

(Following Paper ID and Roll No. to be filled in your
Answer Books)

Paper ID : 154413

Roll No.

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B.TECH.

Theory Examination (Semester-IV) 2015-16

ENZYME ENGINEERING

Time : 3 Hours

Max. Marks : 100

Section-A

Q.1 Attempt all parts. All parts carry equal marks. Write answer of each part in short. (2×10=20)

- (a) What is the importance of prosthetic group in an enzyme?
- (b) What is the unit of Michaelis Menten constant?
- (c) Sketch lineweaver-burk plot showing the effect of competitive inhibition.
- (d) Differentiate activation and deactivation energy of enzymes.

- (e) Define the unit of enzyme activity.
- (f) What is enzyme dialysis in affinity chromatography?
- (g) What is the difference between adsorption and absorption?
- (h) What is encapsulation of enzyme?
- (i) What is the difference between packed bed reactor (PBR) and fluidized bed reactor (FBR)?
- (j) Write down the element of biosensors.

Section-B

Q2. Attempt any five parts. All parts carry equal marks:
(5×10=50)

- (a) Derive a Michaelis-Menten equation for enzyme catalyzed reaction.
- (b) Describe the co-operative behaviour of hemoglobin through concerted and sequential model.
- (c) Describe diagrammatically purification of enzyme through affinity chromatography.

(2)

- (d) What is adsorption immobilization? Explain advantages and disadvantages in brief.
- (e) Explain immobilized enzyme reactor CSTR with neat and clean figure.
- (f) Write the step involved in extraction of crude enzyme from plant source.
- (g) What is product inhibition? Explain negative and positive feedback inhibition with appropriate example.
- (h) Write the applications of immobilized enzyme system.

Section-C

Attempt any two questions from this section.

(2×15=30)

- Q3.** Explain the matrix entrapment of enzyme in brief. Write advantages and disadvantages of immobilization of enzymes by matrix entrapment. Give two examples of immobilization of enzymes by matrix entrapment.

(3)

- Q4.** Explain two methods for the assay of total protein.
- Q5.** Derive Michaelis-Menten equation for uncompetitive inhibition. Draw the lineweaver burk plot showing the effect of uncompetitive inhibition.