

**KVR GOVT. COLLEGE FOR WOMEN (AUTONOMOUS), KURNOOL**  
**Re-Accredited by NAAC with Grade "A"**  
**DEPARTMENT OF ZOOLOGY**

**FIRST YEAR - FIRST SEMESTER SYLLABUS (w. e. f. 2021-2022)**  
**PAPER – I: ANIMAL DIVERSITY – BIOLOGY OF NONCHORDATES**

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**HOURS: 60 (5X12)**

**Max. Marks: 100**

**UNIT I**

1.1 Principles of Taxonomy – Binomial nomenclature – Rules of nomenclature

1.2 Whittaker's five kingdom concept and classification of Animal Kingdom.

**Phylum Protozoa**

1.3 General Characters and classification of protozoa up to classes with suitable examples

1.4 Locomotion, nutrition and reproduction in Protozoans

1.5 *Elphidium* (type study)

**UNIT –II**

**Phylum Porifera**

2.1 General characters and classification up to classes with suitable examples

2.2 Skeleton in Sponges

2.3 Canal system in sponges

**Phylum Coelenterata**

2.4 General characters and classification up to classes with suitable examples

2.5 Polymorphism in coelenterates

2.6 Corals and coral reefs

**Phylum Ctenophora :**

2.7 General Characters and Evolutionary significance

**Unit – III**

**Phylum Platyhelminthes**

3.1 General characters and classification up to classes with suitable examples

3.2 Life cycle and pathogenicity of *Fasciola hepatica*

**Phylum Nemathelminthes**

3.3 General characters and classification up to classes with suitable examples

3.4. Life cycle and pathogenicity of *Ascaris lumbricoides*

**Unit – IV**

**Phylum Annelida**

4.1 General characters and classification up to classes with suitable examples

4.2 Types of Coelom and Coelom ducts

4.3 Vermiculture - Scope, significance, earthworm species, processing, Vermicompost, economic importance of vermicompost

### **Phylum Arthropoda**

4.4 General characters and classification up to classes with suitable examples

4.5 Metamorphosis in Insects

4.6 Social Life in Bees and Termites *Peripatus* - Structure and affinities

4.7 *Peripatus* - Structure and affinities

### **Unit – V**

### **Phylum Mollusca**

5.1 General characters and classification up to classes with suitable examples

5.2 Pearl formation in Pelecypoda

5.3 Larval forms of Mollusca

### **Phylum Echinodermata**

5.4 General characters and classification up to classes with suitable examples

5.5 Water vascular system in star fish

5.6 Larval forms of Echinodermata

### **Phylum Hemichordata**

5.7 General characters and classification up to classes with suitable examples

5.8 *Balanoglossus* - Structure and affinities.

### **REFERENCE BOOKS**

1. **L.H. Hyman** 'The Invertebrates' Vol I, II and V. – M.C. Graw Hill Company Ltd.
2. **Kotpal, R.L. 1988 - 1992** Protozoa, Porifera, Coelenterata, Helminthes, Arthropoda, Mollusca, Echinodermata. Rastogi Publications, Meerut.
3. **E.L. Jordan and P.S. Verma** 'Invertebrate Zoology' S. Chand and Company.
4. **R.D. Barnes** 'Invertebrate Zoology' by: W.B. Saunders CO., 1986.
5. **Barrington. E.J.W.**, 'Invertebrate structure and Function' by ELBS.
6. **P.S. Dhama and J.K. Dhama.** Invertebrate Zoology. S. Chand and Co. New Delhi.
7. **Parker, T.J. and Haswell** 'A text book of Zoology' by, W.A., Mac Millan Co. London.
8. **Barnes, R.D. (1982).** Invertebrate Zoology, V Edition”

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**FIRST YEAR –SECOND SEMESTER SYLLABUS (w. e. f. 2021-2022)**  
**PAPER – II: ANIMAL DIVERSITY – BIOLOGY OF CHORDATES**

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**HOURS: 60 (5X12)**

**Max. Marks: 100**

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**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, Structure and function of Heart
- 2.4 Migration in Fishes
- 2.5 Types of Scales
- 2.6 Dipnoi

