

B. Sc. ZOOLOGY - I YEAR - SEMESTER – I
KAKATIYA UNIVERSITY – WARANGAL - TELANGANA
Under Graduate Courses (Under CBCS 2025-26 onwards)
PAPER-I: ANIMAL DIVERSITY – INVERTEBRATES & VERTEBRATES

UNIT I: INVERTEBRATES - PROTOZOA TO PLATYHELMINTHES

- 1.1 Concepts of: Multicellularity; Diploblastic and triploblastic organization; Symmetries; Body cavities.
- 1.2 Protozoa: General characteristics and classification up to classes; Locomotory organelles and locomotion in Protozoa.
- 1.3 Porifera: General characteristics and classification up to classes; Canal system in sponges and spicules; Evolutionary significance of sponges as early metazoans.
- 1.4 Cnidaria: General characteristics and classification up to classes; Polymorphism in Hydrozoa and Siphonophora; Coral reef formation and ecological significance.
- 1.5 Helminthes: General characteristics and classification up to classes of Platyhelminthes and Nematelminths; Parasitic adaptations in helminths; Regeneration in Turbellarians.

UNIT II: INVERTEBRATES – ANNELIDA TO HEMICHORDATA

- 2.1 Annelida: General characteristics and classification up to classes; Metamerism and its evolutionary significance; Coelom and coelomocytes.
- 2.2 Arthropoda: General characteristics and classification up to classes; Vision in arthropods and metamorphosis in insects; Economic importance of insects.
- 2.3 Mollusca: General characteristics and classification up to classes; Torsion and detorsion in gastropods; Pearl formation and economic importance of molluscs.
- 2.4 Echinodermata: General characteristics and classification up to classes; Water vascular system in starfish; Larval forms of echinoderms.
- 2.5 Hemichordata: General characteristics and affinities of Hemichordata.

UNIT III: VERTEBRATES - PROTOCHORDATES TO AMPHIBIANS

- 3.1 General characteristics of Urochordata and Cephalochordata; Retrogressive metamorphosis in Urochordata.
- 3.2 Cyclostomata: General characteristics and classification; Evolutionary status and affinities of cyclostomes.
- 3.3 Pisces: General characteristics and classification up to classes and major orders; Migration and osmoregulation in migratory fishes; Parental care in fishes.
- 3.4 Amphibia: General characteristics and classification up to orders; Parental care, neoteny, and paedogenesis in amphibians.
- 3.5 Evolutionary Trends in Early Vertebrates: Transition from water to land; Adaptive features in early tetrapod.

UNIT IV: VERTEBRATES - REPTILIA TO MAMMALIA

- 4.1 Reptilia: General characteristics and classification up to orders; Biting mechanism in snakes and temporal fossae in reptiles; Adaptive radiations in Mesozoic reptiles.

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- 4.2 Aves: General characteristics and classification up to orders; Flight adaptations and migration in birds; Evolutionary significance of birds as theropod ancestors.
- 4.3 Mammalia: General characteristics and classification up to orders; Origin of mammals: Monotremes, marsupials, and placentals; Dentition and aquatic adaptations in mammals.
- 4.4 Evolutionary Trends in Vertebrates: Origin of amniotes and evolutionary significance of amniotic egg; Primate evolution and human ancestry.
- 4.5 Conservation of Vertebrate Diversity: Threats to vertebrate diversity; Conservation strategies for endangered species.

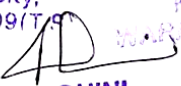
Suggested Readings:

- 1. Ruppert, E.E., Fox, R.S., Barnes, R.D. (2004). Invertebrate Zoology: A Functional Evolutionary Approach. VII Edition, Cengage Learning, India
- 2. Barrington, E.J.W. (2012). Invertebrate Structure and Functions, II Edition, ELBS and Nelson.
- 3. Pechenik, J. A. (2015). Biology of the Invertebrates. VII Edition, McGraw-Hill Education
- 4. Hickman, C., Keen, S., Larson, A., Eisenhour, D. (2018). Animal Diversity, 9th Edition, McGraw-Hill.
- 5. Young, J.Z. (2004). The Life of Vertebrates, III Edition, Oxford University Press.
- 6. Kardong, K.V. (2009). Vertebrates: Comparative Anatomy, Function, Evolution, 4th Edition, McGraw-Hill.
- 7. Pough F.H., Janis, C.M., Heiser, J.B., Heiser, C.B. (2009). Vertebrate Life, VIII Edition, Benjamin Cummings.
- 8. L.H. Hyman 'The Invertebrates' Vol I, II and V. – M.C. Graw Hill Company Ltd.
- 9. Kotpal, R.L. Protozoa, Porifera, Coelenterata, Helminthes, Arthropoda, Mollusca, Echinodermata. Rastogi Publications, Meerut.
- 10. E.L. Jordan and P.S. Verma 'Invertebrate Zoology' S. Chand and Company.
- 11. R.D. Barnes 'Invertebrate Zoology' by: W.B. Saunders CO., 1986.
- 12. P.S. Dhami and J.K. Dhami. Invertebrate Zoology. S. Chand and Co. New Delhi.
- 13. Parker, T.J. and Haswell 'A text book of Zoology' by, W.A., Mac Millan Co. London.
- 14. Mohan P.Arora. 'Chordata – I, Himalaya Publishing House Pvt.Ltd.
- 15. Marshal, Parker and Haswell 'Text book of Vertebrates'. ELBS and McMillan, England.
- 16. J.W. Young, The Life of Vertebrates, 3rd ed, Oxford University press.
- 17. Harvey Pough F, Christine M. Janis, B. Heiser, Vertebrate Life, Pearson, 6th ed, Pearson Education Inc.2002.


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