

GONDWANA UNIVERSITY GADCHIROLI
SEMESTER SYSTEM SYLLABUS
FOR
B.Sc. Part III
Subject- Zoology
Semester – V
Paper - I: General Mammalian Physiology –I

Unit – I : Enzymes

1. Enzymes –Distribution and chemical nature of enzymes
2. General properties of enzymes
3. Classification of enzymes
4. Factors affecting enzyme activity

Unit-II : Nutrition and Digestion

1. Structure and functions of digestive glands - (Salivary, Gastric, Intestinal, Liver and Pancreas)
2. Gastrointestinal hormones
3. Digestion and absorption of proteins, carbohydrates and lipids.
4. Vitamins- Fat soluble and water soluble vitamins; Sources, deficiency and diseases

Unit-III : Respiration

1. Respiratory pigments - Types, distribution and properties
2. Mechanism of Respiration
3. Transport of O₂ and CO₂
4. Respiratory disorders and effects of smoking

Unit-IV : Circulation

1. Composition and functions of blood
2. Blood clotting – Intrinsic and extrinsic factors, blood groups and *Rh* factor
3. Cardiac cycle
4. E.C.G. and Blood pressure

Semester – V

Paper –II : Applied Zoology-I

(Aquaculture and Economic Entomology)

Unit –I: Aquaculture

1. Site selection and construction ,Pre-stocking and post stocking management of nursery, rearing and stocking ponds
2. Breeding of fishes by bund and Chinese hatcheries. Induced breeding by hypophysetion. New generation drugs in induced breeding
3. Brief study of freshwater aquaculture system – Polyculture, cage culture, sewage fed fish culture, integrated fish farming
4. Fish products and byproducts, Fish preservation

Unit-II

1. Prawn culture and Pearl culture
2. Fabrication and setting up of aquarium and its maintenance
3. Breeding of aquarium fishes – Live bearers and egg layers
4. Diseases caused by fungi, bacteria, protozoa and helminthes

Unit-III : Economic Entomology (Methods of pest control)

1. Chemical control : Insecticides - Pyrethroids, carbomate and HCN – mode of action,merits and demerits
2. Biological control – Biological agents – predators and parasites; merits and demerits
3. Crop pest: Life cycle, damage and control of
 - I. Cotton spotted boll worm -*Eariasvitella*
 - II. Stored grain pest- Rice Weevil,*Sitophilusoryzae*
4. Animal pest:Life cycle, damage and control of –
 - I. House fly – *Muscanebulo*
 - II. Stable fly – *Stomoxyscalcitrans*

Unit-IV : Economic Entomology (Industrial entomology) (9 Periods)

1. Sericulture - Types of Silkworm. Life cycle and rearing of mulberry silkworm,*Bombyxmori*
2. Life cycle and rearing of non mulberry silkworm (Tasar), *Antheraeamylitta* ; Brief idea of cocoon processing for silk fabric - cocoon boiling, reeling, rereeling, winding, doubling, twisting and weaving
3. Apiculture – Types of honey bees. Life cycle, culture, movable frame hive, bee product and its economic importance
4. Lac culture – Lac insect,*Lacciferlacca* - Life cycle, Lac processing, Lac products and Economic Importance

Semester – V
PRACTICAL – V (Based on Paper I and II)
Section A: General Mammalian Physiology - I and
Section B: Applied Zoology–I (Aquaculture and Economic Entomology)

Section A: General Mammalian Physiology – I

1. Detection of action of salivary amylase on starch
2. Detection of carbohydrates, proteins and Lipids
3. Detection of Vitamin A and Vitamin C
4. Measurement of lung capacity
5. Preparation Haemin crystal
6. Total count of WBC and RBC
7. Determination of Hb percentage
8. **Study of histological slides of Mammal** – T.S. salivary gland, T.S. stomach, T.S. intestine, T.S. pancreas, T.S. liver and T.S. lung

Section B: Applied Zoology–I (Aquaculture and Economic Entomology)

Aquaculture:

1. Collection and identification of fishes

- a. Freshwater edible fishes – catla, rohu, mrigal, grass carp, silver carp, *Cyprinus carpio*, *Ophiocephalous*, *Clarias*, *Heteropneustes*, *Wallago*, *Mystus*,
- b. Aquarium fishes – Gold fish, Molly, Sword tail, Kissing *Gourami*

2. Anatomical Observations

Anatomical observations, demonstration and detailed explanation of the following with the help of ICT tools/ models/ charts/ photographs etc.

- : a. Digestive system, reproductive system and brain with pituitary of cultural fishes.
- b. Gonosomatic index.

3. Fabrication and setting up of aquarium

4. **Mounting:** Scales of fishes, zooplankton

Economic Entomology:

1. Study of Insect Pest

- a. Agriculture pest – Grasshopper, Red Cotton bug, Gram pod borer, Cotton pink bollworm, Cotton spotted bollworm
- b. Medical pest – House fly, Mosquito, *Pediculus humanus*
- c. Veterinary pest – Stable fly, Dog tick, Bird lice
- d. Stored grain pest – Stored grain weevil, Flour moth
- e. Useful Insects – Honeybee, Silk moth, Lac insect, Dragon fly, Lady bird beetle

2. **Mounting** : Study of permanent Preparation of the following with the help of already available permanent slides ICT tools/ models/ charts/ photographs etc. (Any five)
Mouth parts, Legs, wings of any insects and sting of Honeybee

3. **Visit** to – Fish farm, Apiculture, Sericulture, Agricultural educational centre, Sea shore and Lake.

Distribution of Marks Total Marks 30

1 Physiology experiment.....	05
2. Identification and comment on spots	08
(2 from Mammalian histology,3 from Aquaculture and 3 from Economic Entomology)	
3. Anatomical Observations	05
4. Permanent stained preparation.....	03
5. Submission ,collection and study tour report.....	03
5. Submission of practical record.....	03
6. Viva voce.....	03
Total	30