

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

P. Pages : 2

Time : Three Hours



GUG/S/25/11998

Max. Marks : 50

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- Notes : 1. All the 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 lock and key model. **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 (B-complex) as coenzyme precursor: **10**

OR

- a) Write a note on effect of P^H 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 effect of enzyme concentration on enzyme activity. **2½**

3. Derive the Lineweaver-Burke (LB) equation. Give the graphical representation of Competitive and noncompetitive 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 uncompetitive inhibition. **2½**
- d) Explain the irreversible enzyme inhibition with suitable examples. **2½**

4. Write a detailed note on enzyme isolation and purification. **10**

OR

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| a) | Write a note on enzyme assay and its importance. | 2½ |
| b) | Describe the criteria for enzyme purity and homogeneity. | 2½ |
| c) | Discuss how the covalent binding method is used for enzyme immobilization. | 2½ |
| d) | Explain any two industrial applications of enzyme immobilization. | 2½ |

5. Answer **any ten** of the following:

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|----|---|---|
| a) | what is cofactor? | 1 |
| b) | What is active site? | 1 |
| c) | What are isoenzymes? | 1 |
| d) | What is transition state? | 1 |
| e) | What is temperature quotient? | 1 |
| f) | What is activation energy? | 1 |
| g) | Write the steady state assumption of MM equation. | 1 |
| h) | What is the importance of K_m ? | 1 |
| i) | What is bisubstrate reaction? | 1 |
| j) | Intermolecular cross linking is a method of enzyme ----- (Fill in the blank). | 1 |
| k) | Define – specific activity. | 1 |
| l) | What is the use of gel entrapment method? | 1 |
