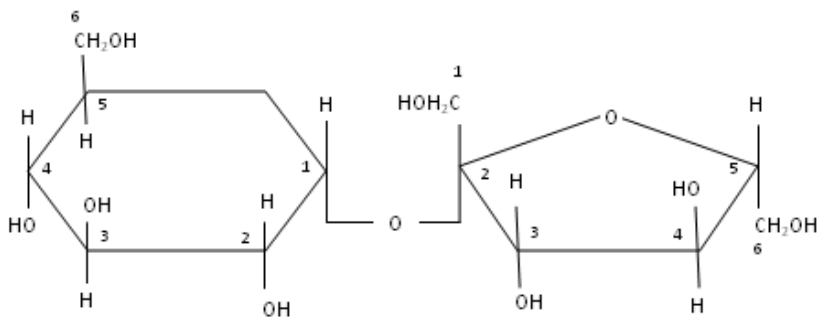


**UNIT-14**  
**BIOMOLECULES**

**1 Mark Question**

- 1 How many chiral centres are there in D-(-)-Fructose?
- 2 Where does the water present in the egg go after boiling the egg?
- 3 Why do monosaccharides form cyclic structures?
- 4 Name the  $\alpha$ -amino acids obtained when tripeptide(Gly-Ala-Leu) is hydrolysed.
- 5 Explain how curdling of milk occurs. What structural changes take place?
- 6 Drugs which are proteins such as insulin cannot be taken by mouth but must be injected. Why?
- 7 .Amino acids show amphoteric behavior. Explain
- 8 In alkaline solution, an amino acid contains 2 basic groups –  $\text{NH}_2$  and  $\text{COO}^-$ , which is more basic? If acid is added to the solution, what will happen?
- 9 In a quite acidic solution, the AA contains 2 acidic groups-  $\text{NH}_3^+$  and  $\text{COOH}$  , which is more acidic? If a base is added to the solution, what will happen?
- 10 Sucrose is dextrorotary. Its structure is given as:



- a. What happens when sucrose solution is treated with tollen's reagent and why?
- b. Its aqueous solution exhibits a change in rotation . Why?

- 11 Starch forms an emulsion rather than solution with water. Explain.
- 12 The melting points and solubility in water of amino acids are generally higher than that of corresponding lab acids. Explain.
- 13 Activation energy for acid hydrolysis of sucrose is  $6.22 \text{ kJ mol}^{-1}$  while it is only  $2.15 \text{ kJ mol}^{-1}$  when hydrolysed by enzyme sucrose.
  - a) Write the mechanism of the enzyme catalysed reaction
  - b) Also depict the progress of reaction against energy in both cases, diagrammatically.
- 14 When DNA is hydrolysed, there is a definite relation among the quantities of different bases obtained. But for hydrolysis of RNA, it is not so. What does this suggest about the structure of DNA and RNA?
- 15 Identify and explain the various forces which stabilize protein structure.