

GUJARAT UNIVERSITY
MULTIDISCIPLINARY / INTERDISCIPLINARY COURSES
EFFECTIVE FROM JUNE-2023

B.SC. SEMESTER – I ZOOLOGY – 114T (THEORY)

MDC-ZOO-114T (2 CREDIT)

[BASIC ANIMAL TAXONOMY AND PHYSIOLOGY OF DIGESTIVE SYSTEMS]

Programme Outcome:

Students will gain education and skill in the fundamentals of animal sciences, understands the complex interactions among various living organisms.

Course outcome:

The students would be able to learn systematic and diversity of various animal classes and their interaction with environment.

Unit I: Animal Diversity

- Outline of Taxonomic categories in hierarchical arrangement (from Kingdom to Species)
- Difference between Chordates and Non-chordates
- Animal diversity (Nonchordates) – Systematics
 - Protozoa - General characters and Classification
 - Type study : Paramecium
- Systematic position with salient features
- External & Internal structure (in brief)
- Locomotion
- Food & feeding mechanism
- Osmoregulation
- Reproduction: Binary fission and Conjugation

Unit II: Animal Physiology – Digestive System

- Anatomy - Overview of Digestive System
- Physiology - Digestion and Absorption of following dietary components in mammals: Carbohydrates, Proteins, Lipids, Nucleic acids
- Histology of Liver, Stomach, Pancreas, Intestine
- Dentition in Mammals – Definition, Differentiation (based on shape & according to attachment of teeth), Succession of teeth, types of teeth (Canine, Premolar, Molar & Incisors), Dental formula (Human, Horse, Dog)

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[PRACTICALS BASED ON THEORY PAPER: MDC-ZOO-114T]

I. ANIMAL DIVERSITY (Nonchordates) – Systematics:

- Identification & classification of invertebrates (Kingdom to Class):
Protozoa: Amoeba, Paramecium, Polystomella, Euglena, Vorticella, Plasmodium.
- Preparation and Observation of Protozoan culture
- Paramoecium: W. M., Binary fission and conjugation

II. Animal Physiology – Digestive System

- Action of human salivary Amylase (ptyalin) on Starch
- Study through permanent slides: Liver, Pancreas, Stomach, Intestine
- Dentition in Mammals (Study through Specimens/Charts)
 - Dental formula (Human, Horse, Dog)

Reference:

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3. Dhama PS, Dhama JK: Textbook of Invertebrates, 5th ed. New Delhi (DL): S. Chand & Company; 2021
4. Dr Thangamani A, Dr Prasannakumar S, Dr Narayanan LM, Dr Arumugam Capt N: A textbook of Chordates: Vertibrata, Single ed. Tamil Nadu (TN), Sara's publication; 2018
5. George Howard Bell, Donald Emslie-Smith, Colin Ralston Paterson: Textbook of Physiology, 10th illustrated ed.; Churchill Livingstone, 2008
6. John EH, Michael EH: Guyton and Hall Textbook of medical physiology, 14th ed.; Elsevier Pub, 2020
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8. Kotpal RL: Textbook of Invertebrates and vertebrates. 12th ed. Meerut (UP): Rastogi Publishers; 2020.
9. Kumar P, Mina Usha: Life Sciences: Fundamental and practices, 6th ed. Haryana (India); Pathfinder Publications, 2016
10. Purves WK, Sadava DE, Orians GH, Heller HC Life: The Science of Biology 9th revised international ed. United States (US); W grant Press, 2010
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