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MCP-003-001529 Seat No. _____

B. Sc. (Biochemistry) (Sem. V) (CBCS) Examination

May / June - 2018

Enzymology : Paper - 501

Faculty Code : 003

Subject Code : 001529

Time : Hours] [Total Marks : **70**

SECTION-I

1 Answer in one sentence only : **1×20=20**

(1) How enzymes function to increase the rate of a metabolic reaction ?

(2) The enzyme where catalysis involves the transfer of electrons are named as ?

(3) What is an organic substance bound to an enzyme and essential for its activity is called as ?

(4) Give example of isoenzyme.

(5) Which theory can explain the enzyme substrate interaction in the best way ?

(6) In which catalytic mechanism enzyme form transient covalent bond with substrate ?

(7) Which metal ion out of Na, Fe^{+3}, K, Zn, is more important in the enzyme catalysis ?

(8) E.C. 3:2:2:1 is the enzyme no. in which 3 stands for which class of enzyme ?

(9) Can we use Densitometry for protein purification and separation ?

(10) Name the techniques used for purification of fusion protein.

(11) Mixture of ampholytes is used in which purification techniques ?

(12) Which methods can be used in purification based on mass of enzyme ?

(13) Give effect of an uncompetitive inhibitor on V_{max} of enzyme catalyzed reaction.

(14) Define first order reaction.

(15) Which form of covalently modified Glycogen phosphorylase is active ?

(16) Name the enzyme which follows ordered double displacement bi-substrate reaction.

(17) Which enzyme is deficient in PKU ?

(18) Acid phosphatase is used for the diagnosis of which disease ?

(19) In biosensor electric signal can be detected by change in current, this type of sensor is known as ?

(20) Name the source of chymosin.

2 Answer the following questions :

(a) Give answers to any **3** questions : **2×3=6**

(1) Define with example: Nucleophillic compound and electrophillic compound

(2) Define turnover number and give its significance

(3) What is salting in and salting out? How it is used in enzyme purification?

(4) Define K_m and K_{cat}.

(5) Write the use of enzymes in manufacturing of detergents.

(6) Define group specificity with one example.

(b) Give answers to any **3** questions : **3×3=9**

(1) Write a note on colloidal nature of the enzyme and give its significance

(2) Write a note on alteration of enzyme specificity.

(3) Write various methods of homogenization.

(4) State two assumptions made to derive MM equation.

(5) Write any three methods of blood glucose determination by enzymatic methods.

(6) Differentiate the chemical catalyst with biological catalyst.

(c) Give answers to any **2** questions : 2×5=10

(1) Explain importance of proximity, orientation and transition state in catalysis.

(2) Write a note on Isoenzyme with suitable example.

(3) Describe method of purification based on specific binding sites.

(4) Briefly explain different types of enzyme inhibition.

(5) Explain process of brewing and how clarification of beer is carried out ?

3 Answer the following questions :

(a) Give answers to any **3** questions : **2×3=6**

(1) Write the effect of pH on the enzyme activity.

(2) Define temperature quotient.

(3) Write in brief about dye ligand chromatography.

(4) Define Zymogen giving example.

(5) Write various isoenzyme of creatine kinase and write their uses in diagnosis of various diseases.

(6) Explain biosensors and its applications.

(b) Give answers to any **3** questions : **3×3=9**

(1) Explain the scheme of enzyme classification suggested by Enzyme Commission.

(2) Write in brief about acid-base catalysis.

(3) How SGPT helps in diagnosis of various diseases?

(4) Draw 3 well labelled different plots used to derive K_m and V_{max} of enzyme catalyzed reaction'.

(5) Write any three methods of blood glucose determination by enzymatic methods.

(6) Give importance of G protein in enzyme regulation.

(c) Give answers to any **2** questions : **2×5=10**

(1) Explain lyases, isomerases, ligases with suitable example.

(2) State different types of mechanisms of catalysis and explain any two in detail.

(3) Explain any two methods of purification based on charge of enzyme.

(4) Briefly explain types of Bi-substrate reaction.

(5) Discuss properties of allosteric enzymes.
