

2123

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. 1 which is compulsory and selecting one question from each Section.

X-X-X

9x1

I Do as directed

- i) Why is water a dipole?
- ii) How anomers differ from epimers?
- iii) Name the two important physiological buffers.
- iv) How many asymmetric carbon atoms are present in glucose and fructose?
- v) Write the repeating unit of hyaluronic acid.
- vi) Define iodine value.
- vii) Name the alcohol moiety present in triacylglycerol, phospholipids and cerebrosides.
- viii) What are essential fatty acids? Give example.
- ix) Name any steroid hormone and write down its function.

Section A

- II a) Discuss the ionization of water. The ion product of water at 25°C is 10^{-14} . Find the pH of water. 6,3
- III Write short notes on 3,3,3
- a) Buffer
 - b) Dialysis
 - c) Osmosis

Section B

- IV a) Define carbohydrates and classify them with giving one example for each class. 5,4
- b) Write a note on different homopolysaccharides.
- V a) Discuss the reducing property of a sugar. Glucose is a reducing sugar whereas sucrose is non-reducing. Comment 3, 6
- b) Write down the reaction of a monosaccharide with hydrazine, hydrogen cyanide and hydroxylamine.

Section C

- VI a) Define Omega fatty acids? Give examples. 3,6
- b) How various physical properties of fatty acids change in relation to their molecular size and degree of saturation?
- VII a) Write the structure and biological functions of different types of phospholipids. 6,3
- b) Define saponification number. What is its significance?

Section D

- VIII a) Discuss various types of lipoproteins and their functions. 6,3
- b) Explain briefly the biological significance of terpenoids.
- IX a) What are eicosanoids? Discuss the various types of prostaglandins. 6,3
- b) Write a note on steroid hormones.

X-X-X