

M. SC. (BIOCHEMISTRY) (MSCBCH)

Term-End Examination

June, 2025

MBC-001 : CONCEPTS OF BIOCHEMISTRY

Time : 3 Hours

Maximum Marks : 100

Note : (i) *Answer any **five** questions.*

(ii) *All questions carry equal marks.*

1. (a) Discuss the structure of water and its physico-chemical properties. Why is water considered as a universal solvent ?

6+6

- (b) Describe the classification of Carbohydrates.

8

2. (a) Explain how carbohydrates function as informational molecules in biological systems. Discuss their role as blood group antigens.

6+6

- (b) Explain the structure and functions of plant steroids. 8
3. (a) Explain the structure, properties and importance of cellulose. 15
- (b) Write a short note on triglycerides. 5
4. (a) What are the key structural features of phospholipids, plasmalogens and sphingolipids ? 10
- (b) What are lipid-derived signaling molecules ? Explain. 10
5. (a) Classify amino acids based on their structure and properties. 10
- (b) Distinguish between α -helix and β -sheet. 10
6. (a) Compare the structure and functions of fibrous proteins (Keratin and Collagen). 6+6
- (b) Discuss the forces stabilizing the tertiary structure of proteins. 8

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7. (a) Write the basic principle of electrophoresis. 5
- (b) Describe the electrophoretic technique in which 'SDS' is used. 10
- (c) Draw the structure of Vitamin C and describe its role as an antioxidant. 5
8. (a) Outline the methods used for the isolation, fractionation and characterization of nucleic acids. 12
- (b) Illustrate and explain the structure of t-RNA. 8

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