

6. (a) Differentiate between the following :

(i) Diagnostic enzymes and Therapeutic enzymes.

(ii) Lock- key model and induced fit model.

(iii) Prosthetic group and coenzyme.

(b) Explain the Michaelis-Menten plot and give significance of K_m and V_{max} and show under what conditions $K_m = [S]$. (9,6)

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 6030

H

Unique Paper Code : 2494001202

Name of the Paper : Protein and Enzymes

Name of the Course : **B.Sc. (Hons.) Biochemistry**

Semester : II

Duration : 2 Hours

Maximum Marks : 60

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. There are 6 questions.
3. Attempt any 4 questions.
4. All questions carry equal marks.
5. Question no. 1 is compulsory.

1. (a) State whether True or False with justification

(i) Hydrophobic interaction drive protein folding.

- (ii) Lactate dehydrogenase is an example of isozyme
 - (iii) Glycine is found in the turn of α -helix.
 - (iv) K_m is inversely proportional to the substrate concentration.
 - (v) Enzymes decrease the activation energy of the reaction.
 - (vi) Competitive inhibitors are useful as antibiotics.
- (b) Mention the contribution of the following scientists :
- (i) Linus Pauling
 - (ii) James B. Sumner
 - (iii) Max Perutz (12,3)
2. (a) Give various kinds of covalent modifications with example?
- (b) Discuss various non-covalent interactions involved in stabilizing a protein structure.
- (c) Write enzyme classification with one example of each class. (5,4,6)

3. Write short notes on :
- (a) Zymogens
 - (b) Alzheimer's disease
 - (c) Parallel and Anti-parallel beta sheets
 - (d) Tertiary structure of protein
 - (e) Allosteric regulation (3×5=15)
4. (a) Explain the significance of Ramchandran plot in determining the structure of proteins.
- (b) Explain the following with examples :
- (i) Competitive and Noncompetitive inhibitors.
 - (ii) Conjugated proteins.
 - (iii) Restriction endonucleases. (6,9)
5. (a) What is irreversible inhibition in enzymatic reaction? Explain by giving example of fdUMP.
- (b) Write the characteristics feature of α -helix.
- (c) What is Lineweaver Burk double reciprocal plot? Discuss its significance. (5,5,5)