

II SEMESTER B.SC ZOOLOGY
PAPER – II: NON-CHORDATA: PART – II **52 hrs**

UNIT: I – ARTHROPODA **17hrs**

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| 1.1. | General characters of the phylum and classification upto classes with suitable examples | 02 hrs |
| 1.2. | Peripatus - Systematic position, unique features, affinities with Annelida and Arthropoda. | 02 hrs |
| 1.3. | Prawn (<i>Palaeomon</i>) - Morphology, structure of a typical appendage, structure and function of appendages, concept of serial homology, circulatory system, reproductive system and life cycle. | 08 hrs |
| 1.4. | Respiratory organs – Gills, book gills, trachea and book lungs. | 02 hrs |
| 1.5. | Sense organs – Simple eye and compound eye. | 01 hrs |
| 1.6. | Metamorphosis – Definition and types with suitable examples. | 02 hrs |

10 hrs

UNIT: II - MOLLUSCA

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|-------------|---|--------|
| 2.1. | General characters of the phylum and classification upto classes with suitable examples | 02 hrs |
| 2.2. | Unio : Morphology, structure of shell (sectional view), digestive system, circulatory system, respiratory system, reproduction and life cycle. | 08 hrs |

14hrs

UNIT: III – ECHINODERMATA AND HEMICHORDATA

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| A | Echinodermata | 10 hrs |
| 3.1. | General characters of the phylum and classification upto classes with suitable examples. | 02 hrs |
| 3.2. | Sea Star (<i>Asterias</i>) – Morphology, digestive system, water vascular system, reproduction and life history. | 06 hrs |
| 3.3. | Echinoderm larvae : Structure and significance of: Bipinnaria, Ophiopluteus, Echinopluteus and Auricularia. | 02 hrs |
| B | Hemichordata | 04 hrs |
| 3.5. | Balanoglossus – Morphology, coelom, and Tornaria larva. | 03 hrs |
| 3.6. | Affinities and systematic position of Hemichordata. | 01 hrs |

11 hrs

UNIT: IV - ECONOMIC ZOOLOGY - II

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| 4.1. | Sericulture : Species of silk worm, rearing and management practices, pests of silkworm, by-products of sericulture. | 04 hrs |
| 4.2. | Apiculture : Species of honeybee, bee keeping and management 03 hrs practices, bee products, pests of honey bees. | 03 hrs |
| 4.3. | Prawn Fisheries : Types of prawn fishery, prawn culture and farming, preservation and processing of prawn. | 03 hrs |
| 4.4 | Pearl culture. | 01 hr |

Note: field visit recommended for all topics of economic zoology

REFERENCES:

1. R.L.Kotpal. 1998. Volumes Protozoa to Echinodermata, Rastogi Publications.
2. E.L. Jordan and P.S. Verma. 2002. Invertebrate Zoology, S. Chand and Company limited.
3. P.S. Dhama and J.K Dhama. 1994. Invertebrate Zoology, R. Chand and Company limited.
4. A manual of Zoology by Ekambarnath and Vishwanathan(1971).
5. S.N. Prasad. Invertebrate Zoology(1995).
6. Parker and Haswel. Invertebrate Zoology(1995).
7. Marshall, A.J. and Williams, W.D. (Eds.). 1995. Text book of Zoology – Invertebrate VII Ed., Vol. I, A.I.T. B.S. Publishers.
8. Hymann, L.H. 1940-67. The Invertebrate, Vol. I-IV. Mc Graw- Hill, New York.
9. Barrington, E.J.W.1967. Invertebrate structure and function. Neelson, London.
10. Economic Zoology by Shukla and Upadayana(2016).
11. Economic Zoology by Reena and Mattur(2006).

II SEMESTER B.Sc., ZOOLOGY PRACTICAL PAPER – II : NON-CHORDATA: PART – II

	15 Units
1. Arthropoda: <i>Penaeus, Palaeomon</i> , lobster and crayfish. Crustacean larvae - Nauplius, Zoea, Mysis	01 Unit
2. Arthropoda: <i>Scorpion, spider, Limulus, Peripatus, Millipede & Centipede.</i>	01 Unit
3. Arthropoda: Honey bee – Queen, drone and worker.	01 Unit
4. Mounting: Mounting of pollen basket and sting in Honey Bee.	01 Unit
5. Silk worm: Life history of <i>Bombyx mori</i> .	01 Unit
6. Observation of systems or organs in Cockroach (Use of permanent slides, models or photographs): a. Mouth parts, b. Salivary apparatus, c. Nervous System.	03Units
7. Mollusca: <i>Mytilus, Chiton, Aplysia, Octopus, Sepia</i> and Glochidium larva.	01 Unit
8. Mollusca: Shell pattern: <i>Unio, Pila, Ostrea, Cypraea, Murex, Nautilus and Dentalium</i>	01 Unit
9. Observation of systems or organs in Unio (Use of permanent slides, models or photographs): a. Digestive system, b. Pedal ganglion	02 Units
10. Echinodermata: <i>Asterias, Ophiothrix, Echinus, Cucumaria</i> and <i>Antedon</i> . Bipinnaria and Echinopluteus larva.	02Units
11. Hemichordata: <i>Balanoglossus</i> – Specimen, T.S through proboscis, Tornaria larva	01Unit

**SCHEME OF PRACTICAL EXAMINATION
II SEMESTER B.Sc. ZOOLOGY
NON-CHORDATA : PRACTICAL – II**

Duration: 3 hrs.

Max. Marks: 35

01	Systematics: Identify, classify and comment on A to E with labelled diagrams	20 marks
02	Project Report: Economic Zoology*	05 marks
03	Mounting: Honey bee – Mounting of pollen basket and sting apparatus or Observation of systems/organs: Identify and describe the given system or organ 'F' with a neat labelled diagram.	05 marks
04	Class Records	05 marks
	Total	35 marks
<p>Note: Project Topics Economic Zoology-II: Sericulture, Apiculture, Prawn fisheries, Pearl culture, Mytilus culture, Oyster culture</p>		