KNT/KW/16/5152

Bachelor of Science (B.Sc.) Semester—IV (C.B.S.) Examination

BIO-CHEMISTRY (Enzymology)

Paper—I

Time : Three Hours] [Maximum Marks : 50

N.B. :— (1) **ALL** questions are compulsory and carry equal marks.

(2) Draw diagrams wherever necessary.

1. Describe in detail the mechanism of action of ATCase. 10

OR

(a) Describe the specificity of enzyme action. 5

(b) Describe the induce fit model of enzyme action. 5

2. Explain the mechanism of action of chymotrypsin. 10

OR

(a) Describe the effect of concentration of enzyme on enzyme catalyzed reactions. 5

(b) Explain the role of riboflavin as coenzyme. 5

3. (a) Derive Michaelis-Menten equation for single substrate enzyme reaction. 5

(b) Describe the effect of substrate concentration on rate of enzyme catalyzed reaction. 5

OR

(c) Explain bisubstrate reaction with suitable example. 2½

(d) Define competitive, non-competitive and un-competitive inhibition. 2½

(e) Draw lineweaver-Burke plot showing competitive inhibition. 2½

(f) Derive the Double Reciprocal equation. 2½

4. Describe the following procedures used in enzyme fractionation :

(i) Molecular seive chromatography

(ii) Density gradient centrifugation. 10

OR

(a) Write a note on criteria of enzyme purity. 5

(b) Describe in detail the dialysis and ultrafiltration methods used in enzyme purification. 5

5. Solve any **TEN** of the following :

(i) What is E.C. number ? 1

(ii) What is holoenzyme ? 1

(iii) Define isozyme. 1

(iv) Name the coenzyme form of niacin. 1

(v) Name the amino acid present at the active site of ribonuclease. 1

(vi) What is temperature quotient ? 1

(vii) Define specific activity of an enzyme. 1

(viii) What is meant by zero and first order reaction ? 1

(ix) What is energy of activation ? 1

(x) Define ‘salting in’ and ‘salting out’. 1

(xi) Name a substance used to prepare continuous density gradient. 1

(xii) Name any two clinical applications of enzyme. 1