

BHARATHIAR UNIVERSITY, COIMBATORE

B.Sc. Zoology Degree Course (Affiliated Colleges)

(For the students admitted from the academic year 2017-2018 and onwards)

Note: The revised syllabus for the Semester I:Core Paper I - BIODIVERSITY OF INVERTEBRATES Semester V: Core Practical III Based on core Papers V, VI, and VII and Semester – VI, Core Paper – VIII PHYSIOLOGY AND ENDOCRINOLOGY, Semester – VI, Skill Based Paper IV (Based on Skill based papers I, II & III) are furnished below be followed and there is no change in the existing scheme of examination and syllabi of remaining papers.

Semester – I core paper – I BIODIVERSITY OF INVERTEBRATES

Objectives: 1. To understand Biodiversity, Habitat, Adaptation organization and taxonomic status of invertebrates.
2. Explaining the basic aspects of classification, structural and functional details of Invertebrates.

Unit I:

Protozoa : Classification up to orders and their characters with suitable Indian examples
Type study : Paramecium
General topic : Protozoan diseases and their control (Plasmodium Life cycle in detail)
Kingdom : Animalia
Porifera : Classification up to orders and their characters with suitable Indian examples.
Type Study : Leucosolenia
General topic : Economic Importance of sponges.

Unit II:

Coelenterate : Classification up to order and their characters with suitable Indian examples.
Type Study : Obelia
General topic : Coral reefs, Polymorphism in Coelenterates.

Unit III:

Helminthes : Classification up to order and their characters With suitable Indian examples.
Type Study : Taenia solium
General topic : Nematode parasite and their parasitic adaptation
Annelida : Classification up to order and their characters with suitable Indian examples.
Type Study : Earth Worm
General topic: Filter feeding in polychaetes.

Unit IV:

Arthropoda : Classification up to order and their distinguishing characters with suitable Indian examples.
Type Study : Cockroach

General topic : Crustacean larvae and their significance. Detailed study of peripatus and affinities, Economic importance of insects.

Unit V:

Mollusca : Classification up to order and their Distinguishing characters with suitable Indian examples.

Type Study : Pila globosa

General topic : torsion in Gastropoda, Economic importance of Mollusca

Echinodermata : Classification up to order and their Distinguishing characters with suitable Indian

examples.

Type Study : Star fish

General topic : Larval forms and their significance.

Text books for study:

1. Ekambaranatha Ayyar & T.N. Ananthakrishnan (1992) Manual of Zoology Vol – I , part I & II S.Viswanathan Pvt. Ltd. Chennai.
2. Jordan. E.L & Verma. P.S Invertebrate zoology S.Chand & co. New Delhi.
3. Ebanasar and Sheeja 2006 outlines of five kingdoms of life, “Shine and twinkle publication”.

Books for reference:

1. Barnes R.D (1992) Invertebrate Zoology IV Edn. Holt saunders International Edn.
2. Barrington E.J.W (1979) Invertebrate structure and function 2nd Edition ELBS & Nelson.
3. Kotpal R.L, S.K.Agarwal, R.P.R.Khetarpal (1989) Modern text book of zoology Rastogi Publications
4. Rajesh Karyakarle and Ajit Damle – 2005 Medical Parasitology Books & Allied (P) Ltd. Kolkata.

SEMESTER V

Core Practical III

Based on core Papers V, VI, and VII

1. Blood grouping in man.
2. Squash preparation of onion root tip – observe the stages of mitosis.
3. Chironomous larva – Giant Chromosomes. (Drosophila / Chironomous)
4. Drosophila male and female.- Genetic importance
5. Homologous and analogous organs – Fore limbs and Hind limbs.
6. Fossils – Any Two
7. Qualitative estimation of carbohydrates, Protein and Lipids.
8. Quantitative estimation of Glucose in Urine.
9. Compound microscope.
10. pH meter.
11. Centrifuge.
12. Colorimeter/ Spectrophotometer.
13. Plasmid (Any two)
14. Cosmid
15. Phagemid.
16. Isolaltion of DNA (demonstration only)

Semester – VI, Core Paper – VIII
PHYSIOLOGY AND ENDOCRINOLOGY

Objective : Explaining various aspects of physiological activities of animals with special reference to humans.

Unit – I

Nutrition : Digestion and absorption of carbohydrates proteins and lipids. Respiration – Types – Properties and functions of Respiratory pigments - exchange and transport of Gases (CO₂ & O₂) Bohr's effect.

Unit – II

Circulation : Composition and function of blood – Types of Hearts – Neurogenic – Myogenic - ECG. Blood pressure Mechanism of Blood clotting Excretion – Classification of animals based on the nature of excretory products, ornithine cycle Osmo regulation in fresh water and marine animals.

Unit – III

Nerve Physiology : Types of Neuron – Conduction of Nerve impulse. Synapse and synaptic transmission of impulses. Muscle Physiology : Types of Muscle – Ultra structure and properties – Muscle proteins – Physiology of Muscle contraction.

Unit – IV

Receptors : Eye, ear, Thermoreceptors. Endocrinology : Structure, secretions and functions of Pituitary, Thyroid.

Unit – V Structure, secretions and functions of Parathyroid, adrenal, islets of langerhans, Testis ovary, placenta, Pheromones.

Text books for study :

1. Parameswaran.R.S.Viswanathan – Animal Physiology Printers & Publishers Pvt. Ltd.
2. Verma.P.S and Agarwal.V.K Animal Physiology S.Chand & Co NewDelhi.

Books for reference :

1. Hoar.W.S.General and comparative physiology Prentice – Hall of India Pvt. Ltd.New Delhi.
2. Prosser.C.L and Brown Fo Comparative Animal Physiology 2nd Edn. W.B.SaundersCophnadelphia Toppaa & Co. Tokyo Japan. Guyton. Medical Physiology
3. Best.C.H & Jaylor.N.B Physiology Basis of Medical Practice The Wilkins companyBaltimore.
4. Bentley.P.J Comparative Vertebrate endocrinology S.Chand & Co. New Delhi.

**Semester – VI, Skill Based Paper IV
(Based on Skill based papers I, II & III)**

PRACTICALS

1. Technique of sterilization using Autoclave and Pressure cooker
2. Preparation of Nutrient Agar and broth
3. Enumeration of Microbes in soil, air & water (Individual practical)
4. Determination of microbiological quality of raw milk and pasteurized milk samples – using MBR test (Methylene Blue Reduction)
5. Hanging drop technique
6. Gram's staining, Spore staining
7. Mounting of Algal/Fungal filament

A visit to Industry / laboratory – A report to be submitted.

SPOTTERS

- 1) Thymus Gland, 2) Any bacteria / MTCC, 3) Penicillin,
- 4) Antibiotic disc, 5) Yeast, 6) Plasmodium,
- 7) Autoclave, 8) Pressure cooker, 9) VDRL Kit, 10) Membrane filter
- 11) Nutrient Agar Medium, 12) Anaerobic Jar