

B TECH
(SEM-IV) THEORY EXAMINATION 2018-19
ENZYME ENGINEERING

Time: 3 Hours

Total Marks: 70

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

SECTION A

1. Attempt all questions in brief. 2x7=14
- a. Define enzymes.
 - b. Define holoenzymes.
 - c. What is an enzyme inhibition? Define.
 - d. Define enzyme immobilization.
 - e. Define Apoenzyme.
 - f. Write a short note on "active site".
 - g. What is Enzyme biosensor? Define it

SECTION B

2. Attempt any three of the following. 3x7=21
- a. Enlist of some industrially important enzymes with their applications in detail.
 - b. Explain factors affecting the velocity of enzyme catalyzed reactions.
 - c. Discuss the extraction of crude enzyme for plant, animal and microbial source in detail.
 - d. What is enzyme immobilization? Explain with adsorption & matrix entrapment technique.
 - e. Explain enzyme biosensor. Also discuss the three generation of biosensors in detail.

SECTION C

3. Attempt any one part of the following. 7x1=7
- a. Explain the various classes and nomenclature of enzymes in detail.
 - b. Derive the M.M equation with its derivation.
4. Attempt any one part of the following. 7x1=7
- a. Explain Enzyme inhibition process for reversible & Irreversible process.
 - b. Explain Calorimetric & Potentiometric biosensors with its applications and structure.
5. Attempt any one part of the following. 7x1=7
- a. Discuss interaction between enzyme and substrate as "Lock & Key model" and "Induced fit model".
 - b. Explain methods of characterization of enzymes in brief.
6. Attempt any one part of the following. 7x1=7
- a. Discuss the working process of "Continuous Flow Stirred Tank Reactor" and its applications in brief.
 - b. Write down the advantages and disadvantages of Enzyme Immobilization.
7. Attempt any one part of the following. 7x1=7
- a. Write down the applications of biosensors in industry, health care and environment.
 - b. Explain the working of packed bed reactor (PBR) with its applications.