

SARDAR PATEL UNIVERSITY
Programme: B.Sc
Semester: III
Syllabus with effect from: June-2012

Paper Code: US03CBCH01	Total Credit: 3
Title of Paper: Biochemistry of Biomolecules - I	

Unit	Description in detail	Weightage (%)
I	<p>Carbohydrate:</p> <ul style="list-style-type: none"> • Biological functions of carbohydrate • Physical and chemical properties of carbohydrates. <p>Chiral carbon (Asymmetric carbon atom), Isomerism, D& L forms, optical activity. Simple and ring structure of monosaccharide. Derived sugar, osazone formation, action of acid & alkali on sugar. Killiani and Fischer synthesis.</p> <p>Disaccharides - Maltose, Lactose, Sucrose, Polysaccharides - Starch, Glycogen, Cellulose, Heparin(structure and importances)</p>	25%
II	<p>Amino Acid:</p> <p>Structure and classifications of amino acid, rare amino acid of protein, titration curve of amino acid (GLYCINE).Physical properties of amino acid - solubility, taste, melting point, stereo-specificity and optical activity.Chemical properties of amino acids - Due to carboxyl group ester formation.Reduction of carboxyl group: carboxylation, and amide formation.Reduction due to amide group: methylation, Sanger's reaction, Edman's reaction, Dansyl chloride, Dabsyl chloride and Ninhydrine reaction. Essential amino acid & their importance.</p>	25%
III	<p>Nucleic Acid:</p> <p>Introduction: biological significance nucleotides chemistry.Basic structure of Sugar, Nitrogen base, Nucleosides, Nucleotides.Phosphodiester bond.Basic chemistry: Secondary (Watson and crick model) and tertiary structure of DNA, forms of DNA (A, B, Z).Physical properties of DNA(Tm & its relation with GC content & COT value), DNA supercoiling.</p>	25%
IV	<p>Minerals:</p> <p>Definition and classification of minerals. Dietary sources, RDA and Biochemical functions of-Calcium, phosphorous, iron, manganese, sodium, potassium, chloride and iodine.</p>	25%

Basic Text & Reference Books:

- Lehninger principles of biochemistry by David L. Nelson and M. M. Cox CBS (4th edition). (CH - 1)
- Outline of biochemistry Conn & Stump. (CH - 1)
- Text of Medical biochemistry - by Dinesh Puri. (CH - 1)
- Text of Medical biochemistry - by M.M. Chatterjea and Rana Shinde. (CH - 1)
- Outline of biochemistry Conn & Stump. (CH - 2)
- Fundamental of biochemistry - Donald Voet, Judith Voet and Charlotte W. Pratt. John Wiley Publishers. (CH - 2)
- Principles of Biochemistry by Horton, Moran, Scimgeour, Prey, Rawn, Pearson international edition (4th edition). (CH - 2)
- Outline of biochemistry Conn & Stump. (CH - 3)



- Lehninger principles of biochemistry by David L. Nelson and M.M. Cox CBS (4th edition). (CH - 3)
- Text of Medical biochemistry - by Dinesh Puri. (CH - 3)
- Text of Medical biochemistry - by Puri. (CH - 4)
- Text of Medical biochemistry - by M.M.Chatterjea and Rana Shinde. (CH - 4)

