

**SARDAR PATEL UNIVERSITY**  
**B.Sc. SEMESTER-IV, ZOOLOGY**  
**PAPER CODE: US04MAZOO01**  
**TITLE OF PAPER: VERTEBRATA AND ANIMAL BEHAVIOUR**  
**SYLLABUS EFFECT FROM: JUNE 2024**  
**(TOTALCREDIT:4)**

Objectives	<ul style="list-style-type: none"> <li>To provide Detail Anatomy and Physiology about the Major Vertebrate animals</li> <li>To provide conceptual aspect of animal behavior of animals' life processes.</li> </ul>	
OutCome	<ul style="list-style-type: none"> <li>Type study will provide detail about anatomy and physiology of the Major vertebrate animals.</li> <li>The students will learn about the behavior of life processes.</li> </ul>	
Unit-1	<p><b>Type: Labeo Rohita:</b> (Distribution, External features, Exoskeleton, Endoskeleton of Fins, digestive system, Air Bladder and Respiratory system, Blood &amp; Heart, Nervous system, sense organs and Urinogenital system)</p> <p><b>Types of Osteichthyes:</b> Lobe-Finned fish, Lung Fish, Ganoide fish, Advanced Ray finned Fishes</p> <p>Economic importance of fishes.</p> <p>Osmoregulation in fishes.</p>	25%
Unit-2	<p><b>Type: Frog:</b> (External features, Digestive system, Respiratory system, blood &amp; Heart, Nervous system, sense organs, Urinogenital system and Metamorphosis of Frog.</p>	25%
Unit-3	<p><b>Type: Calotes:</b> (External features, Digestive system, Respiratory system, Blood &amp; Heart, Nervous system and Urinogenital system)</p> <p>General account on snakes: (Identification of poisonous and non-poisonous snake, Locomotion, hearing, feeding mechanism, poison apparatus, biting mechanism, snake venom, effects and its first aid treatment)</p>	25%
Unit-4	<p><b>Animal behavior:</b></p> <p>Introduction, innate and learnt behaviour.</p> <p>Role of pheromones in behaviour: Definition, types, production, mode of action, difference between pheromones and hormones..</p> <p>Mating strategies: Monogamy, polygamy and polyandry.</p>	25%

Basic Text and Reference books:

- Modern Text Book of Zoology-VERTEBRATES by R.L.KOTPAL
- Chordate Zoology by JORDAN and VERMA
- Animal Behaviour by REENA MATHUR

**SARDAR PATEL UNIVERSITY B.Sc.**  
**SEMESTER – IV,**  
**ZOOLOGY PAPER CODE: US04MAZOO02,**  
**TITLE OF PAPER: PHYSIOLOGY AND WILD LIFE**  
**SYLLABUS EFFECT FROM: JUNE 2024**  
**(TOTAL CREDIT: 4)**

Objectives	<ul style="list-style-type: none"> <li>• To provide details about the three systems Physiology of mammals like human</li> <li>• To provide an account of wildlife, Protective areas and agencies.</li> </ul>	
OutCome	<ul style="list-style-type: none"> <li>• the students will learn about detail physiology of Reproduction, Lymphatic and Immunology and Urinary Systems</li> <li>• the students will learn about sanctuary, national parks and their protocols.</li> </ul>	
Unit-1	<p><b>Human reproduction:</b>  Male and female reproductive organs.  Female reproductive cycle.  Fertilization and implantation of embryo, Embryonic and fetal development.  Maternal changes during pregnancy and labor.  Methods of birth control.  Disorders: AIDS and STD.</p>	25%
Unit-2	<p><b>Lymphatic system of human:</b>  Structure and function of primary and secondary lymphoid organs  <b>Immunology:</b>  Non specific resistance to diseases.  Specific resistance to diseases: (Immunity, maturation of T-cells, B-cells, antigen, types of immune response)  Cell mediated and antibody mediated immunity.  Diseases: Rheumatoid arthritis, myasthenia gravis and multiple sclerosis.</p>	25%
Unit-3	<p><b>Human Urinary system:</b>  Structure of kidney.  Renal physiology (Glomerular filtration, tubular reabsorption and tubular secretion in brief)  Production of dilute and concentrated urine (countercurrent system)  Urine transportation, storage and elimination.  Disorders: Polycystic kidney disease, urinary tract infection and renal failure.</p>	25%

Unit-4	<b>Wild life</b> Introduction, brief history of wildlife. Importance of wild life. Vanishing of wild life. Conservation of wild life in India Sanctuaries and national parks of Gujarat. Concept of threatened species. Wild life organizations.	25%
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Reference books:

