

NRT/KS/19/2072

**Bachelor of Science (B.Sc.) Semester—II Examination
BIOTECHNOLOGY (Cell Constituents and Enzymology)**

Optional Paper—2

Time : Three Hours]

[Maximum Marks : 50

- Note :—** (1) All questions are compulsory and carry equal marks.
(2) Draw diagrams wherever necessary.

1. Describe in detail classification and nomenclature of carbohydrates. 10

OR

What are Homopolysaccharides ? Draw and describe the structure of Starch and Glycogen. 10

2. Describe the structure of :
- (a) Triglycerides 2½
 - (b) Sphingolipids 2½
 - (c) Saturated and unsaturated fatty acids 2½
 - (d) Draw the flow diagram for classification of lipids. 2½

OR

Write short notes on :

- (e) Classification of terpenes 5
 - (f) Iodine and saponification value. 5
3. Discuss in detail classification and nomenclature of enzymes with example and elaborate on E.C. number. 10

OR

Describe in detail the concept of isoenzymes and multi enzymes with suitable examples. 10

4. Derive Michaelis-Menten equation and its transformation into equations for straight lines. 10

OR

Write notes on :

- (a) Effect of pH on enzyme activity 2½
 - (b) Competitive inhibition 2½
 - (c) Effect of temperature on enzyme activity 2½
 - (d) Coupled enzyme assay. 2½
5. Solve any **TEN** of the following :
- (i) What are reducing sugars ?
 - (ii) Draw the chemical structure of α -D-glucopyranose.
 - (iii) What is meant by heteropolysaccharides ?
 - (iv) What are glycerophospholipids ?
 - (v) Define acid value.
 - (vi) What is isoprene rule ?
 - (vii) What is an allosteric site ?
 - (viii) Who proposed induced-fit hypothesis ?
 - (ix) Define coenzymes.
 - (x) What is K_m ?
 - (xi) What is meant by irreversible inhibition ?
 - (xii) NAD^+ coenzymes containing enzymes can be assayed at _____ wavelength. 1×10=10