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

2025

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.*

1.	a)	Define sugar. Give examples.	5
	b)	What are amino acids? Give important characteristics of amino acids.	6
	c)	Explain the quaternary structure of protein	5
	d)	Explain the difference between monounsaturated and a polyunsaturated fat?	4
2	a)	Briefly describe four ways in which a protein could be denatured.	4
	b)	What is monosaccharide, disaccharide, tri-saccharide? Give example for each.	6
	c)	What is peptide bond? Show how peptide bond is formed?	5
	d)	What are vitamins? Deficiency of which vitamin causes (i) Night blindness (ii) Scurvy?	5
3	a)	Differentiate between: i) Essential and non-essential amino acids. ii) Globular and fibrous protein.	3+3
	b)	Write the important functions of protein.	4
	c)	What are food additives? Explain the role of food additives	6
	d)	What are fatty acids? Write three important characteristics of fatty acids.	4
4.	a)	Define ester bond. How are triglycerides formed?	6
	b)	What are food enzymes and why it is important?	4
	c)	What are acidic and basic amino acids? Give examples.	4
	d)	Define water activity. Explain the relationship between moisture content and water activity?	6

5	a)	Define the following terms: Hexose, Saponifiable lipids, Free water, Zwitterion, Anticaking agents.	(2x5=10)
	b)	Explain the α-helix, β-pleated sheet and triple helix secondary structure of protein.	10
6	a)	What are the different factors affecting the enzyme action?	6
	b)	What holds a protein in its tertiary structure?	6
	c)	Name some saturated fatty acids.	4
	d)	What is N-terminal and C-terminal in protein?	4
7	a)	Write brief notes on: (any four) i) Complex lipids ii) Starch iii) Classify lipids iv) Significance of water activity v) Chemical nature of enzymes.	4x4
	b)	Define hydrolysis. What is the product of hydrolysis of lactose, maltose, and sucrose?	4