PARVATHANENI BRAHMAYYA
SIDDHARTHA COLLEGE OF ARTS & SCIENCE
Autonomous
Siddhartha Nagar, Vijayawada–520010
Re-accredited at 'A+' by the NAAC

23ZOMAL121: ANIMAL DIVERSITY BIOLOGY OF NON-CHORDATES

Offered to: BSc. Honours (Zoology). **SEMESTER: II** Credits: 3

Course Type: Major 3 (TH) 60Hrs Year of Introduction: 2023 -2024

Course Prerequisites:
Knowledge of vertebrates acquired in Intermediate

OBJECTIVES

1. Students should be able to classify and identify major groups of non-chordates, understanding the diversity within phyla such as arthropods, mollusks, annelids, echinoderms, and others.
2. Students should comprehend the structural adaptations and physiological processes in non-chordates, including diverse forms of locomotion, feeding strategies, and sensory mechanisms.
3. Develop an understanding of the life cycles, reproductive strategies, and developmental processes of non-chordates, recognizing variations among different taxa.
4. Gain knowledge about the ecological roles non-chordates play in various ecosystems, their interactions with other organisms, and their contributions to nutrient cycling.
5. Understand the evolutionary relationships of non-chordates within the broader context of the animal kingdom, recognizing key adaptations.

CO1. Students should be able to understand the principles of taxonomy and classification and classify different animal phyla and key representatives within each phylum.

CO2. Students should understand the basic physiological processes in sponges, including filter feeding, gas exchange, and waste elimination.

CO3. Students should be familiar with the life cycles of major helminthes species, including the stages of development and their transmission between hosts.

CO4. Students will develop a holistic understanding of the classification, anatomy, physiology, reproduction, conservation significance of Annelida and arthropods.

CO5. Understanding of the classification, anatomy, physiology, reproduction, conservation implications of mollusks, echinoderms, and hemichordates.

CO-PO MATRIX							
CO-PO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1						M	
CO2					L		
CO3					M		
CO4					M		
CO5					H		

SYLLABUS:

UNIT	Topics
I	UNIT-I 1.1 Whittakers five kingdom concept and classification of Animal Kingdom. 1.2 Protozoa General Characters and classification up to classes with suitable examples 1.3 Protozoa Locomotion & nutrition 1.4 Protozoa reproduction
II	UNIT –II 2.1 Porifera General characters and classification up to classes with suitable examples 2.2 Canal system in sponges 2.3 Coelenterata General characters and classification up to classes with suitable examples 2.4 Polymorphism in coelenterates & Corals and coral reefs.
III	UNIT – III 3.1 Platyhelminthes General characters and classification up to classes with suitable examples 3.2 Parasitic Adaptations in helminthes 3.3 Nemathelminthes General characters and classification up to classes with suitable examples 3.4 Life cycle and pathogenicity of *Ascaris lumbricoides*
IV	UNIT – IV 4.1 Annelida General characters and classification up to classes with suitable examples 4.2 Vermiculture - Scope, significance, earthworm species, processing, Vermicompost, economic importance of vermicompost 4.3 Arthropoda General characters and classification up to classes with suitable examples 4.4 *Peripatus* - Structure and affinities

	UNIT – V
V	5.1 Mollusca General characters and classification up to classes with suitable examples 5.2 Pearl formation in Pelecypoda 5.3 Echinodermata General characters and classification up to classes with suitable examples Water vascular system in star fish 5.4 Hemichordata General characters and classification up to classes with suitable examples *Balanoglossus* - Structure and affinities

Co-curricular activities (suggested)

- Preparation of chart/model of phylogenic tree of life, 5-kingdom classification
- Visit to Zoology Museum or Coral Island as part of Zoological tour
- Charts on polymorphism
- Clay models of canal system in sponges
- Plaster-of-paris model of *Peripatus*
- Construction of a vermicompost in each college, manufacture of manure by students and donating to local farmers
- Chart on pearl forming layers using clay
- Visit to a pearl culture rearing industry/institute
- Live model of water vascular system
- Observation of Balanoglossus for its tubicolous habit

REFERENCE BOOKS:

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

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Model Paper

23ZOMAL121: ANIMAL DIVERSITY BIOLOGY OF NON-CHORDATES

Max Marks:70 Semester -II Max Time:3Hrs

SECTION-A

Answer the following Questions (5x4=20)

1. (a) . Write the general characters of Protozoa. CO1,L2.

OR

(b) Explain Nutrition in Protozoa. CO1,L2.

2. (a) Describe the Leucon type of Canal systems in Sponges. CO2,L2.

OR

(b) Explain the structure of Corals .CO2,L2.

3. (a) Write the general characters of Platyhelementhes. CO3,L6

OR

(b) Write a shot note on Parasitic Adaptations in Helementhes. CO3,L6.

4. (a)Explain the Economic Importance of Vermicompost. CO4,L2.

OR

(b) Describe the structure of Peripatus. CO4,L2.

5. (a)Explain the general characters of Echinodermata. CO5,L2.

OR

(b) Describe the structure of Balanoglossus . CO5,L2.

SECTION-B

Answer the following Questions (5x10=50)

6. (a) Write an essay on Reproductive system of Protozoa. CO1,L2.

OR

(b) Explain the Locomotion in protozoa. CO1,L2.

7. (a) Describe the process of Polymorphism in Coelenterates.CO2,L2.

OR

(b) Explain the Canal system in Sponges.CO2,L2.

8. (a) Write the procedure “Vermiculture”. CO3,L2.

OR

(b) . Explain the structure and affinities of Peripatus. CO3,L2

9. (a) Write in detail the process of Pearl formation in Pelecypoda. CO4,L6.

OR

(b) Write an essay on Water vascular System in Starfish. CO4,L6.

10. (a) Describe the life cycle of Ascaris lumbricoides. CO5,L2.

OR

(b) . Explain the classification up to classes of Annelida CO5,L2.

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