A text book of animal physiology - A. K. Berry

Animal physiology –M.P.Arora

Principles of anatomy and physiology- Gerard J Tortora & Bryan Derrickson

Modern Text Book of Zoology Vertebrates by R L Kotpal

**SARDARPATELUNIVERSITY**  
**B.Sc. SEMESTER – IV,**  
**ZOOLOGY PRACTICAL**  
**PAPER CODE:US04MAZOO03**  
**ZOOLOGYPRACTICAL–I**  
**(TOTAL CREDIT:2)**

- DissectionbySimulation,AnimationorCharts
- External characters & Digestive system Lebeo Rohita: Mounting cycloid Scales
  - Urino genital System of Lebio, Mounting: Gills
  - Brain of Brain, Mounting: Fin Structure
  - External characters, Digestive system of Frog
  - Urino genital System & Development of Frog
  - Brain of Frog, Mountings of Muscle & Nerve fibers
  - Study of Frog Bones
  - Calotes: External characters, Digestive system
  - Urinogenital of Calotes
  - Brain of Calotes
  - Types of Matting in Insects

Objectives	<ul style="list-style-type: none"> <li>• To Provide detail about animals and their SystemsthroughPreserved animals</li> </ul>	
OutCome	<ul style="list-style-type: none"> <li>• The students will learnCharacteristicsfromreal preserved animals and type ofAnimalsthroughAnimation</li> </ul>	

**Basic Text & Reference Books:**

- A Manual of Practical Zoology-Chordata by P.S.VERMA
- A Manual of Practical Zoology-Non Chordata by P.S.VERMA

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**ZOOLOGY PRACTICAL–II**  
**(TOTAL CREDIT:2)**

**Classification of Chordata upto orders**

- **Protochordata , Cyclostomata & Fishes :** Herdmania, Doliolum, Amphioxus, Lamprey, Hammerheaded Shark, Stingray, Sea horse, Eel, Catfish, Suckerfish, Flatfish
- **Amphibia & Reptiles:** Ichthyophis, Salamander, Axolotal larva, Alytes, Tortoise, Varanus, Chamaeleon, Gecko, Alligator, Krait, Viper, Rat Snake, Sea Snake
- **Aves & Mammals:** Kite, Woodpecker, Kingfisher, Sparrow, Weaver bird, Hedgehog, Rat, Shrew, Loris, Porcupine, Squirrel.
- **Mammalian Histology:** T.S.of Testis, Ovary, Spleen, Kidney & L.S. of Kidney.
- Birth control methods
- Antigen– Antibody Reaction by Widal Test
- Normal & Abnormal Qualitative Urine Analysis.
- Study of Endangered Species of Gujarat
- Project Submission
- Study tour

Objectives	<ul style="list-style-type: none"> <li>• To Provide detail about animals and their identification through preserved animals</li> <li>• To provide idea about clinical histology and immunology</li> </ul>	
OutCome	<ul style="list-style-type: none"> <li>• The students will learn Characteristics from real preserved animals and type of animals through Animation</li> <li>• The students will learn about tissue anatomy and immunity</li> </ul>	

**Basic Text & Reference Books:**

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

<p style="text-align: center;"><b>SARDAR PATEL UNIVERSITY</b>  <b>B.Sc. SEMESTER – IV</b>  <b>ZOOLOGY PAPER</b>  <b>US04MIZOO01</b>  <b>TITLE OF PAPER: BASIC PHYSIOLOGY</b>  <b>SYLLABUS EFFECTIVE FROM: JUNE 2024</b>  <b>(TOTAL CREDIT: 2)</b></p>		
Objectives	<ul style="list-style-type: none"> <li>To Provide details about the three system Physiology of mammals like human</li> </ul>	
Out Come	<ul style="list-style-type: none"> <li>the students will learn about detail physiology of Digestion and Circulation</li> </ul>	
Unit-1	<p><b>Digestion of Various Food with appropriate example :</b>  Digestion of Starch  Digestion of Protein  Digestion of Fat [oil]  Digestion of Nucleic acid  Absorption of food in Intestine  Defecation  Disorders: Peptic Ulcer, Ulcerative Colitis</p>	50%
Unit-2	<p><b>Circulation:</b>  Circulatory media, Blood composition &amp; functions  Formation of blood cells, Types Structure &amp; functions of Blood cells  Blood group ABO System &amp; Rh factor  Blood transfusion  Disorders: Anemia and Types , Hypertension, Leukemia</p>	50%

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**ZOOLOGY PRACTICAL**  
**(TOTAL CREDIT:2)**

- To Study Amylase effect on Starch
- Carbohydrate test from food
- Protein test from food
- Lipid test from food
- To Study Haemin Crystals from own blood
- To Study Blood Group of own blood
- To Study types of WBC through blood smear

Objectives	<ul style="list-style-type: none"> <li>• To Provide detail about animals and their Identification through Preserved animals</li> <li>• To provide idea about clinical histology and immunology</li> </ul>	
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