JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATIONS-2022

B.Tech-VII Semester (BT)

COURSE CODE (CREDITS): 18B1WBT733 (3)   MAX. MARKS: 25

COURSE NAME: Industrial Enzymes Technologies

COURSE INSTRUCTORS: Dr. Saurabh Bansal   MAX. TIME: 1 Hour and 30 Minutes

Note: All questions are compulsory. Marks are indicated against each question in square brackets.

[CO1, CO2]

Q1. How will you confirm that carbonic anhydrase enzyme is a metalloenzyme?   [2]

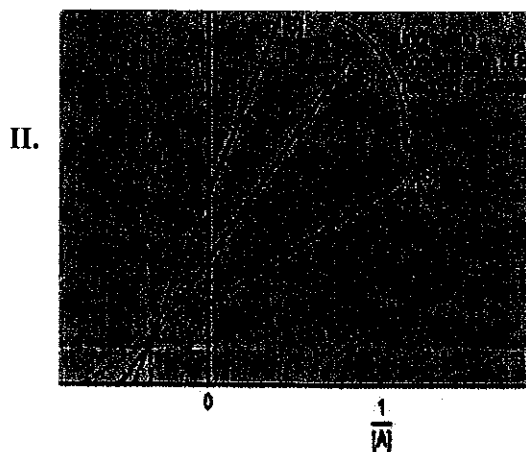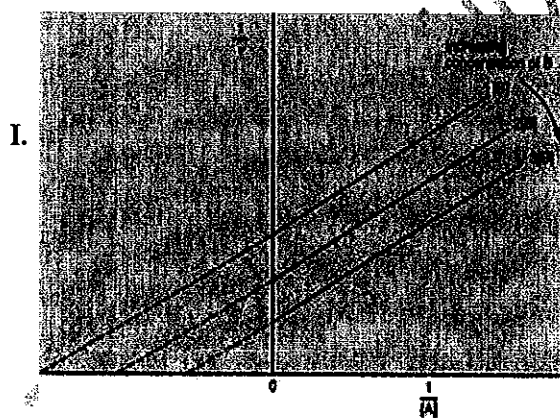Q2. Name the catalytic mechanism of the following enzyme?   [3]

    a) Carbonic anhydrase   **b)** RNase A   **c)** DNA Ligase

Q3. **a)** What is ping-pong mechanism for multi-substrate enzyme kinetics? Also give an example of an Enzyme-substrate reaction which follows this kinetic mechanism.   [2]

    b) Following graph represent which kind of multi-substrate kinetics: [2]

I.   II.

[CO3]

Q4. What are the applications of following enzymes in Cheese making   [3]

    a) Lipase   **b)** Rennet   **c)** Protease

Q5. Why the use of enzymes in detergent is important? What are the major advantages of enzyme-based detergents over the conventional detergent?   [3]

Q6. Fill the following purification Table: [3]

Step	Amount of Protein (mg)	Activity (Units)	Specific Activity (U/mg)	Fold Purification	Yield
Liver Extract	10000	100000			
Amm. Sulphate Precipitation	4000	80000			
DEAE Cellulose	500	60000			
Affinity Resin	3	45000			

[CO4]

Q7. a) List the advantages of immobilized enzymes over the free enzymes.   [2]

b) What are the major challenges with the covalent immobilization method?   [2]

c) List the three application of immobilized enzymes along with suitable examples. [3]