M.Sc, I SEMESTER
HARD CORE PAPER – I
NON-CHORDATA

32Hrs

Unit I

a) Principles of Animal taxonomy **8hrs**

a) Vertical and horizontal classification
b) Species Concept
c) Zoological Nomenclature- ICZN
d) Taxonomic procedures,
e) New tends in taxonomy

Unit II **8 Hrs**

a) Respiration:

f) Structure and function of respiratory organs- Skin, gills, book lungs and trachea
g) Respiratory pigments

b) Excretion and osmoregulation:

h) Osmoregulation in fresh water and marine Invertebrates
i) Structure and function of excretory organs- Coelom, Coelomoducts, Nephridia, Maliphigian tubules and Coxal glands

Unit III

a) Nervous system: **8 hrs**

j) Primitive nervous system: Coelenterata and Echinodermata
k) Advanced nervous system: Annelida, Arthropoda(Crustacea and insecta) and Mollusca (Cephalopod)
l) Sense organs and their importance

Unit IV

b) Invertebrate paleontology and larval forms: **8 hrs**

a) Larval forms of free living and parasitic invertebrates
b) Geological time scale overview
c) Fossil: types and importance of fossil study

NON CHORDATA --PRACTICALS **4x16=64 Hrs**

I. Observation of Slides and Museum Specimens: **4x12=48 hrs**

1. PROTOZOA;

Slides : 1) Gregarines 2) Monocystis 3) Ceratium 4) Euplotes 5) Didinium 6) Noctiluca 7) Radiolaria 8) Stentor 9) Foraminifera 10) Opalina

2. PORIFERA;

a) Slides: 1) L.S. of Sycon,
b) Specimen: 1) Grantia 2) Euspongia

3. CNIDARIA:
a) Slides: 1) Obelia polyp and Medusa 2) Pennaria 3) Aurelia-tentaculocyst
b) Specimens: 1) Physalia 2) Virgularia 3) Spongodus 4) Zoanthus 5) Favia

4. HELMINTHES:
a) Slides: 1) Temnocephala.
b) Specimens: 1) Planaria 2) Male and female *Ascaris lumbricodes* 3) *Taenia solium*

5. ANNELIDA:
a) Slides: 1) Ozobranchus, 2. Glossiphonia
b) Specimens: 1) Eunice 2) Chloea flava 3) Polynoe 4) Terebella 5) Eurythoe

6. ARTHROPODA:
a) Slides: 1) Daphnia 2) Cyclops 3) Chelifer 4) T.S of Peripatus
b) Specimens: 1) Balanus 2) Lepas 3) Palinurus 4) Uca 5) Pyna 6) Hippa 7) Gongylus 8) Belostoma 9) Limulus 10) Squilla 11) Eupagarus 12) Cicada-Female and male

7. MOLLUSCA :
Specimens: 1) Aplysia 2) Glochidium 3) Dolobella 4) Pteria 5) Nerita 6) Arca 7) Sanguinolaria 8) Chicoreus 9) Ficus 10) Lambis 11) Tridacna 12) Bulla 13) Onchidium 14) Oliva 15) Murex 16) Turritella 17) Cardium

8. ECHINODERMATA:
Specimens: 1) Sea Urchin 2) Linckia 3) Echinodiscus 4) Holothuria 5) Antedon

9. MINOR PHYLA: —1) Bugula 2) Plumatella 3) Cristella 4) Pectinella 5) Lingula 6) Phoronis 7) Dendrostoma

10. LARVAL FORMS:
Slides: 1) Cerceria 2) Trochophore 3) Aurelia-Panula 4) Nauplius 5) Zoea 6) Mysis 7) Phyllosoma 8) Trilobite larva of Limulus 9) Antlion 10) Veliger 11) Tornaria 12) Glochidium 13) Bipinnaria 14) Ophiopluteus 15) Echinopluteus 16) Auricularia

11. Field Study: Visit different parts of the campus, to observe and study invertebrates in their natural habitat. **4x2=8 hrs**

II. Study of Nervous system, Respiratory system, Reproductive system and Excretory system in invertebrates by employing computer animation/charts: 4x2=8 hrs

REFERENCES :

1. Barnes, R.D.1974. Invertebrate Zoology, III edition. W.B Saunders Co., Philadelphia
2. Barrington, E.J.W, 1976. Invertebrate Structure and Function. Thomas Nelson and Sons Ltd., London.
3.Hyman L,H. 1940. The invertebrates. Vol. 1. Protozoa through Ctenophora, McGraw hill Co.,N.Y.
4. Hyman. L H. 1959. The Invertebrates smaller coelomate groups, Vol. V. McGraw Hill Co.,
5. Hyman. L. H. 1951. The Invertebrates. Vol. 2. McGraw Hill Co., N.Y.
6. Hyman. L H. 1968. The invertebrates Vol. 8. McGraw Hill Co., N.Y and London.
7. Simpson, G C. Principles of Taxonomy.