

ANIMAL PHYSIOLOGY AND ANIMAL BEHAVIOUR

Theory	4 Hours/Week	4 Credit	Internal marks = 20
Practical	3 Hours/Week	1 Credit	External Marks = 80

UNIT – I**1.1 Digestion**

- 1.1.1 **Enzymes:** Definition, Classification, Inhibition, Regulation
- 1.1.2 **Digestion of Carbohydrates, Proteins, Lipids and Cellulose**
- 1.1.3 **Absorption and Assimilation of digested food**
- 1.1.4 **Role of Gastrointestinal hormones in digestion**

1.2 Excretion, Homeostasis and Osmoregulation

- 1.2.1 Classification of Animals on the basis of excretory products: Ammonotelic, Ureotelic, and Uricotelic; **Structure and function of Nephron**
- 1.2.2 **Urine formation and Counter current mechanism**
- 1.2.3 Concept and Mechanism of Homeostasis
 - a) Hormone regulation of Blood Glucose levels in Human being
 - b) Water and Ionic Regulation by Marine and Fresh water Animals
 - c) Thermo regulation in Human being
- 1.2.4. Osmoregulation in Marine, Fresh and Brackish water Animals

UNIT – II**2.1 Respiration**

- 2.1.1 Definition of Respiration, Respiration mechanism, External, Internal and Cellular Respiration.
- 2.1.2 Respiratory Pigments; Transport of Oxygen, Oxygen dissociation curves, and Bohr's Effect;
- 2.1.3 Transport of Carbon dioxide, Chloride shift
- 2.1.4 Regulation of Respiration; Nervous and Chemical Mechanism

2.2 Circulation

- 2.2.1 Types of Circulation Open and Closed; Structure of Mammalian Heart
- 2.2.2 Types of Hearts: Myogenic and Neurogenic
- 2.2.3 Heart functions - Conduction and Regulation of Heart beat, Regulation of Heart rate; ECG
- 2.2.4 Tachycardia and Bradycardia; Blood Clotting mechanism

UNIT- III**3.1 Muscle Contraction**

- 3.1.1 Types of Muscles
- 3.1.2 Ultra structure of skeletal muscle fibre
- 3.1.3 Mechanism and Chemical changes during Muscle Contraction (Sliding filament theory)
- 3.1.4 Twitch Tetanus summation and Treppe fatigue

2019-20

KAKATIYA UNIVERSITY
U.G. ZOOLOGY (Under CBCS)
B.Sc. Final Year (DSE-1E)
SEMESTER – V

Elective

A) Applied Zoology (Theory)

Max. Marks:

UNIT – I

- 1.1. Types of Fisheries, culture of Fresh Water Fish and Prawn
- 1.2. Fresh water fishing gears and crafts; Induced Breeding.
- 1.3. Hatchery design and Management of fish and prawn, Transportation of fish and prawn seed.
- 1.4 Preservation, Processing and By-products of fishes.
- 1.5 Fish Diseases and control measures

UNIT – II

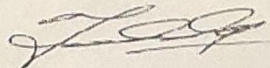
- 2019-20 (2)
- 2.1. Life cycle of *Bombyx mori*
 - 2.2 Structure of silk gland and secretion of silk
 - 2.3 Silkworm rearing technology, Spinning, harvesting and storage of cocoons.
 - 2.4 Silk worm Pests and Diseases: Uzi fly; Protozoan, Viral, Fungal and Bacterial; Control and prevention.
 - 2.5 Prospects of Sericulture in India

UNIT – III

- 3.1 Selection of Bee Species for Apiculture. Bee Keeping Equipment.
- 3.2 Methods of Extraction of Honey (Indigenous and Modern). Bee Diseases and Enemies.
- 3.3 Products of Apiculture Industry and its Uses (Honey, Bees Wax).
- 3.4 Introduction of Vermiculture and Vermicomposting. Vermiculture techniques. Bedding, Essential parameters for Vermiculture and Management
- 3.5 Methods of Harvesting (Manual & Mechanical). Economic Importance of Vermiculture.

