

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT
SYLLABUS FOR CBCS AND SEMESTER SYSTEM

B.Sc. SEM – III

(Effective from June 2016)

ZOOLOGY PAPER – III (Z – 301)

(Non-chordates, Evolution and Economic Zoology)

UNIT - 1

Introduction to classification: General study of Non-Chordate Phyla up to Subclass with examples: - Protozoa, Porifera, Coelenterata (Cnidaria), Helminthes, Annelida.

UNIT - 2

Study of the following animal types with reference to the structure and functions of various organs of all systems of Leech.

UNIT - 3

Evolution and Adaptations:

- i. Variation
- ii. Fossorial, Cursorial, Deep sea & Cave Dwelling Adaptations

UNIT - 4

Economic Zoology:

- (i) Sericulture: - Life-History of Indian species of Mulberry silk-worm (*Bombyx mori*); Management of Silk industry including rearing, spinning and reeling; Types and Economic importance of silk.



(ii) Apiculture :- Life-history of Honey- bees, types, castes, structure of honeycomb, economic importance of honey, venom and wax.

B.Sc. SEM – III

ZOOLOGY PRACTICAL – I (Based on paper - III)

(Non-chordates, Evolution and Economic Zoology)

1- Classification of following animals up to--sub-class.

Amoeba, Euglena, Monocystis, Paramoecium, Leucosolenia, Hyalonema, Spongilla, Hydra, Porpita, Aurelia, Gorgonia, Sea-anemone, Planaria, taenia, Liver-fluke, Ascaris, Earthworm, Leech, Nereis

2- The following practicals of **LEECH** to be taught/studied **only** with the help of charts, models, videos, photographs, permanent slides, working models, simulators etc.

- a) Digestive system and mounting of salivary gland.
- b) Reproductive system mounting of jaws.
- c) Nervous system and mounting of testicular nephridia.

3- **Adaptations:** Fossorial adaptations-Arenicola and Talpa; Deep sea adaptations-giant squid, Octopus, flat fish, arrow fish; Cave dwelling adaptations- Troglodite, Proteus (proteus anguinus);Cursorial adaptations- Cheetah, Horse, Wolves, Deer; Variation- Digits in man, giraffe.

4- Life history of Indian mulberry silk worm (Bombyx mori). Api culture: To study Life history, queen, drones, workers, wax, modern movable beehive.



B.Sc. SEM – III
ZOOLOGY PAPER – IV (Z – 302)
(Chordates, Histology and Osteology)

UNIT - 1

Introduction to classification: General study of the following protochordates and chordates up to subclass with examples: Urochordata, Cephalochordate, Cyclostomes, Pisces.

UNIT – 2

Study of the **Scoliodon (Dog Fish)** with reference to their structure and functions of various organs of all systems.

UNIT - 3

Histology:

Study the Ultra structure following mammalian tissues– stomach, intestine, liver, Salivary gland, pancreas, kidney and gonads.

UNIT - 4

Osteology:

Study of girdles in Frog, Scoliodon, varanus, pigeon and rabbit.



B.Sc. SEM – III
ZOOLOGY PRACTICAL - II (Based on paper -IV)
(Chordates, Histology and Osteology)

1- Classification upto sub-class (with the help of specimens, photographs, models etc.)

Ascidian, amphioxus, lamprey, myxine, Scoliodon, electricray, protopterus, clarius, seahorse, ophi ocephalus, labeo.

2- The following practicals of **SCOLIODON** to be taught/studied **only** with the help of charts, models, videos, photographs, permanent slides, working models, simulators etc.

a) Digestive system and temporary mounting of placoid scales.

b) Urino-genital system and mounting of ampulla of lorenzini.

c) Circulatory system

d) Brain-dorsal and ventral view.

3-Mammalian Histology: Study of permanent histological slides of salivary gland, liver, stomach, pancreas, intestine, kidney, gonads.

4-Osteology: Study of girdles in Scoliodon, frog, varanus, pigeon and rabbit.



B.Sc. SEM – III
ZOOLOGY PAPER – V (Z – 303)
(Animal Physiology)

UNIT – 1

Muscle coordination: Types and structure of muscle fibers; Physiology of muscle contraction and energetic.

UNIT – 2

Nervous coordination: Synapse and mechanism of nerve impulse conduction. Structure and function of sense organs (human) eye & ear.

UNIT – 3

Excretion and osmoregulation: Structure of uriniferous tubule physiological process of excretion (including counter current mechanism) and urine formation; hormonal control (rennin angiotensin system and ADH); Osmoregulation in fresh and marine waters; osmosis; diffusion and Donnan's equilibrium.

UNIT – 4

Hematology: Composition of blood, Haemopoiesis and blood groups.



B.Sc. SEM – III
ZOOLOGY PRACTICAL – III (Based on paper V)
(Animal Physiology)

1. To study Haemin crystals from human blood.
2. Total count of WBC from human blood.
3. Estimation of Hemoglobin from human blood.
4. To determine normal and abnormal constituents of urine.
5. To study different types of muscle fibres- striated, nonstriated, medulated, non medulated and cardiac. Sensory organs –human eye and ear. Different types of nerve cells.



B.Sc. SEM – III
MARINE SCIENCE (EG)

UNIT - 1

Scope of marine science:

- 1) Introduction to marine science and career.
- 2) Evolution and biological classification
- 3) Prokaryotes, eukaryotes-fungi, Protista, plant, animalia-five kingdoms

UNIT - 2

Geology of the ocean:

- 1) Zonations of ocean
- 2) List of Indian oceans-Andaman sea, Arabian Sea, bay of Bengal, gulf of Eden, gulf of Oman, Mozambique channel, Persian gulf, Red sea, Timor sea.

UNIT - 3

Types of seashores and their fauna:

- 1) Sandy shore 2) Rocky shore 3) Estuaries

UNIT - 4

Marine organisms:

- 1) Microorganisms: - phytoplanktons, zooplanktons, red algae, brown algae, green algae, multicellular algae. Economic importance of algae.
- 2) Macro organisms: - Invertebrates-commercial importance of marine sponges, Mollusca, arthropods (crab and prawns).
Vertebrate: economic importance of Scoliodon (sharks) and marine mammals.

