(q) Explain in brief Gel filtration chromatography. 4

(r) Write in brief about isolation of enzymes. 4

4. (a) Describe significance of energy of activation and free energy. 4

(b) Explain irreversible enzyme inhibition. 4

(c) Write about determination of km and Vmax in presence and absence of inhibitor. 4

OR

(p) Describe type of inhibition caused by Malonate to Succinate dehydrogenase. 4

(q) Explain kinetics of first order reaction. 4

(r) Explain non–competitive inhibition. 4

5. Explain in detail role of TPP and biotin in a reaction catalyzed by pyruvate dehydrogenase complex and pyruvate carboxylase respectively.

OR

Explain in detail role of NAD^t, FAD and pyridoxal phosphate as coenzyme. 12

Fourth Semester B. Sc. (Part - II) Examination

4S : BIOCHEMISTRY

(Enzymology)

P. Pages : 5

Time : Three Hours] [Max. Marks : 80

Note : (1) All questions are compulsory and carry equal marks except question no.**1** which carry **8** marks.
(2) Draw a neat diagram wherever necessary.

1. (A) Fill in the blanks :—

(i) Non–protein organic part required for activity of enzyme is known as —— ——.

(ii) A first enzyme found to have isoenzyme is ————.

(iii) Coenzyme required for activity of isocitrate dehydrogenase is ————.

(iv) A coenzyme required in carboxylation reaction is ————. 2

(B) Choose correct alternative :—

(i) Chymotrypsin is ————.

(a) Oxidoreductase (b) Hydrolase

(c) Lyase (d) Transferase.

(ii) Lactose intolerance is due to deficiency of :

(a) Lactose (b) Lactase

(c) Lactate (d) Amylase

(iii) Which of the following enzyme is used in treatment of leukemia.

(a) Trypsin (b) LDH

(c) CPK (d) Asparaginase

(iv) In which of the following type of inhibition, inhibitor binds only to enzyme–substrate complex.

(a) Competitive.

(b) Non–competitive.

(c) Un–competitive.

(d) None of the above. 2

(C) Answer in **one** sentence :—

(i) Define Katal.

(ii) What is optimum temperature ?

(iii) Define activator.

(iv) Define acid–base catalysis. 4

2. (a) Explain with example enzyme specificity. 4

(b) Explain isoenzymes of LDH. 4

(c) Describe general characterstics of enzymes. 4

OR

(p) Explain in brief classification of enzymes. 4

(q) Define with example coenzymes, co–factors, activators and inhibitors. 4

(r) Explain with example monomeric and oligomeric enzyme. 4

3. (a) Explain with example sequential mechanism. 4

(b) Define km and give its significance. 4

(c) Describe application and limitation of Line Weaver Burk plot. 4

OR

(p) Explain effect of substrate concentration on enzyme activity. 4

6. (a) Explain with example proximity and orientation effect. 4

(b) Explain with diagram Lock and Key model. 4

(c) Describe strain and distortion hypothesis. 4

OR

(p) Describe with example covalent catalysis. 4

(q) Explain with diagram induced fit model. 4

(r) Describe general and specific acid base catalysis. 4

7. Describe different methods of enzyme immobilization and add a note on application of immobilized enzymes.

OR

Explain application of protease in food, detergent and leather industry. Add a note on medical application of enzyme. 12