**Unit - III**

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

**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 and Classification of Mammalia upto sub - classes with examples

#### 5. Comparison of Prototherians, Metatherians and Eutherians

#### 5.4 Dentition in mammals

### REFERENCE BOOKS

1. J.Z. Young, 2006. The life of vertebrates. (The Oxford University Press, New Delhi). 646 pages. Reprinted
2. Arumugam, N. Chordate Zoology, Vol. 2. Saras Publication. 278 pages. 200 figs.
3. A.J. Marshall, 1995. Textbook of zoology, Vertebrates. (The McMillan Press Ltd., UK). 852 pages. (Revised edition of Parker & Haswell, 1961).
4. M. Ekambaranatha Ayyar, 1973. A manual of zoology. Part II. (S. Viswanathan Pvt. Ltd., Madras).
5. P.S. Dhami & J.K. Dhami, 1981. Chordate zoology. (R. Chand & Co.). 550 pages.
6. Gurdarshan Singh & H. Bhaskar, 2002. Advanced Chordate Zoology. Campus Books, 6 Vols., 1573 pp., tables, figs.
7. A.K. Sinha, S. Adhikari & B.B. Ganguly, 1978. Biology of animals. Vol. II. Chordates. (New Central Book Agency, Calcutta). 560 pages.
8. R.L. Kotpal, 2000. Modern textbook of zoology, Vertebrates. (Rastogi Publ., Meerut). 632 pages.
9. E.L. Jordan & P.S. Verma, 1998. Chordate zoology. (S. Chand & Co.). 1092 pages.
10. G.S. Sandhu, 2005. Objective Chordate Zoology. Campus Books, vii, 169 pp.
11. Sandhu, G.S. & H. Bhaskar, H. 2004. Textbook of Chordate Zoology. Campus Books, 2 vols., xx, 964 p., figs.
12. Veena, 2008. Lower Chordata. (Sonali Publ.), 374 p., tables, 117 figs.

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**KVR GOVT. COLLEGE FOR WOMEN (AUTONOMOUS), KURNOOL**  
**Re-Accredited by NAAC with Grade "A"**  
**ZOOLOGY PRACTICAL SYLLABUS FOR I SEMESTER (w. e. f. 2021-2022)**  
**ZOOLOGY - PAPER - I**  
**ANIMAL DIVERSITY - BIOLOGY OF NONCHORDATES**

**Periods: 24 Max. Marks: 50**

**Syllabus :**

**1. Study of museum slides / specimens / models (Classification of animals up to orders)**

**Protozoa:** *Amoeba*, *Paramoecium*, *Paramoecium* Binary fission and Conjugation, *Vorticella*, *Entamoebahistolitica*, *Plasmodium vivax*

**Porifera:** *Sycon*, *Spongilla*, *Euspongia*, *Sycon*- T.S & L.S, Spicules, Gemmule

**Coelenterata:** *Obelia* – Colony & Medusa, *Aurelia*, *Physalia*, *Velella*, *Corallium*, *Gorgonia*, *Pennatulav.*

**Platyhelminthes:** *Planaria*, *Fasciola hepatica*, *Fasciolalarval* forms – Miracidium, Redia, Cercaria, *Echinococcusgranulosus*, *Taeniasolium*, *Schistosomahaematobiumvii.*

**Nemathelminthes:** *Ascaris*(Male & Female), *Drancunculus*, *Ancylostoma*, *Wuchereria*

**Annelida:** *Nereis*, *Aphrodite*, *Chaetopteurs*, *Hirudinaria*, Trochophore larva

**Arthropoda:** Cancer, Palaemon, Scorpion, *Scolopendra*, *Sacculina*, *Limulus*, *Peripatus*, Larvae - Nauplius, Mysis, Zoea, Mouth parts of male & female *Anopheles* and *Culex*, Mouthparts of Housefly and Butterfly. xiii.

**Mollusca:** *Chiton*, *Pila*, *Unio*, *Pteredo*, *Murex*, *Sepia*, *Loligo*, *Octopus*, *Nautilus*, Glochidium larva

**Echinodermata:** *Asterias*, *Ophiothrix*, *Echinus*, *Clypeaster*, *Cucumaria*, *Antedon*, Bipinnaria larva

**Hemichordata:** *Balanoglossus*, Tornaria larva

**2. Dissections:**

**1. Prawn:** Appendages, Digestive system, Nervous system, Mounting of Statocyst

**2. Insect Mouth Parts**

**3. Laboratory Record work shall be submitted at the time of practical examination**

**4. An “Animal album”** containing photographs, cut outs, with appropriate write up about the above mentioned taxa. Different taxa/ topics may be given to different sets of students for this purpose

**5. Computer - aided techniques should be adopted or show virtual dissections**

**REFERENCE MANUALS:**

1. Practical Zoology- Invertebrates S.S. Lal
2. Practical Zoology - Invertebrates P.S. Verma
3. Practical Zoology - Invertebrates K.P. Kurl
4. Ruppert and Barnes (2006) Invertebrate Zoology, 8<sup>th</sup> Edition, Holt Saunders International Edition.

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**ZOOLOGY PRACTICAL SYLLABUS FOR II SEMESTER (w. e. f. 2021-2022)**  
**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*, *Echeneis*, *Labeo*, *Catla*, *Clarius*, *Channa*, *Anguilla*.
4. Amphibia : *Ichthyophis*, *Amblystoma*, *Axolotl* larva, *Hyla*,
5. Reptilia: *Draco*, *Chamaeleon*, *Uromastix*, *Testudo*, *Trionyx*, *Russels 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
4. **Frog digestive system**

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

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