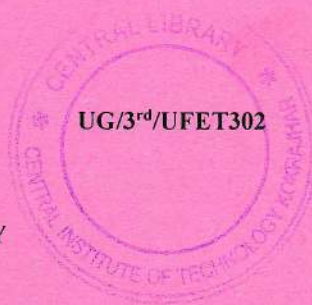


Total number of printed pages:3



2021

**FOOD CHEMISTRY**

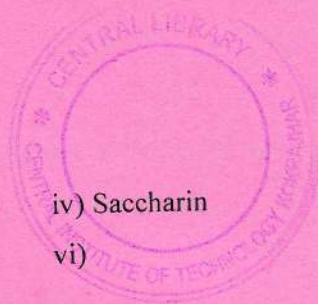
Full Marks: 100

Time: Three hours

*The figures in the margin indicate full marks for the questions.*

*Answer any five questions.*

1. a) Define simple sugars giving examples. Show the removal of water from monosaccharide molecules resulting in the formation of disaccharides. 5
- b) What are fatty acids? Give three important characteristics of fatty acids. 5
- c) What are D and L isomers? Differentiate the D and L forms of glyceraldehyde with diagram. 6
- d) What is the N-terminal and C-terminal of a polypeptide? 4
2. a) Define reducing sugar giving examples. Why is sucrose a non-reducing sugar? 5
- b) What is dipeptide bond? Explain how the formation of dipeptide bond takes place? 2+4 = 6
- c) Explain the solubility of lipids. 4
- d) What is rancidity? List and explain the two ways in which fats are deteriorated and become rancid. 5
3. a) Define the following terms (any five): 2x5 = 10
  - i) Invert sugar
  - ii) Simple



- lipids
- iii) Hydrophilic interactions
  - v) Lactose Glycosidic bond
  - iv) Saccharin
  - vi)
4. b) Draw the Alpha-helix structure of protein. 5
- c) Differentiate aldoses from ketoses with examples. 5
4. a) Write the chemical formula of glucose, palmitic acid, stearic acid and glycerol. 2x4=8
- b) What are food additives? What are some of the major benefits of food additives? 5
- c) Define Sulphur bridge. Explain the tertiary structure of protein. 2+5=7
5. a) Distinguish between (any three): 3x3=9
- i)Fats and oils
  - ii)Homopolysaccharide and Hetero-polysaccharide
  - iii)Saturated and unsaturated fatty acids
  - iv) Cis and trans fat
- b) What are flavouring agents? Explain in brief the major types of flavouring additives. 2+5=7
- c) What are saponifiable lipids? 4
6. a) Explain SCFA, MCFA, LCFA and PUFA. 2x4=8
- b) What is non-enzymatic browning? Explain in brief the consequences of caramelization. 2+4=6
- c) Differentiate between free water and bound water. What is the principal difference between water activity and moisture content? 3+3=6

7. a) Write short notes on any four of the following 4x4=16
- i)Essential fatty acids
  - ii)Maillard reaction
  - iii)Oligosaccharide
  - iv)Triglycerides
  - v)Colouring agents
- b) Write the structural similarities and differences between amylose and cellulose. 4

