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Roll No. [redacted]

B TECH
(SEM IV) THEORY EXAMINATION 2017-18
ENZYME ENGINEERING

Total Marks: 70

Time: 3 Hours

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION- A

2 x7 = 14

1. Attempt *all* questions in brief.

a. Define Enzymes. Write down any two names of enzymes?
b. Write a short note on Apo-enzyme?
c. What is Turnover number?
d. Define Enzyme Immobilization.
e. What are the features of active site?
f. Define enzyme inhibition.
g. Give the basic explanation about diffusion effect of enzyme immobilization?

SECTION-B

2. Attempt any *three* parts of the following: - **7 x 3 = 21**

a. Derive the Michaelis Menten equation with related graph.
b. Explain the process of enzyme inhibition with reversible & irreversible inhibition?
c. Describes purification of enzymes by the help of different methods?
d. Describe the applications of immobilize enzyme.
e. Describe Lock and key hypothesis with suitable example.

SECTION-C

3. Attempt any two parts of the following: - **3.5 x 2 =7**

a. Describe the kinetic properties of immobilized enzymes?
b. Explain the Potentiometric biosensor technique in brief?
c. Write down the process of membrane reactors and its applications?

4. Attempt any two parts of the following: - **3.5 x 2 =7**

a. Explain Induce Fit model for the interaction between enzyme and substrate?
b. Describe Allosteric regulations of enzymes?
c. Write down any five applications of biosensors in biotechnology?

5. **Attempt any *ONE* parts of the following: -** **7 x 1 =7**

   a. Briefly discuss about Enzyme Immobilization and its related techniques? Also gives some applications about enzyme immobilization?

   b. Explain Enzyme Biosensors? Also explains Calorimetric and Piezoelectric technique as a part of enzyme biosensors?

6. **Attempt any *ONE* parts of the following: -** **7 x 1 =7**

   a. Briefly discuss about Enzymes and its IUB system of classification & nomenclature?

   b. Explain the process of Extraction of crude enzymes from plant, animal and microbial source?

7. **Attempt any *ONE* parts of the following: -** **7 x 1 =7**

   a. Explain Continuous Flow Stirred Tank Reactors (CSTR) in brief?

   b. Briefly discuss about Packed-bed reactors (PBR)?