

45
ZOOLOGY(SUBSIDIARY)

Paper II

Time - 3 hours

Full Marks - 75

Five questions are to be set from each group. Students shall answer five questions in all, attempting not more than **three** from each group.

Group A
Chordata

1. **Bionomics : General characters and classification (upto orders only) of living Chordates of the following groups :-**
Protochordata, Cyclostomata, Pisces, Amphibia, Reptilia, Aves and Mammalia.
2. **Study of the following :-**
 - i. Urochordata-*Herdmania* (including Retrogressive metamorphosis)
 - ii. Cephalochordata - *Amphioxus*
 - iii. Pisces - *Scolodon* - Type study : differences with that of a Bony fish.
 - iv. Reptilia - Biting and feeding mechanism of snakes.
 - v. Aves -*Columba* :
Flight adaptations, Elementary idea of bird migration and Bird Sanctuaries in India.
 - vi. Mammalia - Characters, distribution and affinity of Prototheria and Metatheria.
3. **Comparative study of the following in Vertebrates :**
Integument, Heart, Aortic arches and Brain.

Group B

1. **Embryology :**
 - i. Types of vertebrate eggs and their early cleavage.
 - ii. Development of *Amphioxus* (upto the formation of coelom) and Chick (upto 3 germinal layers)
 - iii. Placenta in Mammals - Its development, types and functions.
2. **Biochemistry, Physiology and Endocrinology :**
 - i. Structure and classification of Proteins, Carbohydrates & Fats
 - ii. Physiology of Digestion, Excretion & Respiration in Mammals.

Islets of Langerhans, Testis, Ovary, Thyroid, Adrenal & Pituitary

Books Recommended

1. Modern Text Book of Vertebrates By **R. L. Kotpal**
2. Chordate Zoology and Animal Physiology by **E. L. Jordan** and **P. S. Verma**
3. Chordate Embryology by **Verma, Agarwal** and **Tyagi**
4. A Text Book of Animal Physiology by **Goel** and **Shastri**
5. A Text Book of Animal Physiology by **A. K. Berry**
6. Human Physiology Vol. II by **Chatterjee**

ZOOLOGY (SUBSIDIARY)

Practical

Time - 3 hours

Full Marks - 25

1. **Dissection** 1×7=7 marks
Scoliodon - Afferent and efferent branchial arteries, Cranial nerves (V and VII) and (IX and X), Internal ear, Eye muscles and their nerves supply, Urinogenital system.
Columba - Flight muscles, Arterial and Venous systems.
2. **Mounting (Permanent stained preparation)** 1×4=4 marks
 Scales of fishes, Pecten and Filoplume feather of birds, Ampulla of Lorenziini.
3. **Spotting** 1×6=6 marks
 Museum Specimen 1 mark
 Bones 3 marks
 (Limb, Girdle, Skull, Vertebrae of Varanus and Fowl)
 Slides 2 marks
4. **Endocrinology and Embryology** 2×2=4 marks
 - i. Identification of permanent slides of the various developmental stages of Frog and Chick.
 - ii. Identification and comment upon the histological structure of various Endocrine glands.
5. **Practical Records** 4 marks