

**U.G. 3rd Semester Examination - 2021**  
**Molecular Biology & Biotechnology**

**[HONOURS]**

**Skill Enhancement Course (SEC)**

**Course Code : MBBT-H-SEC-1A-105-T**

**Biophysics (Practical)**

**[For Kalyani Mahavidyalaya & Kanchrapara College]**

Full Marks : 40

Time : 2 Hours

*The figures in the right-hand margin indicate marks.  
Candidates are required to give their answers in their  
own words as far as practicable.*

1. Answer any **five** of the following:  $2 \times 5 = 10$
- a) How do enzymes work?
  - b) What are the four methods of protein purification?
  - c) The  $\Delta G$  of a reaction depends on which factors?
  - d) Define Holoenzyme.
  - e) What is Lock and Key Theory?
  - f) Define activation energy and transition state of an enzyme.
  - g) What is two substrate reaction?
  - h) Define Proximity.

2. Answer any **two** questions:  $5 \times 2 = 10$

- a) Mention the steps involved in purification of an enzyme.
- b) Describe collision theory.
- c) What is Competitive inhibition?
- d) What does Negative cooperativity mean? Name one enzymes that shows half-site reactivity.

4+1

3. Answer any **two** questions:  $10 \times 2 = 20$

- a) What are Allosteric enzymes? Does it follow Michaelis-Menten equation? Describe Homotropic Regulation and Heterotopic Regulation.  $2+2+3+3$
- b) Mention the four methods of protein purification. Describe Extraction and Ultracentrifugation method.  $4+3+3$
- c) What is a Ligand? Write a note on protein ligand binding.  $2+8$
- d) Define enzyme immobilization. What are the five methods in enzyme immobilization? Describe Covalent method and its advantage.  $2+3+5$

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*[Turn over]*