

**Bachelor of Science (B.Sc.) Semester—I (C.B.S.) Examination**  
**BIO-CHEMISTRY (Biomolecules & Human Physiology)**  
**Compulsory Paper—1**

Time : Three Hours]

[Maximum Marks : 50]

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

1. Define Carbohydrates. Give its classification and write the chemical structure of a Monosaccharide, Disaccharide and a polysaccharide. 10

**OR**

Write a note on :—

(a) Mucopolysaccharides 5  
(b) Mutarotation and anomerism. 5  
2. Give a detailed account on compound lipids. 10

**OR**

Write notes on :—

(a) Hydrolysis of triglycerides 2½  
(b) Saponification of fats 2½  
(c) Rancidity of fats 2½  
(d) Saturated and unsaturated fatty acids. 2½  
3. Describe digestion and absorption of carbohydrates. 10

**OR**

(a) Describe the sliding mechanism of muscle construction. 5  
(b) Describe the neuromuscular junction. 5  
4. Describe the components of Cell membrane. 10

**OR**

(a) Explain the Fluid Mosaic Model for membrane structure. 5  
(b) Explain briefly  $\text{Na}^+/\text{K}^+$  pump. 5

5. Answer any **10** of the following :—

- (i) What are Epimers ?
- (ii) What is glycosidic linkage ?
- (iii) Write the chemical structure of  $\alpha$ -D-glycopyranose.
- (iv) Name any two essential fatty acids.
- (v) Give one difference between fat and oil.
- (vi) Write the chemical structure of Cholesterol.
- (vii) Name the tissue where sarcomere is present.
- (viii) Name two proteins involved in muscle contraction.
- (ix) Name any one protein digesting enzyme.
- (x) Give one point of difference between active and passive transport.
- (xi) Define Antiport.
- (xii) Name the Scientists who proposed the Fluid Mosaic model of membrane.

$10 \times 1 = 10$