

PAPER I: BIOCHEMISTRY

UNIT I:

Principles of Bioenergetics. Glycolysis and the catabolism of hexoses. The citric acid cycle. Oxidation of fatty acids. Oxidation of amino acids. Oxidative phosphorylation. Photophosphorylation. Glyoxylate cycle, Nitrogen cycle.

UNIT II:

Carbohydrate biosynthesis. Lipid biosynthesis. C2, C3 and C4 cycles.

UNIT III:

Biosynthesis of amino acids, nucleotides and related molecules. Chemical synthesis of peptides and oligosaccharides. A general account of secondary metabolic pathway.

UNIT IV:

Integration and hormonal regulation of mammalian metabolism. Biological membranes and transport.

UNIT V:

Prostaglandins, leukotrienes, thromboxanes, Interferons and interleukins. Antibiotics, Alkaloids, Terpenoids, flavonoids, Cytoskeletal organization, Ribozymes.

REFERENCE BOOKS:

1. Principles of Biochemistry by A.L. Lehninger, D.L. Nelson and M.M. Cox (1993) Worth Publishers, New York.
2. Biochemistry by L. Stryer (1994) Freeman & Co., New York
3. Biochemistry by G. Zubay (1988) Macmillan Publishing Co., New York.
4. Harper's Biochemistry by R.K. Murray, P.A. Mayes, D.K. Granne and V.W. Rodwell (1990) Lange Medical Book.