NKT/KS/17/5105

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

BIOTECHNOLOGY (Cell Constituents & Enzymology)

Compulsory Paper—2

Time : Three Hours] [Maximum Marks : 50

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

(2) Draw well labelled diagrams wherever necessary.

1. Write notes on :

   (a) Starch 5

   (b) Sucrose and maltose 5

OR

   (c) Glycogen 5

   (d) Classification of carbohydrates. 5

2. What are triglycerides ? Describe the classification of triglycerides in detail. 10

OR

   Describe glycero-phospholipids and sphingolipids in detail. 10

3. (a) Describe the Lock and Key model of enzyme specificity. 2½

   (b) Describe any one multienzyme complex. 2½

   (c) Explain the terms cofactors and co-enzymes. 2½

   (d) What are zymogens ? Explain with suitable examples. 2½

OR

   (e) Describe allosteric enzyme. 2½

   (f) Write a note on induced-fit model of enzyme specificity. 2½

   (g) Describe the structure and function of LDH. 2½

   (h) Describe the mechanism of metal ion catalysis. 2½

4. Derive the Michaelis-Menten equation. How is it transformed into Lineweaver-Burke equation ? 10

OR

   What is enzyme inhibition ? Describe reversible inhibition along with their LB plots. 10

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

(i) What is a reducing sugar ? 1

(ii) Write the structural formula of α-D-Glucopyranose. 1

(iii) Give one example of heteropolysaccharide. 1

(iv) What are waxes ? 1

(v) Define saponification value. 1

(vi) What are steroids ? 1

(vii) What is turnover number ? 1

(viii) Define allosteric site. 1

(ix) What is meant by single reciprocal plot ? 1

(x) What is a holoenzyme ? 1

(xi) What is Katal ? 1

(xii) Give an example of irreversible enzyme inhibition. 1