

CLUSTER UNIVERSITY SRINAGAR.
ZOOLOGY SEMESTER 3RD
CORE COURSE III (CUS/CCZIII)
PHYSIOLOGY AND BIOCHEMISTRY

THEORY

(CREDITS 4)

Unit 1

1.1 Digestion

Physiology of digestion; Absorption of Carbohydrates, Proteins and Lipids.

1.2 Respiration

Pulmonary respiration, Respiratory volumes and capacities, Transport of Oxygen and Carbon dioxide in blood, types of respiratory pigments, Oxygen Dissociation curves.

1.3 Excretion

Types of Nitrogenous Wastes, Structure of Nephron, Urine Formation.

1.4 Circulatory system

Conducting system of heart, Origin and conduction of cardiac impulse.

Unit 2

2.1 Structure of a typical motor neuron, Different types of potentials, Action potential and its propagation in different nerve fibres.

2.2 Molecular and chemical basis of muscle contraction.

2.3 Physiology of vision.

2.4 Physiology of hearing.

Unit 3 Endocrinology

3.1 Hormonal control of gametogenesis

3.2 Hormonal control of menstrual cycle.

3.3 Hormones of Pituitary, Thyroid and Parathyroid

3.4 Hormones of Pancreas, Adrenal.

Unit 4

4.1 Carbohydrate metabolism

Glycolysis, Krebs cycle, Pentose phosphate pathway, Gluconeogenesis, Glycogen metabolism.

4.2 Lipid metabolism

Biosynthesis and β oxidation of palmitic acid

4.3 Protein metabolism

Transamination, deamination and urea cycle

4.4 Enzymes

Introduction and classification of enzymes, Mechanism of action, Enzyme Inhibition and Regulation.

PRACTICAL

PHYSIOLOGY AND BIOCHEMISTRY

(CREDITS 2)

1. Preparation of hemin and hemochromogen crystals
2. Study of permanent histological sections of mammalian pituitary, thyroid, pancreas, adrenal gland
3. Study of permanent slides of spinal cord, duodenum, liver, lung, kidney, bone, cartilage
4. Qualitative tests for carbohydrates in given solutions (Glucose, Fructose, Sucrose, Lactose)
 1. Estimation of total protein in given solutions by Lowry's method.
 6. Study of activity of salivary amylase under optimum conditions
 7. RBC and WBC counting
 8. Estimation of hemoglobin

SUGGESTED READINGS

- Sastry, K.V Animal Physiology and Biochemistry, Edition 2nd 2015. Rastogi publications.
- Berry, A.K. A textbook of Animal Physiology, Emmkay Publications.
- Aggarwal, R. A., Srivastava, A.K and Kaushal, K, Animal Physiology and Biochemistry revised Edition 2014, S. Chand and Company.
- Tortora, G.J and Derrickson, B.H (2009) Principles of Anatomy and Physiology, XII Edition, John Wiley & Sons, Inc.
- Widmaier, E.P., Raff, H and Strang, K.T (2008) Vander's Human Physiology, XI Edition, McGraw Hill.
- Guyton, A.C and Hall, J.E (2011), Textbook Of medical Physiology, XII Edition Harcoust Asia. Pvt Ltd/WB Saunders Company.