

Total number of printed pages:02 Programme(D)/IV/DFET402

2023

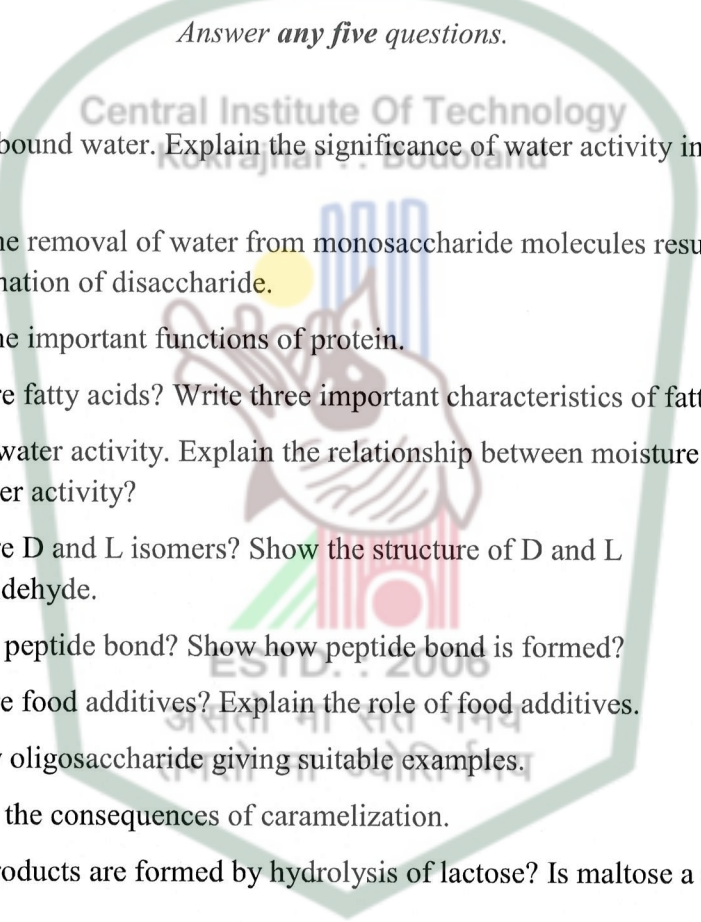
BASICS OF FOOD CHEMISTRY

Full Marks: 100

Time: Three hours

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

Answer any five questions.

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1. a) Define bound water. Explain the significance of water activity in food quality. 2+4=6
- b) Show the removal of water from monosaccharide molecules resulting in the formation of disaccharide. 4
- c) Write the important functions of protein. 4
- d) What are fatty acids? Write three important characteristics of fatty acids. 2+4=6
2. a) Define water activity. Explain the relationship between moisture content and water activity? 2+4=6
- b) What are D and L isomers? Show the structure of D and L glyceraldehyde. 2+2=4
- c) What is peptide bond? Show how peptide bond is formed? 2+4=6
- d) What are food additives? Explain the role of food additives. 2+2=4
3. a) Classify oligosaccharide giving suitable examples. 6
- b) Explain the consequences of caramelization. 4
- c) What products are formed by hydrolysis of lactose? Is maltose a reducing sugar? 4
- d) Write the tertiary structure of protein. 6
4. a) Explain the difference between monounsaturated and a polyunsaturated fat? 6
- b) Define essential amino acid giving suitable examples 4
- c) Compare cis-fat with trans-fat 6
- d) How can rancidity be prevented? 4
5. a) Define the following terms: 2x5 =10

- i) Rancidity
 - ii) Amino acids
 - iii) MCFA
 - iv) Polypeptide
 - v) Hexose sugar
- b) What are artificial flavouring agents? Give examples. 4
- c) Explain SCFA, LCFA and VLCFA. 6
6. a) Distinguish between: 3x3=9
- i) Homopolysaccharide and Hetero-polysaccharide
 - ii) Reducing and non-reducing sugar
 - iii) Fats and Oils
- b) Define ester bond. How are triglycerides formed? 6
- c) Explain the mutarotation of glucose. 5
7. Write short notes on: (any four) 4x5=20
- i) Alpha –helix structure of protein
 - ii) Saponification
 - iii) Maillard reaction
 - iv) Protein denaturation
 - v) Anticaking agents

