

30
ZOOLOGY (HONOURS)
Paper I

Time - 3 hours

Full Marks - 75

Ten questions are to be set. Question number 1 will be compulsory and objective (numbering fifteen, each of one mark) covering the whole syllabus. Students will be required to answer any five questions in all, including question number one.

Group A

1. Salient features and outline classification, upto orders of major non-chordate phyla.
Type study - Structure & biology of animals
2. Protozoa - *Leishmania donovani*, *Paramecium*
- Locomotion in Protozoa
- Osmoregulation in Protozoa
- Reproduction in Protozoa
3. Origin and evolution of Metazoa
4. Porifera - *Sycon* : Structure & life cycle
- Skeleton in Sponges
- Canal system
5. Coelenterata - *Obelia* : Structure & life cycle, comparison with *Aurelia*
- Metagenesis
- Coral & Coral-reefs
6. Ctenophora - Structure & affinities with special reference to *Hormiphora*
7. Helminthes - Structure & life cycle of
- *Taenia solium*, *Fasciola hepatica*, *Ascaris lumbricoides*, *Wuchereria bancrofti*
- Parasitic adaptation

Group B

1. Annelida - Alimentary Canal in annelida
- Excretory system in annelida
2. Onychophora - Structure & affinities of *Peripatus*
3. Arthropoda - Larval forms of Crustaceans
- Appendages of Prawn
- Life cycle of *Sacculina*

4. Mollusca - Foot in Mollusca
 - Respiration in Mollusca
 - Torsion in Gastropoda
 - Pearl formation & structure of shell.
6. Echinodermata - Water vascular system in Sea-star
 - Larval forms of Echinoderms

ZOOLOGY (HONOURS)

Paper II

Time - 3 hours

Full Marks - 75

Ten questions are to be set. Question number 1 will be compulsory and objective (numbering fifteen, each of one mark) covering the whole syllabus. Students will be required to answer any five questions in all, including question number one.

Group A

1. Cell Theory
2. Concept of Prokaryotic & Eukaryotic cells
3. Isolation and growth of cells; cell cycle
4. Cell membrane - Structure & function
 - Types of junction & cell adhesion
5. Transport across cell membrane - Active transport, Passive transport and Bulk transport
6. Structure & biogenesis of Endoplasmic reticulum and its varied types
7. Ultrastructure, function & biogenesis of Mitochondria.
 Electron Transport chain & Oxidative Phosphorylation
8. Ultrastructure of Lysosomes and its types, Lysosomal deficiency diseases
9. Ultrastructure of Golgi bodies & Process of Cell secretion
10. Ultrastructure of Ribosomes and function
11. Ultrastructure of Nucleus, Chromosome and their types

Group B

Molecular organization of Cell

1. Structure & Classification of Amino Acids, Protein, Carbohydrate & Lipids
2. Enzymes
3. Structure and types of Nucleic acids- DNA & RNA
4. Nucleotides-ATP

5. Glycolysis, Krebs Cycle, -Oxidation of Fatty acids

Cellular Techniques

6. Microscopy, Types of Optical & Electron Microscopes
 7. Cell fractionation, Ultracentrifugation
 8. Chromatography
 9. Electrophoresis
 10. Autoradiography

Biometry

1. Mean, Median and Mode
 2. Standard Deviation and Standard Error

ZOOLOGY (HONOURS)

Practical

Time - 6 hours

Full Marks -50

(Expt.- 30, viva-12, NB- 8)

1. **Dissection** 1×10= 10 marks
 a. *Pheretima* and *Leech* - Alimentary canal, reproductive, excretory and nervous system
 b. *Palaemon* - Alimentary canal, Nervous system
 c. *Unio* and *Pila* - Nervous system and Pallial complex of *Pila*
2. **Permanent stained Preparation of the following** 1×5= 5 marks
Paramecium, Gemmules, Spicules, *Obelia* colony, Nephridia and ovary of *Pheretima*, Statocyst of Prawn, Radula of *Pila*, Gill lamina of *Unio*, Glochidium larva, Larvae of Crustacea
3. **Identification and comment** 7×2 = 14 marks
 a. Museum Specimens 2
 b. Slides (invertebrates) 4
 c. Specimens relating to animal behaviour or Parental care - 1 6 marks
4. **Cytology**
 a. Squash preparation to show the stages of Mitosis (onion root tips) and Meiosis (Grasshopper testes)
 b. Giant Chromosomes of Chironomous larvae
 c. Paper chromatography 1×5 = 5 marks
5. **Biometry**
 Calculation of arithmetic mean and standard deviation of the samples provided 5 marks
6. **Records and field work** 5 marks
7. **Viva-voce** 5 marks