

**PROPOSED CURRICULUM IN ZOOLOGY FOR B.Sc.,(UG)
CBCS 2018 – 19 ONWARDS**

**I SEMESTER
PAPER – I: NON-CHORDATA: PART – I**

Unit: I - Animal Architecture and Protozoa:	-52 hrs
a) Animal Architecture	-13hrs
(To be taught citing suitable examples and keeping in view the evolutionary trends and significance)	-06hrs
1.1. Body symmetry: Definition and types – spherical, radial, biradial and bilateral symmetry	- 01 hr
1.2. Body organisation: Hierarchical organisation of animal complexity – protoplasmic level, cellular level, tissue level and organ level of organisation.	- 01 hr
1.3. Germ layers: Definition, types - diploblastic condition (apparent and absolute) and triploblastic condition.	- 01 hr
1.4. Body coelom: Definition, origin and types – acoelom, pseudocoelom, eucoelom - 01 hr (enterocoelom and schizocoelom).	- 01 hr
1.5. Metamerism: Definition and types – pseudometamerism, true metamerism - - 02 hrs homonomous and heteronomous.	- 02 hrs
b) Protozoa: The Animal-like Protista	-07 hrs
1.6. General characters of the phylum up to classes with examples.	- 01 hr
1.7. Nutrition: Holozoic, holophytic, saprozoic, mixotrophic and parasitic with an example for each.	- 02 hrs
1.8. Locomotion: Locomotory organelle – Pseudopodia, cilia and flagella. Modes of locomotion – Amoeboid movement (walking movement and sol-gel theory), flagellar and euglenoid movement, ciliary movement (Paddle stroke theory).	- 03 hrs
1.9. Reproduction: Conjugation in <i>Paramecium caudatum</i> , significance of conjugation.	- 01 hr
Unit: II – Porifera, Coelenterata and Ctenophora	- 14 hrs
a) Porifera: The Sponges – Nature's dead end	- 06 hrs
2.1. General characters of the phylum up to classes with examples.	- 01 hr
2.2. Sycon: Morphology, microscopic structure of body wall and sexual reproduction.	- 03 hrs
2.3. Canal System and its evolution: Asconoid, syconoid, leuconoid and rhagonoid types.	- 02 hrs
b) Coelenterata and Ctenophora: The Radiate Animals	- 08 hrs
2.4. General characters of the phylum Coelenterata up to classes with examples.	- 01 hr
2.5. Aurelia: Morphology, reproduction and life cycle	- 03 hrs
2.6. Polymorphism: Definition and significance. Example: <i>Halistema</i> .	- 01 hr
2.7. Coral reefs: Definition, types and theories of coral reef formation	- 01 hr
2.8. Ctenophores: General organisation and affinities.	- 02 hrs

Unit: III – Helminthes and Annelida

	10 hrs
a) Helminthes	- 05hrs
3.1. General characters of the phylum Platyhelminthes up to classes with examples.	- 01 hr
3.2. Planaria: Externals, digestive system, excretory system and nervous system.	- 03 hrs
3.3. General characters of the phylum Nematoda with examples.	- 01 hr
b) Annelida	- 05 hrs
3.4. General characters of the phylum up to classes with examples	- 01 hr
3.5. Earth worm (<i>Pheretima</i>) - Morphology, digestive system, excretory system, - 04 hrs reproductive system and development.	

Unit: IV – Parasitology and Economic Importance of Annelids **-15 hrs**

a) Parasitology:	-13 hrs
4.1. i) Definition of parasitism and types with examples	- 01 hr
ii) Occurrence, disease caused, mode of transmission, life cycle and preventive measures of the following: <i>Entamoeba histolytica</i> , <i>Leishmania donovani</i> , <i>Fasciola hepatica</i> , <i>Taenia solium</i> , <i>Ascaris lumbricoides</i> and <i>Wuchereria bancrofti</i> .	- 10 hrs
iii) Parasitic adaptations - Flat worms and leech	- 02hrs
b) Economic Importance of Annelida	- 02 hrs
4.2. Leech - Economic Importance Earthworm - Vermiculture and Vermicompost	

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. Dhami and J.K Dhami. 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)

I SEMESTER B.Sc., ZOOLOGY PRACTICAL

NON-CHORDATA: PART – I

15 Units

1. **Use of microscopes** – Simple, Compound, Oil immersion and 01 Unit Stereozoom
02. Preparation and observation of plankton culture (also Protozoans). 01 Unit
03. **Protozoa:** Study of permanent slides of *Amoeba*, *Euglena*, *Noctiluca*, *Paramoecium*, *Vorticella* and *Radiolarian* - *Foraminiferon* ooze (*Elphidium*) 01 Unit
4. **Porifera:** *Sycon*, *Euplectella*, *Hyalonema*, *Spongilla* and *Euspongia*. 01 Unit
Permanent slides of T.S. of *Sycon*, spicules and gemmule.
05. **Coelenterata:** *Hydra*, T.S. of *Hydra*, *Obelia* colony, *Obelia* medusa, *Physalia*, *Aurelia* and *Ephyra* larva. 01Unit
06. **Coelenterata and Ctenophora:** Corals–*Fungia*, *Corallium*, *Meandrina*, *Gorgonia* and *Pennatula*, Ctenophora – *Pleurobrachia* W.M. 01Unit
07. **Helminthes:** *Planaria*, *Liver fluke* and *Tape worm*. *Ascaris* – Male, female and T.S of male and female *Ascaris*. 01Unit
08. **Annelida:** Types of Earthworm species, T.S of earthworm, *Nereis* and *Heteronereis*, T.S of parapodium. 01Unit
09. **Observation of systems/ organs in earthworm**– Nervous system, ovary and setae (Use of permanent slides, models or photographs). 02Units
10. **Observation of systems/ organs in leech**– Digestive system, jaw and testicular nephridium (Use of permanent slides, models or photographs). 02 Units
11. **Parasitology:** Permanent slides of *Entamoeba*, *Leishmania*, life history stages of liver fluke (Miracidium, Redia, and Cercaria) and tape worm (Bladder worm). 03Units

**SCHEME OF PRACTICAL EXAMINATION
I SEMESTER B.Sc ZOOLOGY; NON-CHORDATA – I**

Duration: 3 hrs.

Max. Marks: 35

01	Systematics: Identify, classify and comment on A to E with labelled diagrams	20marks
02	Project Report: Economic Zoology/ Parasitology*	05 marks
03	Observation of systems/organs: Identify and describe the given system or organ 'F' with a neat labelled diagram. Or Mount and stain the plankton (or protozoan) culture given, identify and comment on any one specimen.	05 marks
04	Class Records	05 marks
	Total	35 marks
<p>Note: Project topics - Economic Zoology: Corals and Coral reefs, Parasitic adaptations and economic importance of Leech, Vermiculture and vermicomposting.</p> <p>Parasitology: <i>Entamoeba histolitica, Leishmania donovani, Taenia solium, Fasciola hepatica, Ascaris lumbricoides, Wuchereria bancrofti</i></p>		

