6. Write on "proximity and orientation effect" and "strain and distortion theory". 12

**OR**

Explain "Lock and Key" and induced fit model for enzyme action. 12

7. (a) Write on "Applications of immobilized enzymes". 4

(b) "Medical applications of enzymes". 4

(c) Use of proteases in detergents and leather industry. 4

**OR**

(p) Production of glucose from starch. 4

(q) Enzyme applications in dairy industry. 4

(r) Enzymes applications in pharmaceutical. 4



**AQ–709**

## B.Sc. Part–II (Semester–IV) Examination
## 4S : BIOCHEMISTRY
## (Enzymology)

Time : Three Hours] [Maximum Marks : 80

**Note :-** (1) **ALL** questions are compulsory and carry equal marks except Q. No. 1 which carries 8 marks.

(2) Draw well labelled diagram and formulae wherever necessary.

1. (A) Fill in the blanks :

(i) _____ coined the term enzyme. ½

(ii) Optimum pH for pepsin is _____. ½

(iii) Energy required to achieve transition state in enzyme catalyzed reaction is called as_____. ½

(iv) Coenzyme FAD is involved in transfer of_____. ½

(B) Choose the correct alternative :

(i) Competitive inhibition involves change in :

(a) $V_{max}$

(b) Km

(c) Both

(d) None ½

(ii) Diisopropyl Fluorophosphate (DIFP) is :
(a) Noncompetitive inhibitor
(b) Competitive inhibitor
(c) Reversible inhibitor
(d) Irreversible inhibitor ½

(iii) Pyridoxal phosphate is derivative of vitamin :
(a) Thiamine ($B_1$)
(b) Riboflavin ($B_2$)
(c) Ascorbic acid (vit. C)
(d) Vitamin $B_6$ ½

(iv) The process of enzyme traping in beads is called as :
(a) Enzyme localisation
(b) Enzyme mobilization
(c) Enzyme immobilization
(d) None ½

(C) Write answer in **one** sentence :
(i) What is actvators ? 1
(ii) Draw graphical representation for lineweaver and Burk equation. 1
(iii) What is transition state ? 1
(iv) What is substrate for acetylcholine esterase ? 1

2. Write in brief on the following :
(a) Active site 4
(b) Unit of enzyme activity 4
(c) Metaloenzymes. 4

**OR**



(p) LDH – as an isoenzyme 4
(q) Holoenzyme 4
(r) Chymotrypsin. 4

3. (a) Describe the effect of pH on activity of enzyme. 4
(b) Enzyme crystallization. 4
(c) Sequential reactions. 4

**OR**

(p) Lineweaver–Burk plot. 4
(q) Describe the process of transamination as 'ping-pong' mechanism. 4
(r) Test for homogeneity of enzyme preparation. 4

4. (a) Describe first order reaction kinetic. 4
(b) Irreversible inhibition of enzyme. 4
(c) Determination of $K_m$ in presence of inhibitors. 4

**OR**

(p) Noncompetitive inhibition. 4
(q) Kinetic of zero order reaction in enzyme catalyzed reaction. 4
(r) $V_{max}$ determination in presence and absence of inhibitor. 4

5. Write in detail about the structure and role of $NAD^+$ in enzyme catalyzed reactions. 12

**OR**

Describe the role of metal ions in enzyme catalysis with suitable examples. 12