ST.JOSEPH’S COLLEGE FOR WOMEN (AUTONOMOUS), VISAKHAPATNAM

II SEMESTER  **ZOOLOGY**  TIME: 4Hrs/Week

Z 2503 (3) **ANIMAL DIVERSITY – BIOLOGY OF CHORDATES**  Max.Marks:100

w.e.f. 20-21 admitted Batch **SYLLABUS**

**OBJECTIVES:** To enable the students to

1. Describe the structural and functional aspects of vertebrate systems.
2. Identify the morphological and anatomical features of different classes of vertebrates.
3. Summarize the general characters of animals and structural adaptations.
4. Recall the origin and evolutionary relationship among chordates.
5. Discuss the importance of adaptive radiation in mammals.

**COURSE OUTCOMES:** By the end of the course, students will be able to

CO1: Illustrate the unique characters of cephalochordates, Urochordates and fishes.

CO2: Taxonomically identify and specify key features on preserved vertebrate specimens;

CO3: List the unique features of chordates and use key features to differentiate between vertebrate groups and relate the ecological role of different groups of vertebrates.

CO4: Define the term migration, discuss migration in fishes and birds.

CO5: Summarise dentition in mammals and its evolutionary significance

**UNIT – I:**

1.1 General characters and classification of Chordataupto 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 ofPetromyzon 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

..2..

Z 2502 (3) ::2::

**UNIT – III:**

3.1 General characters of Amphibia

3.2 Classification of Amphibiaup to orders with examples.

3.3 Ranahexadactyla: 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 Reptiliaupto 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, COmparision of Prototherians, Metatherians and Eutherians .

5.3 Adaptive radiation in Mammals.

5.4 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. ViswanathanPvt. 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.

ST.JOSEPH’S COLLEGE FOR WOMEN (AUTONOMOUS), VISAKHAPATNAM

II SEMESTER  **ZOOLOGY**  TIME: 2Hrs/Week

Z 2553 (3) **ANIMAL DIVERSITY – BIOLOGY OF CHORDATES**  Max.Marks:50

w.e.f. 20-21 admitted Batch **PRACTICAL SYLLABUS – I B**

**LEARNING OUTCOMES**:

• To understand the taxi dermic and other methods of preservation of chordates.

• To identify chordates based on special identifying characters.

• To understand internal anatomy of animals through demo or virtual dissections, thus directing the student for “empathy towards the fellow living beings”.

• To maintain a neat, labeled record of identified museum specimens.

**COURSE OUTCOMES**: By the end of the course, students will be able to

CO1: Describe and place the vertebrates according to their taxonomic position.

CO2: Be versatile in identification of museum specimens.

CO3: Reinforce observation and identification skills.

CO4: Develop insight about the importance of preservation of museum specimens.

CO5: Identify and discuss the structure and functional complexity of vertebrates in relation to their ecological habitats and behavioral patterns.

**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, Hippocoampus ,Exocoetus, Echeneis, Labeo, Catla, Clarius,Channa, Anguilla.

4. Amphibia :Ichthyophis, Amblystoma, Axolotl larva, Hyla,Ranahexadactyla.

5. Reptilia: Draco, Chamaeleon, Uromastix,Mabuya,Testudo, Trionyx, Russels viper, Naja,Krait, Hydrophis, Crocodile.

6. Aves :Psittacula, Eudynamis, Bubo, Alcedo, coraciusbengalensis, struthiocamelus.

7. Mammalia: Ornithorhynchus,Pteropus,Funambulus, Macropus(Kangaroo), Echidna,Loris, Dugong .

**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

\*\* \*\* \*\*