JYOTI NIVAS COLLEGE AUTONOMOUS
SYLLABUS FOR 2018 BATCH AND THEREAFTER

Programme: B.Sc. **Semester: I**

ZOOLOGY PAPER 1

NON-CHORDATA: PROTOZOA TO ANNELIDA AND PARASITOLOGY

Course Code: 18IZO1 **No. of Hours: 60**

COURSE OBJECTIVES:

To promote knowledge on:

- Diversity of Invertebrates
- Body organization and function
- Invertebrates in health and disease

LEARNING OUTCOMES:

- Students develop the ability to identify and classify invertebrates
- Will be able to differentiate body symmetry, levels of body organization and functions of organs and tissues
- Can understand the cause and causative agents of different diseases

UNIT I: PATTERNS OF ORGANISATION 9 HRS

(To be taught with suitable examples keeping in view of the evolutionary trends and significance)

1.1 Levels of organization: Unicelluar, Multicellular, Tissue, Organs and Organ systems **1 HR**

1.2Organisationand types of germ layers- Diploblastic (apparent and absolute) and Triploblastic **2 HR**

1.3 Development- Direct and Indirect; Protostomes and Deuterostomes **1 HR**

1.4 Coelom- Acoleom, pseudocoelom and eucoelom (enterocoelom and schizocoelom) **1 HR**

1.5 Metamerism – Pseudometamerism, Eumetamerism- Homonomous and Heteronomous **1 HR**

1.6 Symmetry-Assymetry, Radial, Biradial and Bilateral **1 HR**

1.7 Metazoa- Origin of Metazoa - i) Syncitial theory of Hadzi and Hansson ii) Colonial theory of Haeckel andMetschinkoff and iii) Blastaea and gastrea theory of Haeckel **2 HR**

UNIT II: PROTOZOA **9 HRS**

2.1 General characters of the phylum and classification upto classes with

Examples **2 HRS**

2.2 Nutrition: Autotrophic, Holozoic, Holophytic, Saprophytic and Parasitic with an example for each **2 HRS**

2.3 Locomotion:

i) Amoeboid movement– Sol –Gel theory and Walking movement theory

ii) Flagellar movement and Metaboly in Euglena

iii) Ciliary movement –Paddle Stroke Theory in Paramecium **2 HRS**

2.4 Reproduction:

Asexual – Binary fission and multiple fission in Amoeba;

Sexual – Autogamy in Paramecium aurelia and conjugation in *Paramecium*

caudatum **3 HRS**

UNIT III: PORIFERA **9 HRS**

3.1 General characters of the phylum Porifera and classification upto classes with suitable examples **2 HRS**

3.2 Microscopic structure of body wall with reference to Sycon **1 HR**

3.3 Canal system and its evolution: Asconoid, Syconoid,Leuconoid and Rhagonoidwith examples **2 HRS**

3.4 Skeleton: Types of spicules and sponginfibres **1 HR**

3.5 Reproduction: Asexual (external and internal budding), sexual reproduction in Sycon. Regeneration in sponges **3 HRS**

UNIT IV: COELENTERATA **9 HRS**

4.1 General characters of the phylum and classification up to classes with suitable examples **1 HR**

4.2 Hydra- Externals, Structure of Cnidoblast, Nutrition,Nerve net and

Reproduction **3 HRS**

4.3 Life cycle and metagenesis in Aurelia **1 HR**

4.4 Polymorphism in Siphonophora with reference to Physalia and Halistemma **2 HRS**

4.5 Coral reefs: Types and theories of coral reef formation (Darwin and Dana’s subsidence theory and Daly’s glacial control theory) **2 HRS**

UNIT V: HELMINTHES **4 HRS**

5.1 General characters of the phylum Platyhelminthes and classification upto classes with suitable examples **1 HR**

5.2 Regneration in Planaria: Introduction-Epimorphosis,morphollaxis&heteromorphs.Polarity and Child's axial gradient theory **2 HRS**

5.3 General characters of phylum Nematoda and Classification up to classes **1 HR**

UNIT VI: ANNELIDA **8 HRS**

6.1 General characters of the phylum and classification upto classes with examples **2 HR**

6.2 Type study: *Hirudinaria granulosa* - Externals, Digestive, Respiration , Nervous, Excretory, Reproductive system and life cycle **5 HRS**

6.3 Trochophore larva and its significance **1 HR**

UNIT VII: ECONOMICS IMPORTANCE AND PARASITOLOGY **12HRS**

Economic Zoology **2 HRS**

7.1 a. Economic importance of Protozoa: useful and harmful protozoans

b. Economic importance of Porifera: beneficial (as food, commensals & others) and harmful poriferans

c. Economic importance of Coelenterata: significance of corals and coral reefs

d. Economic importance of Annelida: Vermitechnology

Parasitology **10 HRS**

7.2 Definition, Types of parasites, morphological and physiological adaptations in Helminthes and Annelids (Leech). **2 HRS**

7.3 Occurrence, disease caused, mode of transmission and control measures of the following parasites: **2 HRS**

a.*Entamoeba histolytica*

b.*Fasciola hepatica*

c.*Wuchereria bancrofti*

7.4 Morphology and life cycle of: **6 HRS**

a.*Plasmodium vivax*

b.*Taenia solium*

c. *Ascaris lumbricoides*

Practical – I

NON-CHORDATA: PROTOZOA TO ANNELIDA AND PARASITOLOGY

DURATION: 3 HRS/ UNIT **NO. OF UNITS: 15**

I.MICROSCOPY- Handling of Simple and Compound Microscopes **1 UNIT**

II. a. **PROTOZOA** **1 UNIT**

Slides -Amoeba, Euglena,Noctiluca, Vorticella

b. **PORIFERA** **1 UNIT**

Specimens -Sycon, Hyalonema, Spongilla and Gemmule

c. **COELENTERATA** **2 UNITS**

Slides –Hydra(W .M) and T.S of Hydra, Obelia(W. M) and itsmedusa(W. M).

Specimens - Aurelia, Sea anemone, Gorgonia, Astraea, Fungia

d. **HELMINTHES** **1 UNIT**

Specimens -Liver fluke, Tapeworm andAscaris (male and female)

Slides-T.S of Ascaris (male and female)

e. **ANNELIDA** **1 UNIT**

Specimens - Nereis, Heteronereis, Aphrodite, Arenicola

III.PARASITOLOGY **2 UNITS**

Study of whole mounts of- I.Entamoebahistolytica,II.Signet ring stage of III.Plasmodiumvivax and larval stages of Liver fluke-Redia, Miracidium and Cercaria larvae

IV. STUDY OF DISSECTED SYSTEMS OF LEECH

1. Digestive System **4 UNITS**

2. Testicular nephridium

3. Nervous system

4. Male and female reproductive system

Practical tests/repetition **2 UNITS**

Note: 13 Practicals + 2 Units for Practical tests/Repetition/ subject related activities

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4. EKAMBERNATH IYER M AND ANANTHAKRISHNAN T.N, 1986.OUTLINES OF ZOOLOGY:INVERTEBRATE Vol. 1, S Vishwanathan printers and publishers pvt ltd.

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