

B.Sc. (Part-I) (CBCS Pattern) Semester - IV  
**USBCT-C07 - Biochemistry Paper-I (Enzymology)**

P. Pages : 2

Time : Three Hours



**GUG/S/23/11998**

Max. Marks : 50

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- Notes : 1. All questions are compulsory and carry equal marks.  
2. Draw well labelled diagrams wherever necessary.

**1. Write a note on the following regulatory enzymes: 10**

- i) Aspartate Transcarbamoylase (ATCase)
- ii) Glycogen phosphorylase.

**OR**

- a) Write a note on covalent catalysis. 2½
- b) Explain the induced fit model. 2½
- c) Write a note on multienzyme complexes. 2½
- d) Explain the transferase class of enzyme with suitable example. 2½

**2. Describe the role of vitamins as coenzyme precursor any four. 10**

**OR**

- a) Write a note on effect of pH on enzyme activity. 2½
- b) Draw only the schematic of mechanism of action of ribonuclease. 2½
- c) How does the temperature affect enzyme activity? 2½
- d) Write a note on activation energy and transition state. 2½

**3. Write the Lineweaver-Burke (LB) equation. Give the graphical representation of competitive, noncompetitive and uncompetitive inhibitors on LB plot. 10**

**OR**

- a) Write a note on ordered sequential mechanism. 2½
- b) What is  $K_m$ ? Derive the equation for  $K_m$ . 2½
- c) Describe the ping pong mechanism in brief. 2½
- d) Explain the irreversible enzyme inhibition with suitable examples. 2½

4. Write a detailed note on enzyme isolation and purification. 10
- OR**
- a) Write a note on enzyme assay and its importance. 2½
- b) Describe the gel entrapment method for enzyme immobilization. 2½
- c) Discuss how the adsorption and covalent binding is used for enzyme immobilization. 2½
- d) Explain any two industrial applications of enzyme immobilization. 2½
5. Answer **any ten** of the following.
- a) Give any one example of coenzyme. 1
- b) What is active site? 1
- c) What are isoenzyme? 1
- d) What is bisubstrate reaction? 1
- e) What is temperature quotient? 1
- f) Write the steady state assumption of MM equation. 1
- g) What is the importance of initial velocity measurement? 1
- h) What is Kcat? 1
- i) Intermolecular cross linking is a method of enzyme ----- (fill in the blank) 1
- j) Define – specific activity. 1
- k) What is aspartame? 1
- l) Write the names of important enzymes participating in lysozyme action. 1

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