

1128

**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. a) Differentiate between:-  
i) Osmosis and dialysis  
ii) Anomers & Epimers  
iii) Saturated and unsaturated fatty acids  
iv) HDL and LDL (4x2)
- b) Write structure of  $\beta$ -D-fructofuranose. (1)

**UNIT - I**

- II. a) Derive Henderson Hasselbach equation.  
b) Define buffer. Name some biological important buffers. (6,3)
- III. a) What makes water a biological important solvent? Explain.  
b) What do you understand by colligative properties? Comment on its significance in biology. (4,5)

**UNIT - II**

- IV. a) Give reaction of monosaccharides with hydrogen cyanide and hydroxylamine. (2x3)  
b) What do you mean by glycoproteins? Differentiate between O-glycoproteins and N-glycoproteins. (3)
- V. a) Elaborate on glycosaminoglycans. Give the structure of any two glycoproteins.  
b) Differentiate between starch and glycogen. (6,3)

P.T.O.

(2)

**UNIT – III**

- VI. a) Define saponification and Iodine values of the fatty acids. Highlight significance of each.  
b) How do the melting point and boiling point of fatty acids varies according to their molecular wt and degree of unsaturation? Explain. (2x4½)
- VII. a) Write a short note on lecithins and cephalins by drawing their structures.  
b) Give characteristics and functions of triacylglycerols. (6,3)

**UNIT – IV**

- VIII. a) Explain the term liposomes. Write about their applications briefly.  
b) Discuss any two color reactions of sterol. (5,4)
- IX. Discuss in detail the structure and function of eicosanoids. (9)

x-x-x

x-x-x