**Progressive Education Society's**
**Modern College of Arts, Science & Commerce Ganeshkhind, Pune – 16**
**(Autonomous)**
**End Semester Examination: Mar/Apr 2025**
**Faculty: Science and Technology**

**Program: B. Sc. (04)** **Semester: VI** **SET: A**
**Program (Specific): B.Sc. Biotechnology** **Course Type: Core**
**Class: T. Y. B. Sc.** **Max. Marks: 35**
**Name of the Course: Enzyme and Enzyme Technology**
**Course Code:24BBT601** **Time: 2 Hr**

**Instructions to the candidate:**

1. ***There are 4 sections in the question paper. Write each section on separate page.***
2. ***All Sections are compulsory.***
3. ***Figures to the right indicate full marks.***
4. ***Draw a well labelled diagram wherever necessary.***

## SECTION: A

**Q1) Answer any <u>FIVE</u> of the following (Attempt any 5/6)** **5**

1. Define: Kcat
2. What is Apoenzyme?
3. Give any two industrial applications of enzyme amylase.
4. Define: Active site
5. List two applications of immobilized enzymes.
6. What is activation energy?

## SECTION: B

**Q2) Answer any <u>FIVE</u> of the following (Attempt any 5/6)** **10**

1. Explain the effect of temperature on enzyme activity.
2. Describe immobilization of enzymes by covalent binding method.
3. What are metallozymes? Give examples.
4. How does the double reciprocal (Lineweaver-Burk) plot help in determining enzyme kinetics parameters?
5. Proximity and orientation of the substrate and active site influence enzyme activity. Justify.
6. What are allosteric enzymes? How do they regulate enzyme activity?

## SECTION: C

**Q3) Answer <u>TWO</u> of the following (Attempt any 2/4)** **8**

1. Explain mechanism of acid base catalysis in detail.
2. Discuss clinical application of enzymes with suitable example.
3. Write characteristics of isoenzyme.
4. Justify: Zymogens are regulated by proteolytic modification.

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## SECTION: D

**Q4) Answer the <u>TWO</u> of the following (Attempt any 2/4)** **12**

1. Derive Michaelis – Menten equation of enzyme kinetics. State its significance.
2. Describe mechanism of lysosomal enzyme degradation pathway.
3. Explain role of enzyme compartmentation in regulation process.
4. Elaborate on mechanism of serine protease.