

34098

B. Sc. (Bio-Tech) Discipline Specific Course  
1st Semester (for Four Year UG/Five Year  
Integrated Programs) w.e.f. 2024-25  
as per (NEP-2020) Examination, December-2025

**BASICS OF BIOMOLECULES**

**Paper-24CBTS401DS01**

*Time allowed : 3 hours] [Maximum marks : 70*

*Note : All the questions will carry 14 marks. Students are required to attempt the compulsory Question No. 1 and four other questions selecting one from each unit.*

1. Write notes on the following :

- (a) Name the storage polysaccharide found in plants, give examples. 2
- (b) What is the primary function of phospholipids in cells ? 2
- (c) Why lipids are considered hydrophobic ? 2
- (d) Name the precursor molecule for steroid synthesis. 2
- (e) Differentiate between polar and non-polar amino acids. 2

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[P.T.O.]

- (f) What is the isoelectric point of an amino acid? 2
- (g) Name any two essential amino acids. 2

### Unit-I

2. Explain the structure of glycoproteins and discuss their diverse biological functions with relevant examples. 14

OR

3. Explain the following :
- (a) Different classes of carbohydrates 7
- (b) Mucopolysaccharides 7

### Unit-II

4. Define terpenoids and isoprenoids, and explain their structural diversity with the help of representative examples. 14

OR

5. Explain the following :
- (a) Phospholipids 7
- (b) Saponification value and iodine value 7

**Unit-III**

6. Describe the primary, secondary, tertiary, and quaternary structures of proteins, highlighting their characteristics and significance in protein function ? 14

OR

7. Discuss in detail the following :
- (a) Forces that stabilize the protein structure 7
  - (b) Acid base properties and titration curves of amino acids 7

**Unit-IV**

8. Explain the following in detail :
- (a) Denaturation and renaturation of DNA 7
  - (b) Chargaff's rules 7

OR

9. Explain in detail the nucleosides, nucleotides and Watson - Crick model of DNA. 14

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**CELL BIOLOGY**

**Paper-24CBTS401DS02**

*Time allowed : 3 hours]*

*[Maximum marks : 70*

*Note : Attempt five questions in all, selecting at least one question from each unit. Question No. 1 is compulsory. All questions carry equal marks.*

1. Write short note on the following :  $7 \times 2 = 14$

- (a) Cell theory
- (b) Chloroplast
- (c) Golgi Complex
- (d) Nucleus
- (e) Flagella
- (f) Exospores
- (g) Apoptosis

**Unit-I**

2. Give a detailed account of structure and function of Protoplasm. 14

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[P.T.O.]

3. Explain the following :

- (a) Comparison between plant and animal cells 7  
 (b) Cytoskeleton 7

### Unit-II

4. Describe briefly Catalysis and use of energy by cells. 14  
 5. Describe the biogenesis of Mitochondrion. 14

### Unit-III

6. Explain the heterocysts and akinetes of Cyanobacteria. 14  
 7. Write short notes on the following :  
 (a) Cell wall of bacteria 7  
 (b) Polyphosphate bodies 7

### Unit-IV

8. Give a detailed account of overview of cell cycle. 14  
 9. Explain the models of membrane structure. 14