

Periods: 60

Max. Marks: 40

UNIT – I

(15 Periods)

1.1 Brief history of Invertebrates

1.1.1 Kingdom Animalia

1.1.2 Brief history of Invertebrates

1.2 Protozoa

1.2.1 General characters

1.2.2 Classification up to classes with examples

1.2.3 Type study - *Elphidium*

1.2.4 Life cycle of *Plasmodium*.

1.2.5 Locomotion, Reproduction and Diseases

1.3 Porifera

1.3.1 General characters

1.3.2 Classification of Porifera up to classes with examples

1.3.3 Type study - *Sycon*

1.3.4 Canal system in sponges and Spicules.

UNIT – II

(15 Periods)

2.1. Cnidaria

2.1.1 General characters

2.1.2 Classification of Cnidaria up to classes with examples

2.1.3 Type study - *Obelia*

2.1.4 Polymorphism in hydrozoa

2.1.5 Corals and coral reef formation

2.2 Platyhelminthes

2.1.1 General characters

2.1.2 Classification of Platyhelminthes up to classes with examples

2.1.3 Type study- *Schistosoma*

2.3 Nematelminthes

2.3.1 General characters

2.3.2 Classification of Nematelminthes up to classes with examples

2.3.3 Type study - *Dracunculus*

2.3.4 Parasitic Adaptations in Helminthes

UNIT – III

(15 Periods)

3.1 Annelida

- 3.1.1 General characters
- 3.1.2 Classification of Annelida up to classes with examples
- 3.1.3 Type study - *Hirudinaria granulosa*.
- 3.1.4 Evolutionary significance of Coelome and Coelomoducts and metamerism

3.2 Arthropoda

- 3.2.1 General characters
- 3.2.2 Classification of Arthropoda up to classes with examples
- 3.2.3 Type study - Prawn
- 3.2.4 Mouth parts of Insects
- 3.2.5 Insect metamorphosis
- 3.2.6 *Peripatus* - Structure and affinities

UNIT – IV

(15 Periods)

4.1 Mollusca

- 4.1.1 General characters
- 4.1.2 Classification of Mollusca up to classes with examples
- 4.1.3 Type study - *Pila*
- 4.1.4 Pearl formation
- 4.1.5 Torsion and detorsion in gastropods

4.2 Echinodermata

- 4.2.1 General characters
- 4.2.2 Classification of Echinodermata up to classes with examples
- 4.2.3 Water vascular system in star fish
- 4.2.4 Echinoderm larvae and their significance

4.3 Hemichordata

- 4.3.1 General characters
- 4.3.2 Classification of Hemichordata up to classes with examples
- 4.3.3 *Balanoglossus* - Structure and affinities

Suggested Readings

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. Dhami and J.K. Dhami. 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"

Periods: 30

Max. Marks: 40

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

- i. Protozoa: *Amoeba*, *Paramoecium*, *Paramoecium* Binary fission and Conjugation, *Vorticella*, *Entamoeba histolytica*, *Plasmodium vivax*
- ii. Porifera: *Sycon*, *Spongilla*, *Euspongia*, *Sycon* - T.S & L.S, Spicules, Gemmule
- iii. Coelenterata: *Obelia* – Colony & Medusa, *Aurelia*, *Physalia*, *Velella*, *Corallium*, *Gorgonia*, *Pennatula*
- iv. Platyhelminthes: *Planaria*, *Fasciola hepatica*, *Fasciola* larval forms – Miracidium, Redia, Cercaria, *Echinococcus granulosus*, *Taenia solium*, *Schistosoma haematobium*
- v. Nematelminthes: *Ascaris*(Male & Female), *Drancunculus*, *Ancylostoma*, *Wuchereria*
- vi. Annelida: *Nereis*, *Aphrodite*, *Chaetopteurs*, *Hirudinaria*, Trochophore larva
- vii. 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.
- viii. Mollusca: *Chiton*, *Pila*, *Unio*, *Pteredo*, *Murex*, *Sepia*, *Loligo*, *Octopus*, *Nautilus*, Glochidium larva
- ix. Echinodermata: *Asterias*, *Ophiothrix*, *Echinus*, *Clypeaster*, *Cucumaria*, *Antedon*, Bipinnaria larva
- x. Hemichordata: *Balanoglossus*, Tornaria larva

2. Dissections:

Prawn: Appendages, Digestive system, Nervous system, Mounting of Statocyst
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 – show virtual dissections

Suggested manuals:

1. Practical Zoology- Invertebrates S.S. Lal
2. Practical Zoology - Invertebrates P.S. Verma
3. Practical Zoology - Invertebrates K.P. Kurl

B.Sc. ZOOLOGY SYLLABUS UNDER CBCS

B.Sc. I Year

ZOOLOGY PRACTICAL SYLLABUS FOR I SEMESTER

Discipline Specific Course, Paper – I

[Code: BS105; Course Type DSC 2A]

ANIMAL DIVERSITY - INVERTEBRATES

Time: 2 Hrs.

Max. Marks: 40

1. Identification, labeled diagram and salient features of spots: (7 Museum specimens + 2 slides)	18
2. Dissection (one) (Diagram -02 + Dissection & Display-05)	07
3. Field Visit & Note Book	04
4. Project Work	03
5. Certified practical record	03
6. Animal Album	03
7. Viva voce	02