

**SARDAR PATEL UNIVERSITY**  
**B.Sc. SEMESTER – III, ZOOLOGY**  
**PAPER CODE: US03CZOO21,**

**TITLE OF PAPER: INVERTEBRATA, ECONOMIC ZOOLOGY & TOXICOLOGY**  
**SYLLABUS EFFECT FROM: JUNE 2019 (TOTAL CREDIT: 4)**

**UNIT: 1**

- Locomotion in Protozoa
- Canal system in Porifera
- Reproduction in Porifera
- Skeleton of sponges
- Type: Hydra (Habit & Habitat, External morphology, Internal structure, Nematocysts, Locomotion, Nutrition, Respiration, Excretion, Osmoregulation, Nervous, Behaviour, Reproduction, Regeneration, Immortality in Hydra)
- Polymorphism in Coelenterata

**UNIT: 2**

- Type: Liverfluke (Habit & Habitat, External Morphology, Digestive System, Respiration, Excretory System, Nervous System, Reproductive System, Life cycle & Development, Parasitic Adaptations of Fasciola, Liver Rot.
- Type: Leech ((Habit & Habitat, External Morphology, Body wall, Locomotion, Digestive System, Respiration, Excretory System, Nervous System, Sense organs, Reproductive System, Life cycle & Development, Parasitic Adaptations of Leech)

**UNIT: 3**

- Type: Prawn (Habit & Habitat, External Morphology, Locomotion, Digestive System, Respiratory system, Excretory System, Nervous System, Sense organs, Reproductive System, Life cycle & Development)
- Types of mouth parts in Insects
- House hold insects and methods of Insects control
- Respiration in Arthropoda

**UNIT: 4**

- Economic Zoology: Apiculture, Lac culture, Sericulture, Prawn culture, Pearl culture
- Toxicology : Introduction, Branches, Toxic Chemicals: Fertilizers, Pesticides, Automobile, Heavy Metals

**Basic text & Reference Books:**

- Modern Text book of Zoology – Invertebrate by R.L.Kotpal.
- Invertebrate Zoology by- Jordan & Verma
- Economic Zoology by Shukla & Upadhyay
- Environmental Biology and Toxicology by P. D. Sharma

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**B.Sc. SEMESTER – III, ZOOLOGY**  
**PAPER CODE: US03CZOO22**

**TITLE OF PAPER: HUMAN PHYSIOLOGY & ADAPTATION**  
**SYLLABUS EFFECT FROM: JUNE 2019 (TOTAL CREDIT: 4)**

**UNIT: 1 DIGESTION**

- Digestive organs and Digestive glands
- Digestion of food
- Absorption of food
- Defecation
- Disorders: Peptic Ulcer, Ulcerative Colitis, Gastro enteritis.

**UNIT: 2 RESPIRATION**

- Respiratory Organs
- Pulmonary Ventilation
- Lung Volumes & Capacity
- Transport of Gases
- Regulation of respiration
- Disorders: Asthma, Cystic fibrosis, Emphysema, Pneumonia, Bronchitis, Tuberculosis.

**UNIT: 3 CIRCULATION**

- Circulatory media, Blood composition & functions
- Formation of blood cells, Types & functions of Blood cells
- Structure & working mechanism of Heart
- Cardiac Cycle & ECG
- Blood group ABO System & Rh factor
- Blood transfusion
- Disorders: Anemia, Hypertension, Coronary artery disorders

**UNIT: 4 ADAPTATION IN ANIMALS**

- Terrestrial: Desert, Burrowing, Cursorial, Arboreal, Volant
- Aquatic adaptation
- Special: Mimicry, Camouflage, Echolocation in Bat, Electric organs in Fish.

**Basic Text & Reference Books:**

- A Text book of Animal Physiology by A.K.BERRY.
- Animal Physiology by M.P.ARORA.
- Principles of Anatomy & Physiology by TORTORA and GRABOWSKI
- Zoology for IAS by SATGURU PRASAD.
- Animal Ecology by SUKLA & UPADHYAY

**SARDAR PATEL UNIVERSITY**  
**B.Sc. SEMESTER – III, ZOOLOGY PRACTICAL**  
**PAPER CODE: US03CZOO23**  
**ZOOLOGY PRACTICAL – I (CREDIT: 2)**

**CLASSIFICATION OF INVERTEBRATES (UPTO ORDERS):**

- **PROTOZOA & PORIFERA:** Ceratium, Arcella, Polystomella, Opalina, Vorticella, Trypanosoma, Sicon, Hylonema, Spongilla, Spicules, Gemmule and Spongin fibres of sponges
- **COELENTRATA & HELMINTHES:** Hydra, Obelia, Milipora, Aurelia, Pennatula, Zooanthus, L. S. of Hydra, T. S. passing through Testis and Ovary of Hydra, Obelia medusa, Planaria, Bipalium, Pin worm, Guinea worm
- **ANNELIDA & ARTHROPODA:** Aphrodite, Arenicola, Earthworm, Leech, Centipede, Cyclops, Prawn, Mantis, Beetle, Lac insect, Honey bee, Termite, Limulus, Scorpion
- **MOLLUSCA & ECHINODERMATA:** Murex, Aplysia, Sepia, Pearl oyster, Nautilus, Starfish, Brittle star, Feather star, Sea urchin, Sea cucumber, Balanoglossus
- Liverfluke life cycle stages
- Types of mouth parts in Insects

**Dissection by Simulation, Animation or Charts**

- Leech: External characters, Digestive System, Reproductive System, Nervous System
- Mountings of Salivary glands, Jaws, Testicular nephridia**
- Prawn: External characters, Digestive System, Reproductive System, Nervous System
  - Appendages of Prawn
  - Field Visit

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**B.Sc. SEMESTER – III, ZOOLOGY PRACTICAL**  
**ZOOLOGY PRACTICAL –II (CREDIT: 2)**

- Salivary amylase activity
- Mammalian Histology: T.S. of Salivary gland, Stomach, Intestine, Liver, Pancreas, Lung,
- Adaptations of different Animals

**HAEMATOLOGY**

- Types of blood Cells
- Differential counting of WBCs
- Hb estimation
- Haemin Crystals
- Effects of osmotic pressure on Human RBCs
- Measurement of BP by using Sphygmomanometer and its use
- Project submission

**Basic Text & Reference Books:**

- A Manual of Practical Zoology- Invertebrate by P.S.VERMA
- Practical Physiology, Anatomy & Biochemistry by SHAH, PATEL& GOEL
- Practical Zoology Invertebrate by S.S. LAL.