

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 the term cofactor.
- c. Write down a short note on “turnover number”.
- d. Define enzyme inhibition.
- e. Define enzyme immobilization.
- f. What is enzyme reactor? Define it.
- g. Write down a short note on “Active site”.

SECTION B**2. Attempt any three of the following.****3x7=21**

- a. Briefly discuss about extraction and purification of crude enzyme extracts from plant, animal and microbial sources in detail.
- b. Explain Michaelis – Menton equation in detail.
- c. Explain Enzyme Inhibition process and its types in detail.
- d. Explain enzyme immobilization techniques as a part of “adsorption” and “matrix entrapment” in detail.
- e. Briefly explain the working of packed bed enzyme reactor and its applications 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. Explain the importance of Km in detail.

4. Attempt any one part of the following.**7x1=7**

- a. Explain enzyme inhibition process for reversible & Irreversible process.
- b. Discuss the allosteric regulation of enzymes in detail.

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. Briefly explain design of enzyme electrodes and their applications as biosensors in industry, healthcare and environment.

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. Explain the advantages and disadvantages of different immobilization techniques in detail.

7. Attempt any one part of the following.**7x1=7**

- a. Briefly discuss the working of “Fluidized bed membrane reactor” and its application in detail.
- b. Explain enzyme immobilization as a part of “encapsulation” and “cross linking” in detail.