NTK/KW/15–5867

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

BIOCHEMISTRY

Paper – I

(Enzymology)

Time : Three Hours] [Max. Marks : 50

N. B. : (1) All questions are compulsory and carry equal marks.

(2) Draw diagrams wherever necessary.

1. Describe in detail Enzyme catalysis with respect to :—

   (a) Covalent catalysis. 5

   (b) Metal Ion catalysis. 5

OR

Write notes on :—

   (c) Classification of Enzymes. 5

   (d) ATcase. 5

2. Describe the role of vitamins as coenzyme precursors. 10

OR

Write notes on :—

   (a) Mechanism of action of chymotrypsin. 5

   (b) EEffect of Enzyme concentration on the rate of reaction. 5

3. Derive Michaelis-Menten equation for single substrate enzyme reaction. How can it be transformed into equation for straight line ? 10

OR

Write notes on :—

(a) Competitive inhibiters. $2\frac{1}{2}$

(b) Non competative inhibiters. $2\frac{1}{2}$

(c) Sequential Bisubstrate reaction. $2\frac{1}{2}$

(d) Ping pong mechanism. $2\frac{1}{2}$

4. Describe in detail use of ionexchange and affinity chromatography in enzyme purification. 10

OR

Write notes on :—

(a) Effect of PH on enzyme. $2\frac{1}{2}$

(b) Action coupled enzyme assay. $2\frac{1}{2}$

(c) Enzyme activity units. $2\frac{1}{2}$

(d) Describe the moving boundry electrophoresis technique for assessing the purity of enzyme preparation. $2\frac{1}{2}$

5. Answer any **Ten** of the following :—

(I) Define Holoenzyme. 1

(II) James Sumner crystalised ———— enzyme. 1

(III) Name the two models of Enzyme specificity. 1

(IV) Name any one amino acid present in the active site of ribonuclease. 1

(V) Riboflavin is the precursor of which coenzymes ? 1

(VI) Define Temperature quotient. 1

(VII) What is initial velocity ? 1

(VIII) What is K cat/Km significance. 1

(IX) Define uncompetetive inhibition. 1

(X) What is meant by "Salting-in" ? 1

(XI) What is meant by enzyme assay ? 1

(XII) Name one method of enzyme purification based on molecular size. 1