B.Sc. BIOCHEMISTRY SYLLABUS UNDER CBCS
(With effect from 2016-2017)
DSC-1A (Theory)

Paper-1 BIOMOLECULES

CREDITS: 4 **MAXIMUM MARKS: 100**

Unit I: Carbohydrates

1.1.1. Monosaccharides - structure of aldoses and ketoses, ring structure of sugars, conformations of sugars, mutarotation, anomers, epimers and enantiomers,
1.2. Structure of biologically important
sugar derivatives, oxidation of sugars. Formation of disaccharides, reducing and nonreducing disaccharides.
1.3. Polysaccharides – homo- and heteropolysaccharides, structural and
Storage polysaccharides.
1.4. Structure and role of proteoglycans, glycoproteins and glycolipids
(gangliosides and lipopolysaccharides). Carbohydrates as informational molecules.

Unit II: Lipids

2.1. Lipids – classification and general properties of lipids.
2.2. Fatty acids, glycerol, ceramide; Storage lipids - triacyl glycerol and waxes.
2.3. Structural lipids in membranes – glycerophospholipids, galactolipids and sulpholipids, sphingolipids and sterols. Structure, distribution and role of membrane lipids.
2.4. Lipids as signals and cofactors. Eicosanoids-structure & functions.

Unit III: Amino acids and Proteins

3.1. Structure and classification, physical, chemical and optical properties of amino acids.
3.2. Naturally occurring peptides. Outlines of protein classification
3.3. Structural organisation of proteins. Protein denaturation and renaturation
3.4. Proteolytic enzymes. Outlines of protein sequencing

Unit IV: Nucleic acids

4.1. Nucleotides - structure and properties. Nucleic acid structure – Watson - Crick Model of DNA
4.2. Structure of major species of RNA - mRNA, tRNA and rRNA.
4.3. Nucleic acid chemistry- UV absorption, effect of acid and alkali on DNA.
4.4. Functions of nucleotides - source of energy, component of coenzymes, second messengers.