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MBC-004

**M.SC. BIOCHEMISTRY
(MSCBCH)**

**Term-End Examination
December, 2025**

**MBC-004 : ENZYMES AND THEIR
APPLICATIONS**

Time : 3 Hours

Maximum Marks : 100

Note : Answer any *five* questions. All questions carry equal marks.

1. Give an overview of nomenclature and classification of enzymes. Explain IUBMB system of enzyme classification with examples. 8+12=20
2. Write notes on any *two* of the following : 20
 - (a) Effect of temperature and pH on enzyme activity
 - (b) Types of enzyme assays
 - (c) Mechanism of Lysozyme Action

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3. (a) Give a schematic representation of stopped flow and continuous flow techniques and explain these techniques. 10
- (b) What is Direct-Linear Plot ? Draw the plot and list its advantages. 5
- (c) Explain Alberty Rate Equation for bisubstrate enzyme catalyzed reactions. 5
4. (a) Derive Michaelis-Menten equation for an uncompetitive inhibitor of enzyme catalysed reaction. 10
- (b) Describe irreversible enzyme inhibition. 10
5. (a) Explain the MWC and KNF models of co-operativity during allosteric transitions of enzyme. 10
- (b) Discuss the covalent modification mechanism to regulate enzyme activity. 10
6. (a) Describe clinical importance of isozymes. 10

- (b) How do multienzyme complexes act as regulatory enzymes ? Why are they difficult to isolate ? 10
7. (a) Discuss the chemical treatment methods for cell disintegration and enzyme extraction. 10
- (b) Write notes on the following diagnostic enzymes : $2\frac{1}{2} \times 4 = 10$
- (i) Lactate dehydrogenase
 - (ii) Creatine Kinase
 - (iii) Alkaline Phosphatase
 - (iv) Amino Transforases
8. (a) Explain the following (any *two*) : 10
- (i) Application of enzymes in starch industry
 - (ii) Advantages and disadvantages of biosensors
 - (iii) Enzyme therapy
- (b) Describe entrapement methods of enzyme immobilization. 10

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