

PAPER – II

TITLE: ANIMAL DIVERSITY – 2

BIOLOGY OF CHORDATES

Unit - I

- 1.1 General characters and classification of Chordata upto classes
- 1.2 Protochordata- Salient features of Cephalochordata , Affinities of Cephalochordata.
- 1.3 Salient features of Urochordata
- 1.4 Structure and life history of Herdmania 1.5 Retrogressive metamorphosis –Process and Significance

Unit - II

- 2.1 Cyclostomata, General characters, Comparison of Petromyzon and Myxine
- 2.2 Pisces : General characters of Fishes
- 2.3 Scoliodon: External features, Digestive system, Respiratory system, Structure and function of Heart, Structure and functions of the Brain.
- 2.4 Migration in Fishes
- 2.5 Types of Scales 2.6 Dipnoi

Unit – III

- 3.1 General characters of Amphibia
- 3.2 Classification of Amphibia up to orders with examples.
- 3.3 Rana hexadactyla: External features, Digestive system, Respiratory system, Structure and function of Heart, structure and functions of the Brain
- 3.4 Reptilia: General characters of Reptilia, Classification of Reptilia upto orders with examples
- 3.5 Calotes: External features, Digestive system, Respiratory system, Structure and function of Heart, structure and function of Brain
- 3.6. Identification of Poisonous snakes and Skull in reptiles

Unit – IV

- 4.1 Aves General characters of Aves

4.2 Columba livia: External features, Digestive system, Respiratory system, Structure and function of Heart, structure and function of Brain

4.3 Migration in Birds

4.4 Flight adaptation in birds

Unit - V

5.1 General characters of Mammalia

5.2 Classification of Mammalia upto sub - classes with examples

5.3 Comparison of Prototherians, Metatherians and Eutherians

5.4 Dentition in mammals

Co-curricular activities (suggested)

Preparation of charts on Chordate classification (with representative animal photos) and

- retrogressive metamorphosis Thermocol or Clay models of Herdmania and Amphioxus
- Visit to local fish market and identification of local cartilaginous and bony fishes
- Maintaining of aquarium by students
- Thermocol model of fish heart and brain
- Preparation of slides of scales of fishes
- Visit to local/nearby river to identify migratory fishes and prepare study notes
- Preparation of Charts on above topics by students (Eg: comparative account of vertebrate heart/brain/lungs, identification of snakes etc.) Collecting and preparation of Museum specimens with dead frogs/snakes/lizards etc.,
- and/or their skeletons Additional input on types of snake poisons and their antidotes (student activity).
- Collection of bird feathers and submission of report on Plumology
- Taxidermic preparation of dead birds for Zoology museum
- Map pointing of prototherian and metatherian mammals
- Chart preparation for dentition in mammals

· REFERENCE BOOKS

J.Z. Young, 2006. The life of vertebrates. (The Oxford University Press, New Delhi).

· 646 pages. Reprinted Arumugam, N. Chordate Zoology, Vol. 2. SarasPlublication. 278 pages. 200 figs.

· A.J. Marshall, 1995. Textbook of zoology, Vertebrates. (The McMillan Press Ltd., UK). 852 pages. (Revised edition of Parker & Haswell, 1961).

M. EkambaranathaAyyar, 1973. A manual of zoology. Part II. (S. Viswanathan Pvt. Ltd., Madras).

P.S. Dhami & J.K. Dhami, 1981. Chordate zoology. (R. Chand & Co.). 550 pages.

Gurdarshan Singh & H. Bhaskar, 2002.

Advanced Chordate Zoology. Campus Books, 6 Vols., 1573 pp., tables, figs. A.K. Sinha, S. Adhikari & B.B. Ganguly, 1978. Biology of animals.

Vol. II. Chordates. (New Central Book Agency, Calcutta). 560 pages. R.L. Kotpal, 2000. Modern textbook of zoology, Vertebrates. (Rastogi Publ., Meerut). 632 pages.

E.L. Jordan & P.S. Verma, 1998. Chordate zoology. (S. Chand & Co.). 1092 pages. G.S. Sandhu, 2005. Objective Chordate Zoology. Campus Books, vii, 169 pp.

Sandhu, G.S. & H. Bhaskar, H. 2004. Textbook of Chordate Zoology. Campus Books, 2 vols., xx, 964 p., figs. Veena, 2008. Lower Chordata. (Sonali Publ.), 374 p., tables, 117 figs.

ZOOLOGY MODEL PAPER FOR II SEMESTER ZOOLOGY - PAPER - II ANIMAL DIVERSITY – BIOLOGY OF CHORDATES

Time: 3 hrs Max. Marks: 75

I. Answer any FIVE of the following: 5x5=25 Draw labeled diagrams wherever necessary

1. Amphioxus
2. Placoid scale
3. Quill feather
4. Prototheria
5. Anadromous migration
6. Draco
7. Emu
8. Apoda

II. Answer any FIVE of the following: 5x10=50

Draw labeled diagrams wherever necessary

9. Explain the life history of Herdmania OR

Explain the origin and general characters of chordates

10. Compare the characters of Petromyzon and Myxine OR

Describe the structure of heart of Scoliodon

11. Describe the brain of Rana hexadactyla OR

Explain the external features of Calotes

12. Write an essay on flight adaptations in birds OR

Explain the respiratory system of Columba livia

13. Compare the characters of Metatheria and Eutheria OR

Write an essay on dentition in mammals

ZOOLOGY PRACTICAL SYLLABUS

FOR II SEMESTER ZOOLOGY - PAPER – II

ANIMAL DIVERSITY - BIOLOGY OF CHORDATES

Periods: 24 Max. Marks: 50

· OBSERVATION OF THE FOLLOWING SLIDES / SPOTTERS / MODELS

1. Protochordata : Herdmania, Amphioxus, Amphioxus T.S through pharynx.

2. Cyclostomata : Petromyzon and Myxine.

3. Pisces : Pristis, Torpedo, Hippocampus, Exocoetus, Echinoid, Labeo, Catla, Clarias, Channa, Anguilla. 4. Amphibia : Ichthyophis, Ambystoma, Axolotl larva, Hyla,

5. Reptilia: Draco, Chamaeleon, Uromastix, Testudo, Trionyx, Russell's viper, Naja, Krait, Hydrophis, Crocodile.

6. Aves : Psittacula, Eudynamis, Bubo, Alcedo

7. Mammalia: Ornithorhynchus, Pteropus, Funambulus.

Dissections

1. Scoliodon IX and X, Cranial nerves

2. Scoliodon Brain

3. Mounting of fish scales

Note:

1. Dissections are to be demonstrated only by the faculty or virtual.
2. Laboratory Record work shall be submitted at the time of practical examination.

REFERENCE BOOKS:

1. S.S.Lal, Practical Zoology – Vertebrata
2. P.S.Verma, A manual of Practical Zoology – Chordata