

**Syllabus**  
**Savitribai Phule Pune University**  
**T. Y. B. Sc. Semester - V (CH - 508)**  
**2021-2022**  
**Chemistry of Biomolecules Syllabus**

**Chapter 1: Introduction to molecular logic of life: [3 L]**

Unicellular and multicellular organisms, prokaryotes and eukaryotes. List of cell organelles and its functions. Molecules that constitute the organisation of cell and its organelles. types of bonds in biomolecules.

**Chapter 2: Carbohydrates: [7 L]**

Introduction, classification of carbohydrates, their structures and biological significance. Concept of anomers, epimers, reducing and non-reducing sugars, mutarotation, inversion. Reactions of glucose with acid, base, phenyl hydrazine, oxidizing agents, reducing agents and its significance, Glycosidic bonds.

**Chapter 3: Lipids: [6 L]**

Introduction, classification of lipids, their structures and biological significance. Reactions of Lipids-Saponification, hydrolysis, emulsification, oxidation. Concept of saponification number, acid number, iodine number and their significance. Rancidity. Types of Lipoproteins and their significance. Blood group substances.

**Chapter 4: Amino acids and Proteins: [8 L]**

Amino acids: classification of amino acids. Concept of ampholytes, isoelectric pH, zwitter ions, titration curve of glycine. Reactions of amino acid with Ninhydrin, Sanger's, Dabsyl chloride, Dabsyl chloride and Edmann's reagents and their significance. peptide bond and its features. Proteins: Classification based on function, nutrition and composition. Structural organization of proteins- primary, secondary, tertiary and quaternary structures.

**Chapter 5: Enzymes: [6 L]**

Classification of enzymes. Features of active site. ES complex formation, Enzyme specificity, Factors affecting enzyme activity. Basics of Enzyme kinetics. MM and LB equation and Significance of Km. Types of Enzyme inhibition. Concept of Conjugated