

- (b) Mention five features of enzyme catalyzed reactions.
- (c) How is glycogen phosphorylase regulated?
(5, 5, 5)
5. (a) Explain suicide inhibition with suitable example.
- (b) How are enzymes classified? Give an example of each class.
- (c) K^{cat}/K^m is a measure of catalytic efficiency. Explain.
(5, 6, 4)
- 6 (a) What are the various noncovalent and covalent bonds which contribute to protein 3D structures?
- (b) Explain any two protein misfolding diseases.
- (c) Zymogen activation occurs once in a lifetime of an enzyme. Justify.
(6, 6, 3)

[This question paper contains 4 printed pages.]

Your Roll No.....

आपका अनुक्रमांक.....

Sr. No. of Question Paper : 3004

I

Unique Paper Code : 2494002001

Name of the Paper : Proteins and Enzymes

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

Semester : III

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 Six questions.
3. Attempt any Four questions.
4. All questions carry equal marks. Question no. 1 is compulsory.

1. A. State whether true or false and justify (any four):

- (i) Amino acids can act as acids and bases.
- (ii) Carboxypeptidase A is an excellent choice for protein sequencing from C-terminus.
- (iii) Residues such as Arg, Lys, Asp and Glu are found in the interiors of the protein while Val, Leu, Ile, Met and Phe are found on the surface of the protein.
- (iv) Hemoglobin and myoglobin show enormous difference in their oxygen binding curves.
- (v) Sickle cell anemia is caused due to misfolding of subunits.
- (vi) All enzymes are proteins.

B. Give the contributions of the following scientists (any five):

- (i) Erwin Chargaff
- (ii) Bruce Merrifield
- (iii) Emil Fischer
- (iv) Linus Pauling and Robert Corey
- (v) James Sumner
- (vi) Briggs Haldane

C. Name a protein in each category:

- (i) Metalloprotein
- (ii) Glycoprotein
- (iii) Transporter protein
- (iv) Only β -sheet containing protein (8,5,2)

2. Differentiate between:

- (i) Globular and fibrous protein
- (ii) Competitive and uncompetitive inhibition
- (iii) Denaturation and Renaturation
- (iv) Lock & key hypothesis and induced fit theory
- (v) Apoenzyme and Coenzyme (5x3=15)

3. Write short note on the following:

- (i) Ramachandran plot
- (ii) Coenzymes
- (iii) Metalloprotein
- (iv) Protein folding
- (v) Enzymes in research (5x3=15)

4 (a) Define two kinetic parameters. Why can't they be determined accurately using Michaelis Menten plot.