

4. (a) Briefly outline CB Anfinsen experiment on denaturation and renaturation of ribonuclease. Mention the significance of the findings.
- (b) Transform Michaelis-Menten equation into Lineweaver-Burk equation. Also draw Lineweaver-Burk plot and show the x-intercept and y-intercept. Also draw
- (c) Give an example of the following:
- (i) A copper containing enzyme
 - (ii) An enzyme used in PCR
 - (iii) A therapeutic enzyme
 - (iv) A competitive inhibitor (6, 5, 4)
5. (a) Explain the structure of hemoglobin and the phenomena of cooperativity.
- (b) Explain the role of Chaperones in protein folding
- (c) Differentiate between irreversible and reversible enzyme inhibitors. Give one example for each. (5, 5, 5)
6. Write short notes on the following:
- (a) Functional diversity of proteins
 - (b) Enzymes as reagents
 - (c) Protein misfolding diseases (5, 5, 5)

(100)

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 4603

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Unique Paper Code : 2494002001

Name of the Paper : Proteins and Enzymes

Name of the Course : GE-Biochemistry (NEP)

Semester : IV

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 in this question paper.
 3. Attempt any **four** questions.
 4. All questions carry **equal** marks.
 5. **Question no. 1** is compulsory.
1. (a) Explain the following:
- (i) The apparent K_m increases in the presence of a competitive inhibitor,

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(ii) Proteins that bind to DNA are abundant in basic amino acids.

(iii) The use of Taq polymerase in research.

(iv) Amino acids are optically active.

(v) Peptide bond is planar in nature.

(b) Give the contribution of the following:

(i) Daniel Koshland

(ii) Leonor Michaelis

(iii) John Kendrew

(c) Define the following terms:

(i) Michaelis constant K_m

(ii) Optical activity (10, 3, 2)

2. (a) With the help of examples describe how enzymes are classified.

(b) Transform Michaelis-Menten equation into Lineweaver-Burk equation. Also draw Lineweaver-Burk plot and show the x-intercept and y-intercept.

(c) Name the following:

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(i) An amino acid that contains Sulphur

(ii) An amino acid that is not optically active

(iii) An aromatic amino acid (6, 6, 3)

3. (a) Enzymes can serve as powerful diagnostic tools. Justify the statement with the help of examples.

(b) Differentiate between the following:

(i) Alpha helix and beta-pleats

(ii) Globular and fibrous proteins

(c) Match the proteins in column A with their description in Column B

Column A

Column' B

Repressor

Structural protein

Hemoglobin

Storage protein

Collagen

Transport protein

Casein

Toxic protein

Ricin

Regulatory protein

(5, 5, 5)

P.T.O.