[16] SEAT No._____ No. of Printed Pages : 02

SARDAR PATEL UNIVERSITY

T. Y. B.Sc. Biochemistry (SEMESTER - IV)

BIOCHEMISTRY: US05CBCH02

ENZYMOLOGY

Date: 08/04/19, Monday

Time: 1 .00 AM to 01:00 PM 10.00

TOTAL MARKS: 70

Q.1 Multiple Choice questions : (1 Mark each) **10**

1. Which one of the following statements is true with reference to enzymes?
   a. Apoenzyme = Holoenzyme + Coenzyme
   b. Holoenzyme = Apoenzyme + Coenzyme
   c. Coenzyme = Apoenzyme + Holoenzyme
   d. Holoenzyme = Coenzyme – Apoenzyme
2. The following coenzyme required for caboxylation reaction
   a. FMN
   b. Retinol
   c. Biotin
   d. FAD
3. Protein disulfide isomerase is present in
   a. SER
   b. Lysosome
   c. RER
   d. All of Above
4. In which of the following separation method where proteins are separated on the basis of their net charge
   a. Affinity chromatography
   b. Gel filtration chromatography
   c. Ion Exchange chromatography
   d. Dialysis
5. Which would be best to separate a protein that binds strongly to its substrate?
   a. Gel filtration
   b. Cation exchange
   c. Affinity chromatography
   d. Anion exchange
6. The enzyme involved in feedback mechanism are called
   a. Holoenzyme
   b. Allosteric enzyme
   c. Apoenzyme
   d. Coenzyme
7. The following is true for competitive inhibition
   a. Km increases and Vmax remains constant
   b. Both Km and Vmax decreases
   c. Both Km and Vmax increases
   d. Km decreases and Vmax remains constant
8. The number of enzyme units present per mg of protein is called
   a. IU
   b. Katal
   c. Turnover number
   d. Specific activity
9. The following serum enzyme is significantly elevated in myocardial infraction
   a. Creatine Kinase
   b. Alkaline Phosphatase
   c. Acid phosphatase
   d. Amylase
10. Which of the following parameter indicate strong affinity of enzyme towards substrate?
    a. Km
    b. Ki
    c. Vmax
    d. V_0

(P.T.O)

Q.2 Answer in very short (Any Ten) **20**

1. Write down the role of biotin and TPP as coenzyme with appropriate example.
2. Define the following terms: a. Co-enzyme b. Katal
3. List various metal ions act as cofactors. Give the role of Mn^{+2} in enzyme catalysed reaction.
4. Give the various enzymes present in Lysosome with its functional role.
5. What is IEF?
6. Enlist the enzyme present in nucleus.
7. Define Km. What is significance of Km Value?
8. What is non-competitive inhibition? How it differ from competitive inhibition?
9. What is Allosteric inhibition? What are the salient features of Allosteric inhibition?
10. Name the enzyme used in glucose estimation. Write down its enzymatic reaction.
11. Give brief note on : Industrial application of protease enzyme
12. Write down the compulsory and random order mechanism of two substrate enzyme catalyzed reaction.

Q.3 a) Explain the principle, procedure and application of Ion Exchange chromatography for enzyme purification. [5]

b) Give an account on : Enzyme present in Cytosol [5]

OR

Q.3 a) Explain the purification of enzyme based on the possession of specific binding sites. [5]

b) Write a note on : Gel filtration chromatography [5]

Q.4 a) Describe the mechanism of catalytic activity of enzyme in detail. [5]

b) Explain in detail: Role of various coenzyme in enzyme catalyzed reaction [5]

OR

Q.4 a) List various factors affecting enzyme activity. Describe the effect of pH and temperature on enzyme activity. [5]

b) Write the role of any two metals as cofactor in enzyme catalyzed reaction. [5]

Q.5 a) Explain the clinical significance of Alanine Transaminases [5]

b) List methods of immobilization of enzyme. Explain the industrial application of immobilized enzymes. [5]

OR

Q.5 Write a note on: a) Diagnostic use of LDH enzyme [5]

b) Uses of microorganisms in brewing & cheese making [5]

Q.6 Derive the M. M. equation for single substrate enzyme catalyzed reaction. Draw L. B. plot and give its importance. [10]

OR

Q.6 Give an account on : Competitive inhibition [10]

— X —