Total number of printed pages:3

UG/3rd/UFET302

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): i)Invert sugar ii) Simple	2x5 = 10

lipids

iii) Hydrophilic interactions iv) Saccharin

v) Lactose vi)

Glycosidic bond

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