

Total number of printed pages: 02 Programme (UG)/Semester 3rd/ UFET302

2023

UFET302: Food Chemistry

Full Marks: 100

Time: Three hours

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

Answer any five questions.

- Central Institute Of Technology
Kharagpur, West Bengal
ESTD. : 2006
जस्तो मा तसो ज्ञानं
तमसो मा ज्योतिर्गमय
1. a) What is a saccharide molecule? What are the four kinds of saccharides? 6
 - b) Explain monounsaturated and polyunsaturated fatty acid giving suitable examples. 4
 - c) What is bound water? Explain the relationship between MC_{db} and MC_{wb} . 6
 - d) What are anti-caking agents? Give examples. 4
 2. a) Define A_w . Explain the sorption isotherm for a typical food product, showing the hysteresis. 6
 - b) What is disulphide bond? Explain the tertiary structure of protein. 6
 - c) Explain EFA giving suitable examples. 4
 - d) Explain the term "rancidity". What type of chemical reaction is responsible for causing rancidity? 4
 3. a) Define the following terms (any five): 2x5 = 10
 - i) Hydrocolloid
 - ii) Stereoisomerism
 - iii) Hexose sugar
 - iv) Dipeptide
 - v) E-numbers
 - vi) Phospholipid
 - b) What are D and L-isomers? Draw the Haworth structure for α -D-Glucopyranose and β -D-Glucopyranose. 5
 - c) What are flavouring agents? Give examples of artificial flavour enhancers. 5
 4. a) Define the following as related to protein. 3+3=6
 - i) Peptide linkage
 - ii) Denaturation of protein

- b) Differentiate between globular and fibrous protein giving examples. 4
- c) Write the chemical name of vitamin A and C, their sources and the diseases caused due to their deficiency in diet. 6
- d) Define reducing sugar. Why sucrose is not a reducing sugar? 4
5. a) Distinguish between (any three): 4x3=12
- i) Cis and trans fat
- ii) Acidic and basic amino acids
- iii) N-terminal and C-terminal
- iv) Homo and hetero polysaccharide
- b) What are emulsifiers? Explain the function of emulsifiers in food. 4
- c) Show the formation of glycosidic bond. 4
6. a) Differentiate between aldo and keto sugars. 4
- b) What are the types of food colours? What are the important reasons for adding colours to food? 4+2=6
- c) Explain SCFA, MCFA, LCFA and VLCFA. 4
- d) What are triglycerides? Explain the hydrolysis of triglycerides. 2+4
7. a) Write short notes on any four of the following 4x4=16
- i) Essential amino acids
- ii) Beta pleated sheet
- iii) Saponification
- iv) Amylose
- v) Glazing agents and sweeteners
- b) Explain caramelization and its consequences. 4

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