

**M.Sc. (Botany) Semester - 2 (CBCS) Examination**  
**March/April – 2026 (As Per Syllabus Year-2023)**  
**Biochemistry (Core)**

**Time: 2:30 Hours**

**Marks:70**

**Instructions:**

1. All questions are compulsory.
2. Figures to the right indicate marks.

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**Que.1 Answer the following (any 07 out of 08) (14)**

- (1) Define monosaccharides with examples.
- (2) Differentiate between homopolysaccharides and heteropolysaccharides
- (3) State any two functions of lipids.
- (4) What is  $\beta$ -oxidation?
- (5) Define amino acids and classify them based on polarity.
- (6) What is the primary structure of proteins?
- (7) Define Ramachandran plot.
- (8) What are coenzymes and cofactors?

**Que.2 Answer the following (any two) (14)**

- (1) Describe the types and properties of monosaccharides and disaccharides.
- (2) Classify lipids and discuss their properties with examples.
- (3) Explain the process of  $\beta$ -oxidation of fatty acids in detail.

**Que.3 Answer the following (any two) (14)**

- (1) Explain the Ramachandran plot in detail with labeled diagram
- (2) Write a note on Alpha helix and Beta sheet levels of proteins
- (3) Explain the primary, tertiary, and quaternary structure of proteins.

**Que.4 Answer the following (any two) (14)**

- (1) Discuss enzyme kinetics with reference to the Michaelis-Menten model and double reciprocal plot.
- (2) Explain enzyme nomenclature and classification.
- (3) Discuss the regulatory enzymes and their role in metabolic pathways.

**Que.5 Answer the following (any two) (14)**

- (1) Describe glycolysis in detail.
- (2) Describe the citric acid cycle in detail
- (3) Describe in detail 'Pentose Phosphate Pathway'.

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