

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) Effect of Enzyme concentration on the rate of reaction. 5

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Contd.

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 inhibitors. $2 \frac{1}{2}$
- (b) Non competitive inhibitors. $2 \frac{1}{2}$
- (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}/K_m significance. 1
- (IX) Define uncompetitive 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