

PAPER I

TITLE: ANIMAL DIVERSITY-1 BIOLOGY OF NON CHORDATES

UNIT I

- 1.1 Principles of Taxonomy – Binomial nomenclature – Rules of nomenclature
- 1.2 Whittaker's five kingdom concept and classification of Animal Kingdom. Phylum Protozoa
- 1.3 General Characters and classification of protozoa up to classes with suitable examples
- 1.4 Locomotion, nutrition and reproduction in Protozoans
- 1.5 Elphidium (type study)

UNIT –II Phylum Porifera

- 2.1 General characters and classification up to classes with suitable examples
- 2.2 Skeleton in Sponges
- 2.3 Canal system in sponges Phylum Coelenterata
- 2.4 General characters and classification up to classes with suitable examples
- 2.5 Metagenesis in Obelia
- 2.6 Polymorphism in coelenterates
- 2.7 Corals and coral reefs

Phylum Ctenophora : 2.8 General Characters and Evolutionary significance (affinities)

Unit – III Phylum Platyhelminthes

- 3.1 General characters and classification up to classes with suitable examples
- 3.2 Life cycle and pathogenicity of *Fasciola hepatica*
- 3.3 Parasitic Adaptations in helminthes Phylum Nematelminthes
- 3.4 General characters and classification up to classes with suitable examples
- 3.5. Life cycle and pathogenicity of *Ascaris lumbricoides*

Unit – IV Phylum Annelida

4.1 General characters and classification up to classes with suitable examples

4.2 Evolution of Coelom and Coelomoducts

4.3 Vermiculture - Scope, significance, earthworm species, processing, Vermicompost, economic importance of vermicompost Phylum Arthropoda

4.4 General characters and classification up to classes with suitable examples

4.5 Vision and respiration in Arthropoda

4.6 Metamorphosis in Insects

4.7 Peripatus - Structure and affinities

4.8 Social Life in Bees and Termites Unit – V Phylum Mollusca

5.1 General characters and classification up to classes with suitable examples

5.2 Pearl formation in Pelecypoda

5.3 Sense organs in Mollusca Phylum Echinodermata

5.4 General characters and classification up to classes with suitable examples

5.5 Water vascular system in star fish

5.6 Larval forms of Echinodermata Phylum Hemichordata

5.7 General characters and classification up to classes with suitable examples

5.8 Balanoglossus - Structure and affinities

Practicals Syllabus :

1. Study of museum slides / specimens / models (Classification of animals up to orders) Protozoa: Amoeba, Paramecium, Paramecium Binary fission and Conjugation, Vorticella, Entamoeba histolytica, Plasmodium vivax

Porifera: Sycon, Spongilla, Euspongia, Sycon- T.S & L.S, Spicules, Gemmule

Coelenterata: Obelia – Colony & Medusa, Aurelia, Physalia, Velella, Corallium, Gorgonia, Pennatulav.
Platyhelminthes: Planaria, Fasciola hepatica, Fasciola larval forms – Miracidium, Redia, Cercaria, Echinococcus granulosus, Taenia solium, Schistosoma haematobium.

Nemathelminthes: Ascaris (Male & Female), Dracunculus, Ancylostoma, Wuchereria

Annelida: Nereis, Aphrodite, Chaetopterus, Hirudinaria, Trochophore larva

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. . Mollusca: Chiton, Pila, Unio, Pterodo, Murex, Sepia, Loligo, Octopus, Nautilus, Glochidium larva Echinodermata: Asterias, Ophiothrix, Echinus, Clypeaster, Cucumaria, Antedon, Bipinnaria larva Hemichordata: Balanoglossus, Tornaria larva 2.

Dissections: 1. Prawn: Appendages, Digestive system, Nervous system, Mounting of Statocyst

2. 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 or show virtual dissections

REFERENCE MANUALS:

1. Practical Zoology- Invertebrates S.S. Lal

2. Practical Zoology - Invertebrates P.S. Verma

3. Practical Zoology - Invertebrates K.P. Kurl

4. Ruppert and Barnes (2006) Invertebrate Zoology, 8th Edition, Holt Saunders International Edition

Co-curricular activities (suggested)

Preparation of chart/model of phylogenetic tree of life, 5-kingdom classification, Elphidium life cycle etc. Visit to Zoology museum or Coral island as part of Zoological tour

- Charts on life cycle of Obelia, polymorphism, sponge spicules
- Clay models of canal system in sponges
- Preparation of charts on life cycles of Fasciola and Ascaris
- Visit to adopted village and conducting awareness campaign on diseases, to people as part of Social Responsibility. Plaster-of-paris or Thermocol model of Peripatus
- Construction of a vermicompost in each college, manufacture of manure by students and donating to local farmers Models of compound eye, bee hive and termitarium (termitaria) by students
- Visit to apiculture centre and short-term training as part of apprenticeship programme of

- the govt. Of Andhra Pradesh Chart on pearl forming layers using clay or Thermocol
- Visit to a pearl culture rearing industry/institute
- Live model of water vascular system
- Phylogeny chart on echinoderm larvae and their evolutionary significance
- Preparation of charts depicting the feeding mechanism, 3 coeloms, tornaria larva etc., of
- Balanoglossus

Paper 1 Syllabus link

https://docs.google.com/document/d/17X-6sTMw19LCWnXpXRooWV_1bfux1osX/edit?usp=sharing&oid=105131301495914345046&rtpof=true&sd=true