Subject: Clinical Biochemistry

Effective from academic Session 2017

Semester :1st

Paper: Biomolecules-Structure Function and Metabolism .

Unit I
Carbohydrates: Carbohydrate structure classification, and functions. Glycolysis, Krebs cycle, Pentose phosphate pathway, Gluconeogenesis, Glycogenesis, Glycogenolysis, Regulation of carbohydrate metabolism

Unit II
Amino acids: Structure, classification, peptides and polypeptides primary, secondary and tertiary, quaternary structure; Transamination, oxidative deamination and decarboxylation. Urea cycle, Degradation of amino acids like, tyr, methionine cysteine

Unit III
Lipids: classification, structure and functions of fatty acids, triacylglycerols, phospholipids, sterols, Biosynthesis and degradation of saturated and unsaturated fatty acids, ketone bodies and cholesterol metabolism

Unit IV
Nucleic acids: structure and properties of purines and pyrimidine bases, nucleoside and nucleotides .Biosynthesis and degradation of purines and pyrimidines, Regulation of purines and pyrimidine biosynthesis,

Practicals:
1) Preparation of standard Buffers and determination of pH of a solution.
2) Qualitative tests for Carbohydrates
3) Qualitative tests for Proteins and Amino acids.
4) Qualitative tests for Lipids
6) Quantitative analysis of proteins by Lowry method.

Books Recommended

1. **Principles of Biochemistry by Lehninger, Nelson& Cox**
2. **Biochemistry by Lubert Stryer**
3. **Laboratory Manual of Biochemistry & Biotechnology by Syed Eazaz Hussain Rizvi**
4. **Bioanalytical Chemistry by Syed Eazaz Hussain Rizvi**