

DEPARTMENT OF ZOOLOGY

B. B. (AUTO.) MAHAVIDYALAYA, CHANDIKHOLE, JAJPUR (SYLLABUS)

GENERIC ELECTIVE PAPERS (GE) Zoology - CBCS PATTERN

SEMESTER-I

GE-1: ANIMAL DIVERSITY (NON-CHORDATE), PHYSIOLOGY AND ENDOCRINOLOGY

Max. Marks:80 (Theory:50, Practical:30)

General characteristics and classification up to classes and study of types mentioned

UNIT-I:

Protozoa: Paramecium with reference to structure and reproduction.

Porifera: Structure of Sycon and Canal system in sponges.

Cnidaria: Structure, reproduction and life cycle of Aurelia.

UNIT-II:

Platyhelminthes: Structure, reproduction and life cycle of Fasciola.

Nemathelminthes: Structure, reproduction and life cycle of Ascaris.

Annelida: Structure, digestion and excretion of Hirudinaria.

UNIT-III:

Arthropoda: External morphology, digestive and excretory system of Paleamon.

Mollusca: Morphology and respiration of Pila.

Echimodermata: Morphology and water vascular system of Asterias.

UNIT-IV: Mammalian Physiology

Digestion, Respiration, Transport of respiratory gases, Structure of heart and cardiac cycle, Composition and clotting of blood, Blood group, Structure of neuron and transmission of nerve impulse, Structure of skeletal muscle and muscle contraction.

UNIT-V: Endocrinology

Structure and function of Pituitary, Thyroid and Gonads.

Note: Classification to be followed from - Barnes RD (1982) Invertebrate Zoology. 5th Edition."

PRACTICAL

Experiment (Physiology) Estimation of haemoglobin concentration in man, Estimation of casein in milk, Estimation of lipid in any given sample.

Endocrinology slides as mentioned in syllabus Museum Specimens and slides Slides: Morphology of Paramecium, Binary fission and Conjugation in Paramecium. Section through Sycon, Spicules and Gemmules of sponge, Ephyra larva.

Museum specimens: Spongilla, Sycon, Gorgonia, Physallia, Porpita, Penatulla, Nereis, Aphrodite, Sacculina, Eupagurus, Chiton, Aplysia, Octopus, Star fish, sea-Urchin, sea Cucumber.

Recommended Books

1. Arora MP (2006) Non-Chordata-I. 1st edition. Himalaya Publishing House, New Delhi.
2. Arora MP (2008) Non-Chordata-II. 1st edition. Himalaya Publishing House, New Delhi.
3. Barnes RD (1982) Invertebrate Zoology. 6th Edition. Holt Saunders International Edition.
4. Barnes RSK, Calow P, Olive PJW, Golding DW & Spicer JI (2002) The Invertebrates: A New Synthesis. 3rd Edition. Blackwell Science, USA.
5. Barrington EJW (1979) Invertebrate Structure and Functions. 2nd Edition. ELBS and Nelson.
6. Boradale LA and Potts EA (1961) Invertebrates: A Manual for the use of Students. Asia Publishing Home.
7. Jordan EL and Verma PS (1963) Invertebrate Zoology. Revised Edition. S. Chand, New Delhi.
8. A text book of medical Physiology. Guyton and Hall.
9. Human physiology. Chatterjee.
10. Principle of Anatomy and Physiology. Tortora and Derrickson.
11. A book of Physiology and Functional Histology, A K berry.
12. Mohanty PK (2000) Illustrated Dictionary of Biology. Kalyani Publishers, Ludhiana.

SEMESTER-III

GE-2: ANIMAL DIVERSITY (PROTOCHORDATA, CHORDATA), DEVELOPMENTAL BIOLOGY AND IMMUNOLOGY

Max. Marks:80 (Theory:50, Practical:30)

UNIT-I: Protochordata and Origin of Chordates

General characters of Hemichordata, Urochordata and Cephalochordata; Structure, Digestive system, Respiratory and reproduction in Balanoglossus, Herdmania and Amphioxus.

UNIT-II: Pisces and Amphibia

General characters of Chondrichthyes and Osteichthyes and classification up to order; Digestive and reproductive system in Scoliodon General characters and classification of amphibian up to order, Circulatory and Nervous system (Brain and Cranial nerves).

UNIT-III: Reptilia, Aves and Mammals

Urinogenital system of Calotes; Respiratory system of Pigeon and Flight adaptation in Birds; Digestive and Nervous System (Brain and Cranial nerves) of rabbit.

UNIT-IV: Developmental Biology

Gametogenesis, structure of gametes, Mechanism of fertilization, Types of Cleavage, Development of Amphioxus and frog up to formation of three germ layers.

UNIT-V: Immunology

Innate and acquired immunity, Antigens, structure and function of immunoglobulins, Antigen-Antibody interaction, Vaccines.

PRACTICAL

Immunology: Blood Grouping

Museum specimens: Balanoglossus, Herdmania, Amphioxus, Exocoetus, Hippocampus, Anabas, Ambystoma, Axolotl larva, Polypedates, Ichthyophis, Draco, Chelone, Trionyx, Hemidactylus, Varanus, Chamaeleon, Sea snake, Cobra, Viper, Krait, Pigeon, Crow, Bat, Rat.

Slides: Sections through Balanoglossus and Amphioxus; Tissue sections through Liver, Pancreas;

Embryological slides of frog.

Bones: Amphibia and mammals.

Recommended Books

1. Agarwal VK (2011) Zoology for degree students. S. Chand, New Delhi.
2. Arora MP (2006) Chordata-1. 1st Edition. Himalaya Publishing House, New Delhi.
3. Hall BK and Hallgrímsson B (2008) Strickbergers Evolution. 4th Edition. Jones and Bartlett Publishers Inc., USA.
4. Jordan EL and Verma PS (1963) Chordate Zoology. Revised Edition. S. Chand, New Delhi.
5. Young JZ (2004) The Life of Vertebrates. 3rd Edition. Oxford University Press, USA.
6. Kindt TJ, Goldsby RA, Osborne BA, Immunology.
7. Gilbert SF, Developmental Biology.