Printed Pages : 3

EBT401

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

PAPER ID : 154407

Roll No.

B. Tech.

(SEM. IV) THEORY EXAMINATION, 2014-15

ENZYME ENGINEERING

Time : **3** Hours] [Total Marks : **100**

Note : Attempt all questions as directed. All questions carry equal marks.

1 Attempt any two of the followings :

(a) What are buffers? Mention their importance in preparing homogenates for isolating an enzyme? How do we select the buffer for isolation of a particular enzyme? Mention the various parameters.

(b) Describe the normal procedure for purification of a cytoplasmic enzyme from bacterial cells. How does it differ from that of wall bound enzymes?

(c) What do you understand by activity assay? Mention the units of enzyme activity and describe the importance of specific activity.

2. Attempt any two of the followings :

(a) What do you understand by turn over number and enzyme efficiency. Which one is preferred for characterization of major substrate?

(b) Describe the methods to study kinetics of single substrate enzymatic reactions. How can Km play an important role? Describe with the help of suitable expressions.

(c) What is active site? Mention the properties and role of active site in an enzyme. How does it help regulating the activity?

3 Attempt any two of the followings :

(a) Write a short note on feedback inhibition. Describe the principle behind this and its importance in vivo.

(b) What do you understand by types of inhibitions? Describe the changes in kinetics of an enzyme during competitive inhibition.

(c) Describe the importance of Lineweaver-Burk Plot and Michaelis Menten curve. How do they help characterizing an enzyme?

4 Attempt any two of the followings :

(a) What are immobilized enzymes? How do they behave when immobilized? Mention their advantages over soluble enzymes.

(b) What are enzyme electrodes? Describe the principle and importance of enzyme electrodes in making biosensors.

(c) Write a note on application of immobilized enzymes in health care.

5 Attempt any two of the followings :

(a) What are the parameters of assessment of immobilized enzymes in a reactor? How do these parameters ensure large scale catalysis? Describe with the help of suitable examples.

(b) Describe as to how fluidized bed reactors function? Support your answer taking at least one example and mention the parameters affecting enzyme catalysis.

(c) What are the key considerations for designing a bioreactor? How do they influence the efficiency of bioreactors?