AW–1727

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 dehydrogenase 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) Km

(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