

**B.Sc. (Part—II) Semester—IV Examination**

**4S : BIOCHEMISTRY**

**(Enzymology)**

Time : Three Hours]

[Maximum Marks : 80

**Note** :— (1) All questions are compulsory.

(2) Draw well labelled diagrams wherever necessary.

1. (A) Fill in the blanks : 2

- (i) A Coenzyme required in transamination is \_\_\_\_\_ .
- (ii) In Line Weaver-Burk plot, the x-intercept represents \_\_\_\_\_ .
- (iii) In competitive inhibition, the inhibitor competes with \_\_\_\_\_ .
- (iv) \_\_\_\_\_ ions are cofactors for Hexokinase.

(B) Choose correct alternative : 2

- (i) The following Coenzyme takes part in hydrogen transfer reactions :
  - (a) Tetrahydrofolate
  - (b) Coenzyme A
  - (c) Coenzyme Q
  - (d) Biotin
- (ii) Lactate dhydrogenase is a :
  - (a) Monomer
  - (b) Dimer
  - (c) Tetramer
  - (d) Hexamer
- (iii) Different isoenzymes of an enzyme have the same :
  - (a) Amino acid sequence
  - (b) Michaelis Constant
  - (c) Catalytic activity
  - (d) All of the above
- (iv) Allosteric inhibition is also known as :
  - (a) Competitive inhibition
  - (b) Non competitive inhibition
  - (c) Feedback inhibition
  - (d) None of the above

(C) Answer in **ONE** sentence :— 4

- (i) Marker enzyme
- (ii)  $K_m$
- (iii) Holoenzyme
- (iv) Immobilized enzyme.

2. Explain :

- (a) Metallo Enzymes 4
- (b) Nomenclature of enzymes. 4
- (c) Isoenzymes. 4

**OR**

- (p) Multienzyme complexes. 4
- (q) Four digit classification of enzymes. 4
- (r) Active site. 4
3. (a) Explain any one test for homogeneity. 4
- (b) Describe the effect of pH on enzyme activity. 4
- (c) Explain  $K_m$  and  $V_{max}$  with the help of Line Weaver Burk Plot. 4

**OR**

- (p) Explain in short Ping-Pong mechanism. 4
- (q) Describe any one method used for isolation of enzyme. 4
- (r) Describe enzyme assay briefly. 4
4. Describe in detail competitive inhibition with the help of double reciprocal plot. 12

**OR**

Discuss zero order and first order reaction Kinetics. 12

5. Describe the role of :
- (a) THF. 4
- (b) FAD and FMN. 4
- (c) Pyridoxal phosphate. 4

**OR**

Explain :

- (p) Allosteric inhibition. 4
- (q) Metal activated enzymes. 4
- (r) Coenzyme Q. 4
6. Describe in short Lock and Key hypothesis and induced fit model. 12

**OR**

Give a brief account of acid-base catalysis and covalent catalysis. 12

7. Describe :
- (a) Industrial application of immobilized enzymes. 4
- (b) Production of glucose-fructose syrup from sucrose. 4
- (c) Use of Lactose in dairy industry. 4

**OR**

- (p) Use of proteases in food. 4
- (q) Medical applications of enzymes. 4
- (r) Production of glucose from starch. 4