

This question paper contains 3 printed pages]

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S. No. of Question Paper : 5292

Unique Paper Code : 2494001202

Name of the Paper : GE-Proteins and Enzymes

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

Semester : II

Duration : 2 Hours

Maximum Marks : 60

(Write your Roll No. on the top immediately on receipt of this question paper.)

There are *six* questions.

Attempt any *four* questions.

All questions carry equal marks.

Question No. 1 is compulsory.

1. (A) For each of the following statements, indicate whether it is True or False and provide a brief justification :
 - (i) Hormones, antibiotics, and growth factors can be peptides.
 - (ii) Competitive inhibition can be reversed by increasing substrate concentration.
 - (iii) Protein renaturation is impossible once a protein is denatured.
 - (iv) Streptokinase is used as enzyme marker.
 - (v) The active site of an enzyme is rigid and does not change shape upon substrate binding.

P.T.O.

(B) Provide an explanation for the following :

(i) Thermostable enzymes are utilized in PCR.

(ii) Disulfide bonds are present in protein folding.

10,5

2. Differentiate between following :

(i) Collagen and Keratin

(ii) Alpha-helices and Beta-sheets

(iii) Apoenzyme and Holoenzyme

(iv) Lock & key and Induced fit hypothesis

4,4,3,4

3. (A) Describe the classification and nomenclature of enzymes with suitable examples.

(B) What is protein folding ? Discuss the processes of denaturation and renaturation with reference to Ribonuclease A.

7.5,7.5

4. (A) Explain the Ramachandran plot and its significance in understanding protein structures.

(B) Derive the Michaelis-Menten equation. Explain the significance with Lineweaver Burk equation.

7.5,7.5

5. (A) Describe the structural organization and functional significance of hemoglobin.

(B) What are zymogens ? Explain their role in enzyme activation with reference to chymotrypsinogen.

(C) What are conjugated proteins ? Explain with *two* suitable examples how they differ from simple proteins. 5,5,5

6. Write short notes on the following :

(i) Myoglobin

(ii) Alzheimer's disease

(iii) Chaperones

(iv) Marker enzymes. 4,4,3,4