

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT

S.Y. B.Sc. SEM – III

ZOOLOGY PAPER -Z – 301

(Revised Syllabus Effective from JUNE - 2022)

(Non-chordates, Evolution and Economic Zoology)

UNIT –I Classification:

Introduction to classification:

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

UNIT - II Type study: Earthworm:

- Study of the following animal type with reference to the structure and functions of various organs of all systems of **Earthworm**:
 - Systematic position
 - Habit and Habitat
 - External features
 - Body wall and its function
 - Coelom – composition and function
 - Food and feeding mechanism
 - Digestive system and digestion
 - Circulatory system
 - Excretory system and excretion
 - Nervous system-(central, peripheral and sympathetic)
 - Sense organs-Epidermal receptors, Buccal receptors and photoreceptors
 - Reproductive system-copulation, cocoon formation and development

UNIT - 3 Evolution and Adaptations:

- Variation
- Deep sea & Cave Dwelling Adaptations

UNIT – 4 Economic Zoology:

➤ Vermiculture:

- Definition of Vermiculture, Vermicomposting and Vermibed
- Limitations of traditional agricultural system
- Role of earthworm in saving environment
- Vermibreeds
- Earthworm-The Cinderella of Vermiculture
- Ecology of earthworm
- Physical, Chemical and biological parameters of Vermicast
- Vermiculture process
- Advantages and disadvantages of Vermicomposting
- Prospects of Vermiculture and Vermicomposting

➤ **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
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ZOOLOGY PRACTICAL (Based on Paper - Z – 301)
(Non-chordates, Evolution and Economic Zoology)

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

1 - Classification of following animals upto sub-class.

- Trypanosoma
- Monocystis
- Vorticella
- Grantia
- Euplectella
- Spongilla
- Hydra
- Cyanea
- Gorgonia
- Planaria
- Taenia
- Ascaris
- Aphrodite
- Tubifex
- Hirudo medicinalis

2- Earthworm:

- External features
- Digestive System
- Mounting of setae
- Reproductive system
- Mounting of Septal nephridia
- Nervous system Spermatheca
- Blood glands

3- Permanent Slides of earthworm:

- T.S.passing through pharynx
- T.S.passing through gizzard
- T.S. passing through typhlosolar region
- T.S.passing through testis
- T.S.passing through ovary

4–Evolution and Adaptations:

- Variation:
 - Digits in man
 - Giraffe
- Deep sea adaptations:
 - Euplectella
 - Limulus
 - Feather star
 - Flat fish
- Cave dwelling adaptations:
 - True spiders
 - Proteus anguinus

5–Economic Zoology:

- Life history of Indian mulberry silk worm (*Bombyx mori*)
 - Vermiculture (with the help of charts/ photographs/ models etc.)
 - Vermibreeds, Vermiculture process(Vermicompost practices)
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ZOOLOGY PAPER – IV (Z – 302)

(Revised Syllabus Effective from JUNE - 2022)

(Chordates, Histology and Osteology)

UNIT – 1 Classification:

- General study of the following protochordates and chordates up to subclass with examples:
 - Urochordata
 - Cephalochordate
 - Cyclostomes
 - Pisces
 - Amphibia.

UNIT – 2 Type study:

- Study the *Labeo rohita* as an animal type with reference to their structure and functions of various organs of all systems.
 - External characters
 - Digestive system
 - Circulatory systems
 - Urinogenital system
 - Brain

UNIT – 3 Histology:

- Study the Ultra structure following mammalian tissues:
 - Salivary gland
 - Stomach
 - Liver
 - Intestine
 - Pancreas
 - Kidney
 - Ovary

- Testis

UNIT – 4Osteology:

➤ Comparative study of girdles in:

- Scoliodon
- Frog
- Varanus
- Pigeon
- Rabbit



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S.Y. B.Sc. SEM – III
ZOOLOGY PRACTICAL (Based on Paper - Z – 302)
(Chordates, Histology and Osteology)

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

1 - Classification of following animals upto sub-class.

- Ascidian
- Salpa
- Oikopleura
- Amphioxus
- Lamprey
- Scoliodon
- Chimaera
- Protopterus
- Eel
- Hilsa
- Pterois
- Frog
- Uruaeotyphlus
- Siren
- Rhacophorus

2 - Labeo rohita

- Digestive system
- Urinogenital system
- Brain-dorsal and ventral view

3 - To study the permanent mammalian histological slides:

- Salivary gland
- Stomach

- Liver
- Pancreas
- Intestine
- Kidney
- Ovary
- Testis

4 - Osteology:

- To study the pectoral girdles and pelvic girdles in:
 - Scoliodon
 - Frog
 - Varanus
 - Pigeon
 - Rabbit
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S.Y. B.Sc. SEM – III
ZOOLOGY PAPER – V (Z – 303)
(Revised Syllabus Effective from JUNE - 2022)
(Biochemistry, Genetics and Physiology)

UNIT – 1 Biochemistry:

- Introduction, structure and classification of:
 - Carbohydrates
 - Proteins
 - Lipids

UNIT – 2 Genetics:

- Structure and function of genetic material
- Types of RNA

UNIT – 3 Physiology:

- **Muscle coordination:**
 - Types and structure of muscle fibres
 - Physiology of muscle contraction and energetic

UNIT – 4 Hematology:

- Composition of blood
 - Haemopoiesis
 - Blood groups
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ZOOLOGY PRACTICAL (Based on Paper - Z – 303)
(Biochemistry, Genetics and Physiology)

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

1 - Biochemistry:

- Preparation of atomic models:
Glucose, Fructose, Galactose, Maltose, Lactose, Sucrose,
Valine, Threonine, Glycine, Alanine, Glycerol

2 - Genetics:

- Structure and function:
DNA and RNA

3 - Haematology:

- To study clotting time of human blood
- Estimation of Haemoglobin from human blood
- To study Haemin crystals from human blood

4 - Physiology

- To study different types of nerve fibres and muscle fibres (Striated muscle fibre, Nonstriated muscle fibre, Cardiac muscle fibre)
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