Printed Pages: 4 **NBT-403/EBT-401/BT-404**

(Following Paper ID and Roll No. to be filled in your Answer Books)	
Paper ID : 154413	**Roll No.**

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 cany 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.

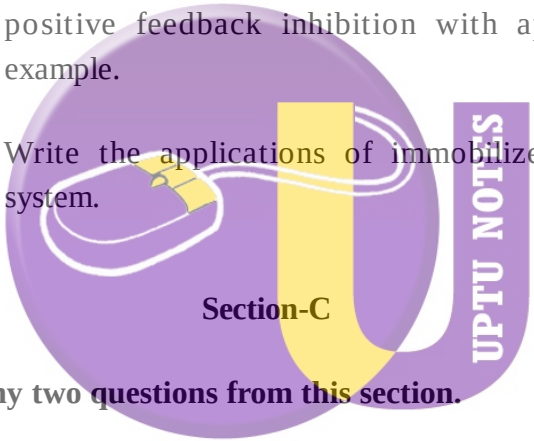
(d) What is adsorption immobilization? Explain advantages and disadvantages in brief.

(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.

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.