

**VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT**

**F.Y.B.Sc. SEMESTER- II**

**ZOOLOGY: Z – 201**

**(Effective from JUNE-2019 – Revised from JUNE - 2022)**

**(COMPARATIVE ANATOMY, APPLIED ZOOLOGY, WILDLIFE BIOLOGY)**

**Unit-1: Integumentary System: (08 Hours)**

Derivatives of integument w.r.t. glands and digital tips

**Digestive System**

Brief comparative account of alimentary canal and digestive glands of vertebrates (Pisces to mammals).

**Unit-2: Respiratory System: (07 Hours)**

Brief account of Gills, Lungs, Air sacs and Swim bladder

**Receptor Organs :** Cutaneous receptors, Chemo receptors and Internal receptors

**Unit-3: Applied Zoology: (08 Hours)**

- **Poultry Farming**-Importance of Poultry Farming, Breeds of poultry, Cage system and deep litter system of bird keeping, Egg as food, Care of egg laying hen, poultry appliances and excreta as manure.
- **Fisheries** - Prawn fishery, Pearl Oyster fishery and Bombay duck fishery

**Unit-4:Wildlife Biology: (07 Hours)**

- Introduction, causes of depletion of wild life, Importance of conservation of wild life
- Difference between National Parks and Sanctuaries
- **Wildlife in Gujarat:**
  - National Parks**
  - (1) Gir National Park (2) Marine National Park

**Sanctuaries**

- (1)Wild ass sanctuary (2) Thol wild life sanctuary (3)Velavadar black buck sanctuary

**VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT**  
**F.Y.B.Sc. SEMESTER- II**  
**ZOOLOGY PRACTICALS (Based on Z- 201)**  
**(Effective from JUNE-2019 – Revised from JUNE - 2022)**  
**(COMPARATIVE ANATOMY, APPLIED ZOOLOGY, WILDLIFE BIOLOGY)**  
**(30 Hours)**

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

- 1. Integumentary System:** Derivatives of integument w.r.t. glands and  
Digital tips
  - 2. Digestive System:** Brief account of alimentary canal and digestive glands
  - 3. Respiratory System:** Brief account of Gills, lungs, air sacs and swim  
bladder
  - 4. Receptor Organs :** Cutaneous receptors: Free nerve endings, Tectile  
Corpuscles Chemo receptors: Taste buds, Organ of  
Jacobson
  - 5. Study of national parks and Sanctuaries:**  
Gir N.P., Marine N.P., Wild ass W.L.S.,  
Thol W.L.S. and Velavadar W.L.S
  - 6. To study Prawn fishery, Pearl Oyster fishery and Bombayduck fishery.**
  - 7. To study poultry appliances- hover canopy type brooder, modern hanging  
feeder (plastic), modern hanging water appliance (plastic) and box type  
candling appliance.**
-

**VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT**  
**F.Y.B.Sc SEMESTER- II**  
**ZOOLOGY : Z- 202**

(Effective from JUNE-2019 – Revised from JUNE - 2022)  
(LIFE PROCESSES, BIOCHEMISTRY, IMMUNOLOGY AND TISSUE SYSTEM)

**UNIT-I Life Processes: (08 Hours)**

**Nutrition/ Digestion in Human**

- Buccal digestion: Salivary secretion and digestion.
- Gastric digestion: Gastric secretion and digestion
- Intestinal digestion: Pancreatic secretion, bile secretion, digestion in small intestine, digestion and absorption in large intestine

**Reproduction and its types.**

**UNIT-II Biological Chemistry: (07 Hours)**

- pH and Buffers in Biological Systems
- Introduction to constituents of balanced diet-Sources, functions and deficiency status
- Diseases due to vitamin deficiency: Xerophthalmia, Nyctalopia (Night blindness), Rickets, Scurvy, Beriberi, Pellagra

**UNIT-III Immunology: (08 Hours)**

- Introduction and basic concepts of immunology
- Cells and organs of immune system
- Humoral and cellular immune response
- Innate and acquired immunity

**UNIT-IV Tissue systems: (07 Hours)**

To Study various types, their structure and functions.  
Epithelial, Connective, Nervous and Muscular tissue

**VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT**  
**F.Y.B.Sc. SEMESTER- II**  
**ZOOLOGY PRACTICALS (Based on Z-202)**  
**(Effective from JUNE-2019 – Revised from JUNE - 2022)**  
**(LIFE PROCESSES, BIOCHEMISTRY, IMMUNOLOGY AND TISSUE SYSTEM)**  
**(30 Hours)**

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

1. To study the control of food ingestion in animals and T.S. of intestine of mammals to show villi for absorption.
  2. To study different salivary glands and their functions in human.
  3. Diseases due to vitamin deficiency: Xerophthalmia, nyctalopia (Night blindness),rickets, scurvy, beriberi, pellagra
  4. To study Different types of reproduction.
  5. Tissue System: Study of various types of tissues with the help of permanent slides- areolar tissue, adipose tissue, Hyaline Cartilage, Mammalian bone, Medulated and non Medulated nerve fiber.
-

## Reference Books :

- ( 1) Shukla, G.S. & Upadhyay, V.B. Economic Zoology. Rastogi Publi. 2005, 487 pages.( For Poultry)
- (2) JawaidAhsan, Sinha, S. P. 2008. A Handbook of Economic Zoology. S. Chand and Co. Publ. 272 pages.( For Poultry)
- (3) Ruppert and Barnes, R.D. (2006). *Invertebrate Zoology*, VIII Edition. Holt Saunders International Edition.
- (4)Kardong, K.V. (2005) *Vertebrates' Comparative Anatomy, Function and Evolution*.IVthEdition.McGraw-Hill Higher Education.
- (5) Kent, G.C. and Carr R.K. (2000). *Comparative Anatomy of the Vertebrates*. IX Edition.The McGraw-Hill Companies
- (6) Barnes, R.S.K., Calow, P., Olive, P.J.W., Golding, D.W. and Spicer, J.I. (2002). *The Invertebrates: A New Synthesis*, III Edition, Blackwell Science
- (7) Young, J. Z. (2004). *The Life of Vertebrates*.III Edition.Oxford University press.
- (8) Modern Text Book of Zoology (vertebrate) R.L. Kotpal, Rastogi Publication, Meerut, India.
- (9) Modern Text Book of Zoology (invertebrate) R.L. Kotpal, Rastogi Publication, Meerut, India.
- (10) Invertebrate Zoology- E.L. Jordan & P.S.Verma
- (11) Invertebrate Zoology- T.C. Majupuria, Pradeep Publication, Jalandhar, India.
- (12) A Text Book of Histology – Leslie P. Gartner-4<sup>th</sup>edi.-Amazone
- (13) Intruduction to Chordates- T.C. Majupuria, Pradeep Publication, Jalandhar, India.
- (14) A manual of Practical Zoology Invertebrates- P.S.Verma, S. Chand & Co. Ltd. New Delhi, India.
- (15) A manual of Practical Zoology Chordates- P.S.Verma, S. Chand & Co. Ltd. New Delhi, India.
- (16)Prani Auotiki (Gujarati)- Desai and Akhunji – University Granth nirman Board- Ahmedabad- India.
- (17) Poultry vigyan- Mehta and Ghasura- University Granth nirman Board- Ahmedabad- India.
- (18) Vanyajiv Vidya ane Vanyajiv Vyavasthapan- Prof, V.C.Soni - University Granth nirman Board- Ahmedabad- India.
- (19) Ecology, Cell biology, Genetics, Animal diversity, Animal Physiology, Immunology, Chordates and Invertebrates- Titles by N.Arumugam, Saras Publi., Kanyakumari, India.

**Web references:**

(1) [Comparative Anatomy - Digestive System](https://www.slideshare.net/emscipriano/comparative-anatomy-digestive-system)

<https://www.slideshare.net/emscipriano/comparative-anatomy-digestive-system>

(2) [Comparative Anatomy - Respiratory System](https://www.slideshare.net/emscipriano/comparative-anatomy-respiratory-system)

<https://www.slideshare.net/emscipriano/comparative-anatomy-respiratory-system>

(3) [Urogenital system chap](https://www.slideshare.net/CharmHernandez/urogenital-system-chap)

<https://www.slideshare.net/CharmHernandez/urogenital-system-chap>

---