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**SARDAR PATEL UNIVERSITY**  
**T.Y. B.Sc. Biochemistry (SEMESTER -V)**  
**BIOCHEMISTRY: US05CBCH02 (Old Syllabus)**  
**ENZYMOLGY**

Date: 26/12/2020 (SATURDAY)

Time: 02:00 P.M. To 04:00 P.M.

TOTAL MARKS: 70

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

1. Which of the following act as activator of enzyme except
  - a.  $Mn^{+}$
  - b.  $CN^{-}$
  - c.  $Mg^{+}$
  - d.  $K^{+}$
2. The catalytic activity of an enzyme is restricted to its small portion called
  - a. Allosteric site
  - b. Passive site
  - c. Active site
  - d. Stereo-specific site
3. Enzyme B requires  $Zn^{2+}$  in order to catalyze the conversion of substrate X. The zinc is best identified as a(n):
  - a. Activator
  - b. Coenzyme
  - c. Inhibitor
  - d. Substrate
4. Which of the following method not used for enzyme purification based on polarity?
  - a. Ion Exchange chromatography
  - b. Dialysis
  - c. Electrophoresis
  - d. Isoelectric focusing
5. The catalytic efficiency of two enzyme can be compared with the help of
  - a. Concentration of final product
  - b.  $V_{max}$
  - c.  $K_m$
  - d. Size of Enzyme
6. The diagnostic enzyme used and increased in myocardial infarction is
  - a. Amylase
  - b. Alkaline phosphatase
  - c. Creatine Kinase
  - d. LDH
7. The molecule which acts directly on an enzyme to lower its catalytic rate is
  - a. Repressor
  - b. Modulator
  - c. Inhibitor
  - d. Regulator
8. 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
9. Cellulase is used in which type of industry?
  - a. Food industry
  - b. Biofuel industry
  - c. Paper industry
  - d. Chemical industry
10. In the brewing industry, the enzymes break
  - a. proteins and sugars
  - b. proteins and ammonia
  - c. proteins and starch
  - d. proteins and alcohol

**Q.2 Do as Direct (Fill in the blanks and True or False)****8**

1. The minimum amount of energy needed for a reaction process to occur is called the kinetic energy of enzyme. (True/False)
2. The enzyme catalase which uses  $H_2O_2$  as substrate. (True/False)
3. The bacterial enzyme system that catalyses L-threonine to L-isoleucine are the first known example of allosteric feedback inhibition. (True/False)
4. Enzymes are basically made up of proteins. (True/False)
5. Vitamin \_\_\_\_\_ act as cofactors in various carboxylation reactions.
6. The shape of the M. M. Plot is \_\_\_\_\_.

7. In patient with acute viral hepatitis, \_\_\_\_\_ Isoenzyme of LDH is elevated.
8. The enzymes are separated based on their net charge by \_\_\_\_\_ method.

**Q.3 Answer in very short (Attempt any Ten)**

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1. What are catalytic site and active site of enzyme?
2. How you can differentiate cofactor and coenzyme?
3. List the various specificity of enzyme and define any one.
4. What is the effect of products on enzyme activity?
5. What is Isoelectric focusing?
6. Enlist various enzymes present in lysosomes.
7. What is non-competitive inhibition?
8. What is irreversible inhibition? Illustrate with few example.
9. Draw the L.B. plots and write down its significance.
10. Name the various methods used for enzyme immobilization.
11. Explain enzymatic reaction for determination of glucose in brief.
12. What are the industrial uses of proteases?

**Q.4 Answer the following question in detail. (Attempt any four out of eight)**

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1. Write a note on: Role of vitamin B as coenzyme in enzymatic reaction
2. Discuss any two factors affecting velocity of enzymatic reaction.
3. How electrophoresis techniques used for the separation of enzyme from protein mixture?
4. Give an account on : Enzyme purification by Gel filtration method
5. Illustrate the competitive inhibition with suitable example and its features.
6. Describe the type of modulator in allosteric enzyme with appropriate example.
7. Discuss the industrial role of enzyme in production of glucose from starch and cellulose.
8. Explain the clinical importance of various enzymes in diagnosis of disease.

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