

<p style="text-align: center;">SARDAR PATEL UNIVERSITY B.Sc. SEMESTER – III, ZOOLOGY PAPER CODE: US03CZOO51 TITLE OF PAPER: INVERTEBRATA, ECONOMIC ZOOLOGY & TOXICOLOGY SYLLABUS EFFECT FROM: JUNE 2022 (TOTAL CREDIT: 4)</p>		
Objectives	<ul style="list-style-type: none"> • To Give an Overview Invertebrate, Applied Zoology, and Basics of Toxicology • To provide Detail about the Types study of Major Invertebrates and General account. • To Provide out line of Economic aspect of Zoology and Toxicity. 	
Out Come	<ul style="list-style-type: none"> • The students can have General account Idea of the Invertebrates and Economic Usefulness of Invertebrate Animals. • Type study will provide detail about anatomy and physiology of the Major Invertebrate animals. 	
Unit-1	<ul style="list-style-type: none"> • Locomotion in Protozoa • Canal system 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) 	25%
Unit-2	<ul style="list-style-type: none"> • Type: Liver fluke (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) 	25%
Unit-3	<ul style="list-style-type: none"> • 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 Arthropod 	25%

Unit-4	<ul style="list-style-type: none">• Economic Zoology: Apiculture, Lac culture, Sericulture, Prawn culture, Pearl culture• Toxicology : Introduction, Branches, Toxic Chemicals: Fertilizers, Pesticides, Automobile, Heavy Metals	25%
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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

SARDAR PATEL UNIVERSITY
B.Sc. SEMESTER – III, ZOOLOGY
PAPER CODE: US03CZOO52,
TITLE OF PAPER: PHYSIOLOGY & ADAPTATION
SYLLABUS EFFECT FROM: JUNE 2022 (TOTAL CREDIT: 4)

Objectives	<ul style="list-style-type: none"> • To Provide details about the three system Physiology of mammals like human • To provide adaptive changes which acquired by the animals in different ecosystem. 	
Out Come	<ul style="list-style-type: none"> • the students will learn about detail physiology of digestive, Respiratory and Circulatory Systems • The students will learn about the acquired adaptations due to different ecosystem 	
Unit-1	DIGESTION <ul style="list-style-type: none"> • Digestive organs and Digestive glands • Digestion of food • Absorption of food • Defecation • Disorders: Peptic Ulcer, Ulcerative Colitis, Gastro enteritis. 	25%
Unit-2	RESPIRATION <ul style="list-style-type: none"> • Respiratory Organs • Pulmonary Ventilation • Lung Volumes & Capacity • Transport of Gases • Regulation of respiration • Disorders: Asthma, Cystic fibrosis, Emphysema, Pneumonia, Bronchitis, Tuberculosis. 	25%
Unit-3	CIRCULATION <ul style="list-style-type: none"> • 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 	25%

Unit-4	ADAPTATIONS IN ANIMALS <ul style="list-style-type: none"> • Terrestrial: Desert, Burrowing, Cursorial, Arboreal, Volant • Aquatic adaptation • Special: Mimicry, Camouflage, Echolocation in Bat, Electric organs in Fish. 	25%

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: US03CZOO53
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

Objectives	<ul style="list-style-type: none"> • To Provide detail about animals and their Identification through Preserved animals • Study of system through animation and chart 	
Out Come	<ul style="list-style-type: none"> • The students will learn Characteristics from real preserved animals and type of Animals through Animation 	

Basic Text & Reference Books:

- Practical Zoology Invertebrate by S.S. LAL.

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ZOOLOGY PRACTICAL –II (CREDIT: 2)

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

Objectives	<ul style="list-style-type: none"> • To Provide an Idea of mammalian Physiology Through real time practical • To provide Behavioral aspect of Animals 	
Out Come	<ul style="list-style-type: none"> • Students can learn working of enzymes, anatomy of tissues and Blood physiology 	

Basic Text & Reference Books:

- Practical Physiology, Anatomy & Biochemistry by SHAH, PATEL& GOEL