

## B.Sc. Sem.-6 (Rep) Examination

CC-310

Biochemistry

October-2025

Time : 2-30 Hours]

[Max. Marks : 70

**Q.1** a. Describe the competitive and non competitive inhibition with kinetics and example 10

b Briefly explain the MWC model of allosteric regulation. 4

OR

Q.1 a. Derive Michelis menton equation. 8

b. Explain Line Weaver burk and Hanes plot with advantage and disadvantage 6

Q.2 a. Describe thespectrofluorometric method for enzyme assay, including its applications, advantages, disadvantages, and examples. 9

b Explain how proper handling of enzymes is crucial for enzyme assays and studies 5

OR

Q.2. a. Discuss Thumberg, manometric, and electrochemical methods in enzyme kinetics, with advantages, disadvantages, and examples for each. 14

Q.3 Describe the need for enzyme purification and outline a general purification scheme with examples. 14

OR

Q.3 a. Define specific activity of an enzyme and explain its importance in the enzyme purification process. 7

b What are enzyme units and why are they important in enzyme kinetics and assays? 7

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Q.4 a. Define immobilized enzymes and explain the various methods of enzyme immobilization with diagrams. 7

b Describe the role of enzymes as analytical reagents in the estimation of blood glucose, urea, and cholesterol. 7

OR

Q.4. a. What are biosensors? Explain their components, working principle, and the role of enzymes in biosensor construction.

b Write a detailed account of the therapeutic applications of enzymes in medicine with examples. 7

Q.5 Attempt Any Seven 14

1. What is irreversible inhibition? Give one example.
2. What is the role of ATCase in allosteric enzyme kinetics?
3. Define suicide inhibition with an example.
4. Why is sampling accuracy important in spectrophotometric enzyme analysis?
5. Give one example of the use of chromatographic methods in enzyme assays.
6. How does temperature affect enzyme handling?
7. What is the purpose of preparing a purification scheme?
8. How does electrophoresis help in assessing enzyme purity?
9. What is the role of ultracentrifugation in checking enzyme purity?
10. Mention one enzyme used in the food industry and its function.
11. Name one enzyme used in the dairy industry and its purpose.
12. Give one example of an industrial application of immobilized enzymes.

