



TRIPURA UNIVERSITY

**(A Central University)
Suryamaninagar-799022**

Syllabus

OF

**Zoology
(General & Major)**

Semester - IV

2014

Semester – IV (Honours / Major)

Paper 4A Theory 60 (48 + 12)

Unit I: Microbiology, Parasitology and Immunology

- 1) General characters and major classification of microbes.
- 2) Microbes in human and animal welfare.
- 3) Common microbial diseases (Cholera and Amoebiasis), their treatment and control.
- 4) Life cycle, pathogenicity, clinical features and control measures of *Plasmodium vivax*, *P. falciparum*, *Wuchereria bancrofti* and *Ancylostoma duodenale*.
- 6) Host-parasitic interaction with reference to helminthes (*Taenia* sp. and roundworms) diseases.
- 7) Major cells types and organs of immune system; primary and secondary lymphoid organs; types of immune system: Cell mediated immune system & humoral immune system; Concept of antigens and types of antibodies

Unit II: Tools and techniques in Biology (15 lectures) 12x2 = 24

- 1) Principle and applications of pH meter, ii) colorimeter, and iii) Centrifuges
- 2) Principle and applications of i) Chromatography ii) Electrophoresis
- 3) Principle and application of i) Light microscope (Bright-field and Phase Contrast) and Electron microscope (SEM & TEM)
- 4) Micro-techniques: Fixation, dehydration, embedding, block-making, microtomy, Principle of staining, acid and basic stains, Single & double staining methods

N.B: Internal assessment of 12 marks based upon above syllabus.

Paper 4B Practicals (based on theory paper)

40 (28 + 12)

- 1) Spot identification of parasites: *Entamoeba sp.*, *Ascaris sp.*, *Anchylostoma sp.*, *Taenia sp.*
- 2) Adaptive features of: *Fasciola hepatica*, *Ascaris lumbricoides*, *Taenia solium*, *Anchylostoma duodenale*, *Hirudinaria sp.*
- 3) Gram staining of bacteria
- 4) Collection and preparation of gut parasites of cockroach and fowl
- 5) Double staining method (H-E) of liver, kidney and testis tissues
- 6) Lab note book
- 7) Viva voce

N.B: Internal assessment of 12 marks based upon above syllabus.

Semester – IV (Pass / Minor)

Paper 4A Theory

50 (40 + 10)

Unit I: Applied Zoology II

1. Sericulture: Species of silk worms, food plants and silk varieties in India; Life history and rearing method of *Bombyx mori*, its diseases and control measures.
2. Apiculture: Species of honey bees in India; Life history and rearing methods of *Apis indica*; Bee products and their uses.
3. Vermiculture: Major vermicomposting species in India; Principle, method and importance of vermicomposting.
5. Prawn culture: Indian prawns of commercial value – Penaeid and non-penaeid groups, Prawn culture and hazards in prawn farming.

Unit II: Genetics and Molecular Biology

1. Mendelian principle of segregation and independent assortment
2. Linkage, Recombination, Cytoplasmic inheritance
3. Concepts of alleles and multiple alleles
4. Sex determination in *Drosophila* and man; Sex chromatin or Barr body and its significance
5. Congenital chromosomal abnormalities: Down, Turner and Klinefelter syndrome
6. Mode of inheritance of autosomal and sex-linked genes with reference to albinism and colour blindness
7. DNA as a genetic material – experimental proof
8. Replication, Transcription and Translation in prokaryotes

A. Applied Zoology

1. Spotting and economic importance of the following specimens (Any three)

- a. ~~*Tripotrhiza*~~ sp. *Tryporyza* sp.
- b. *Sitophilus* sp.
- c. *Bandicoota* sp.
- d. *Bombyx* sp.
- e. *Apis* sp.
- f. *Perionyx* sp.
- g. *Macrobrachium* sp.

B. Genetics

- 2. Preparation and staining of cell division (onion root tip)
- 3. Identification of Mitotic / Meiotic division stages
- 4. Studies of Barr body in man.

C. Viva Voce

D. Lab Note Book