2 **Coelenterata, Platyhelminthes, Nemathelminthes**

Coelenterata—Phylum Coelenterata: General characters of the phylum and classification up to order with characters and suitable examples. Type Study of Obelia.

Platyhelminthes—Phylum Platyhelminthes: General characters of the phylum and classification up to order with characters and suitable examples. Type Studyof Liverfluke.

Nemathelminthes—PhylumNemathelminthes: General characters of the phylum and classification up to order with characters and suitable examples. Pathogenic nematodes and diseases.

UNIT-3 **Annelida, Arthropoda, Mollusca**

Annelida—Phylum Annelida: General Characters of the phylum and classification up to order with characters and suitable examples. Types study of Earthworm (*Pheretima*).

Arthropoda—Phylum Arthropoda: General Characters of the phylum and classification up to order with characters and suitable examples. Type study of Prawn. Insects as a vector of human disease.

Mollusca—Phylum Mollusca: General characters of the phylum and classification up to order with characters and suitable examples. Type study of *Pila*.

UNIT-4 **Echinodermata, Hemichordata, Classification of Chordata**

Echinodermata—Phylum Echinodermata: General characters of the phylum and classification up to order with characters and suitable examples. Type study of Starfish (*Asterias*).

Hemichordata—Phylum Hemichordata; General characters of the phylum hemichordate and relationship with non-chordates and chordates. Type study of Balanoglossus

Classification of Chordata—Classification of Chordata up to order withcharacters andsuitable examples. Brief account of Urochordata, Cephalochordata and Vertebrata.

UNIT-5 **Comparative Anatomy and Physiology of Non-chordates**—Coelom and coelomductsin Non- chordate. Locomotory organs and locomotion in Non- chordate. Pattern of feeding and digestion in lower Metazoans. Comparative anatomy and physiology of respiration and excretion in Non- chordate. Primitive,diffused and advance nervous system in Non- chordate. Reproduction in Non-chordates.

PAPER-II—CELL BIOLOGY, HISTOLOGY AND COMPARATIVE ANATOMY & PHYSIOLOGY OF CHORDATES

UNIT-1 **Prokaryotic and Eukaryotic cells**—General structure of prokaryotes, bacteria, archaea and eukaryotes. Ultra structure and function of endoplasmic reticulum, ribosomes, Golgi apparatus, lysosome, Mitochondria, nuclear apparatus.

Cell membrane and transport mechanism—Structure, composition, models and function. Fluid mosaic model Junctional complexes, membrane receptor modifications: microvilli, desmosomes and plasmodesmata.

UNIT-2 **Cell cycle, cell signaling and cell culturing**—Cell cycle, cell division - mitosis and meiosis. Cell division check points and their regulation. Role of growth factors. Programmed cell death (Apoptosis).

Cell regulation and cell signaling—Signaling molecules and their receptors. Functions of cell surface receptors. Regulation of signaling pathways.

Cell culture—Types of cell culture - monolayer and suspension culture. Types of culture media. Basic characteristics of tissue culture media. Tissue culture and engineering.

UNIT-3 **Structure and functional significance of animal tissues**—Introduction to tissues. Epithelial tissue: types, structure and characteristics. Exocrine and endocrine glands: type and structure. Structure and function of loose, dense and adipose tissue. Muscular tissue: Ultra structure of smooth, skeletal and cardiac muscles. Muscle contraction. Membrane of the brain and spinal cord.

UNIT-4 **Structure and function of integument, skeletal, digestive, circulatory system**

Integument—Structure of integument from fish to mammals. Function of integument. Epidermal and dermal derivatives of integument and their functional significance.

Skeletal system—Comparative account of pelvic and pectoral girdles from fishes (cartilaginous and bony) to mammals.

Digestive system—Dentition in mammals. Comparative study of alimentary canal and digestive glands from fish to mammal. Physiology of digestion in mammal.

Circulatory system—Evolution of aortic arches and their significance. Structure and evolution of heart in vertebrates. Cardiac cycle. Blood: Composition and function.

UNIT-5 **Structure and function of circulatory, respiratory, excretory, reproductive and endocrine system**

Respiratory system—Aquatic and terrestrial respiration. Comparative anatomy of lungs in amphibian, reptile, bird and mammals.

Excretory system—Physiology of excretion, urine formation.

Reproductive system—Comparative details of testes and ovaries from fishes to mammals. Estrous and menstrual cycle.

Endocrine system—Types and functional significance of endocrine glands and hormones.