UNIT – IV

- 4.1. Classification of Fowls based on their use – Broilers and Commercial layers.
- 4.2. Principles of poultry breeding, Management of breeding stock and broilers, Processing and preservation of eggs.
- 4.3. Poultry diseases - Viral, Bacterial, Fungal, Protozoan
- 4.4. Management of a modern Poultry Farm, progressive plans to promote Poultry as a Self-Employment venture
- 4.5. Dairy farm and its management, Animal Husbandry – Introduction, Preservation of semen, artificial insemination of cattle, Induction of early puberty and synchronization of estrus in cattle.


Prof. T. RAVINDER REDDY
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2017-18
year.

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SEMESTER - VI

Immunology and Animal Biotechnology (Practical)

Max. Marks: 25

I. Immunology

1. Identification of Blood groups
2. Histological study of spleen, thymus and lymph nodes (through prepared slides)
3. Enumeration of RBC & WBC from a given blood sample
4. Enumeration of Differential count of WBC from a given blood sample
5. Demonstration of
 - a. ELISA , b. Immunoelectrophoresis
6. Identification of Autoimmune disease through charts.

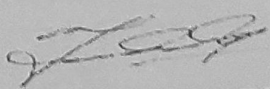
II. Animal Biotechnology

1. Study the following techniques through photographs / virtual lab
 - a. Southern blotting
 - b. Western blotting
 - c. DNA sequencing (Sanger's method)
 - d. DNA finger printing
 - e. Identification of Vectors
 - f. Identification of Transgenic animals
2. PCR demonstration /virtual lab

- Laboratory Record work shall be submitted at the time of practical examination
- Computer aided techniques should be adopted as per UGC guide lines.

Suggested manuals:

Kindt, T. J., Goldsby, R.A., Osborne, B. A. and Kuby, J (2006). Immunology, VI Edition. W.H. Freeman and Company.
David, M., Jonathan, B., David, R. B. and Ivan R. (2006). Immunology, VII Edition, Mosby, Elsevier Publication.
Abbas, K. Abul and Lichtman H. Andrew (2003.) Cellular and Molecular Immunology. V Edition. Saunders Publication.


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B.Sc. ZOOLOGY SYLLABUS UNDER CBCS

(With effect from 2016-2017)

I - SEMESTER

DSC-1A (Theory)

Animal Diversity – Invertebrates

Max. Marks: 80

UNIT – I

- 1.1 Kingdom Animalia, Brief history of Invertebrates.
- 1.2 Protozoa General characters and Classification up to classes with examples.
- 1.3 Type study of *Elphidium*, Life cycle of *Plasmodium*. Locomotion, Reproduction and Diseases of protozoans.
- 1.4 Porifera General characters, Classification of up to classes with examples.
- 1.5 Type study of *Sycon*; Canal system in sponges and Spicules.

UNIT – II

- 2.1 General characters and Classification of Cnidaria up to classes with examples.
- 2.2 Type study of *Obelia*, Polymorphism in hydrozoa; Corals and coral reef formation.
- 2.3 General characters and Classification of Platyhelminthes up to classes with examples.
- 2.4 Type study- *Schistosoma*; Parasitic Adaptations in Helminthes.
- 2.5 Nematelminthes General characters, Classification of Nematelminthes up to classes with examples; Type study of *Dracunculus*.

UNIT – III

- 3.1 Annelida General characters and Classification up to classes with examples.
- 3.2 Type study of *Hirudinaria granulosa*.
- 3.3 Evolutionary significance of Coelome and Coelomoducts and metamerism.
- 3.4 Arthropoda General characters and Classification of Arthropoda up to classes with examples.
- 3.5 Type study of Prawn; Mouth parts of Insects; Insect metamorphosis; *Peripatus* - Structure and affinities.

UNIT – IV

- 4.1 Mollusca General characters and Classification up to classes with examples.
- 4.2 Type study – *Pila*; Pearl formation; Torsion and detorsion in gastropods.
- 4.3 Echinodermata General characters and Classification of Echinodermata up to classes with examples.
- 4.4 Water vascular system in star fish; Echinoderm larvae and their significance.
- 4.5 Hemichordata General characters and Classification up to classes with examples; *Balanoglossus* - Structure and affinities.