

PHYSIOLOGY AND BIOCHEMISTRY

UNIT I

Scope of physiology – Body organization - Homeostatic mechanisms: Temperature and pH regulations in animals – Physiology of digestion – Composition and Functions of Blood – Respiratory pigments (Hb, Mb) – Transport of Gases.

UNIT II

Mechanism of Urine Formation – Mechanism of Muscle Contraction – Nerve Impulse Transmission – Hormones– Mechanism of hormone action.

UNIT III

Scope of Biochemistry – physical and chemical processes of living systems – water and its uses – dissolved gases and their properties – pH and buffers - Classification, Structure and Functions of Bio molecules (Carbohydrate, Protein, Lipid & Nucleic acid) – Vitamins.

UNIT IV

Enzymes: Definition, Nomenclature, Classification, Properties and Functions of Enzymes – Mechanism of an enzyme action – Enzyme kinetics: Michaelis – Menton equation – Regulation of Enzyme activity.

UNIT - V

Metabolism of Bio molecules: Carbohydrate - Glycogenesis, Gluconeogenesis, Glycolysis and Krebs cycle; Proteins - Precursors of non essential amino acids synthesis, Deamination, Transamination and Urea cycle; Lipid - Synthesis of fatty acid and β oxidation; Nucleic acid - Purine & Pyrimidine synthesis – Intermediary Metabolism

Text Books:

1. P.S. Verma, and V.K. Agarwal, *Animal physiology*, S.Chand & co., 1992.
2. R.S. Nagabushnam, *Animal physiology*, S. Chand & co., 1991.
3. Ambika Shanmugam, *Fundamentals of Biochemistry for medical students*, 2001.
4. J.L. Jain, *Fundamentals of Biochemistry*, S. Chand & Company LTD, 1999.

Reference Books

1. W.S. Hoar, *General & Comparative Physiology*, Prentice Hall of India, 1983.
2. C.L. Prosser, and F.A. Brown, *Comparative Animal physiology*, W.B. Saunders, 1985.
3. S.C. Rastogi, *Biochemistry*, Tata McGraw Hill publishing limited, 1996.

4. R.K.Murray, D.K.Granner, P.A.Mayes and V.W.Rodwell, *Harper's Biochemistry*, McGraw hill companies, 2000.
5. L. Stryer, *Biochemistry*, Freeman company, New York, 1995.
6. Lehninger, *Biochemistry*, Worth Publications inc., CBS Publication, New Delhi, 2000.