

2012  
B.A./B.Sc. (General) First Semester  
Biochemistry  
Paper - A: Carbohydrates and Lipids

Time allowed: 3 Hours

Max. Marks: 45

**NOTE:** Attempt five questions in all, including Question No. I which is compulsory and selecting one question from each Unit.

x-x-x

I. Explain briefly the following terms:-

- a) Liposomes
- b) Structure of maltose
- c) Osmosis
- d) Anomer
- e) Waxes
- f) Stereoisomerism
- g) Mycosterol
- h) pH and pOH
- i) Bile acids

(9x1)

**UNIT – I**

- II. a) Describe physical properties of water.  
b) Derive Henderson-Hasselbalch equation. (4,5)
- III. a) Explain structure and dissociation of water.  
b) How carbonate bicarbonate buffer can resist change in pH within a system. (4,5)

**UNIT – II**

- IV. a) Describe various reactions of monosaccharides.  
b) What are glycosides and sugar acids? Explain their biological significance. (4,5)
- V. a) Discuss homo and heteropolysaccharides with examples.  
b) Explain briefly polysaccharides of bacterial cell wall. (4,5)

P.T.O.

(2)

**UNIT – III**

- VI. a) Explain structure and functions of cerebroside and ganglioside.  
b) Define and classify fatty acids with examples. (4.5)
- VII. a) Give important reactions of functional groups of fatty acids.  
b) Elaborate structure, characteristics and functions of leathin and sphingomyelin. (4.5)

**UNIT – IV**

- VIII. a) Write structure of cholesterol and short note on steroid hormone.  
b) Give structure and properties of prostaglandins and leukotrienes. (4.5)
- IX. a) Discuss composition, classification and biological functions of lipoproteins.  
b) Discuss classification of terpenes and their biological significance. (4.5)

x-x-x