

Total number of printed pages-4

53 (FPT 304) FCNT

2021

**FOOD CHEMISTRY AND
NUTRITION**

Paper : FPT 304

Full Marks : 100

Time : Three hours



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

Answer any five questions out of seven.

1. (a) Define reducing sugar. Explain why glucose is a reducing sugar. 4
- (b) What are emulsifying agents ? Mention some of the basic requirements of an emulsifier to form stable emulsion. 6
- (c) Draw the pyranose and furanose structure of glucose. 4
- (d) What is peptide bond ? Explain the Alpha helix structure of protein. 2+4
2. (a) What is Bound water ? Explain the most basic method to measure water content in food. 2+4

Contd.

- (b) Explain in brief, the natural flavouring substances used in food. 4
- (c) Differentiate between sugar and non-sugar giving suitable examples. 4
- (d) What is anti-oxidant ? Explain the vitamins and minerals functioning as antioxidants. 6
3. (a) What is protein denaturation ? Write some of the causes of protein denaturation. 2+4
- (b) Explain SCFA and MUFA giving suitable example. 4
- (c) What is Zwitterion ? Explain acidic and basic amino acids giving examples. 2+4
- (d) Explain in brief, the significance of water activity. 4
4. (a) Define the following terms : 2×5
- (i) N-terminal
- (ii) Covalent bond
- (iii) HMF
- (iv) Saccharide
- (v) Hydrolysis.



- (b) Explain the hydrolysis of triglycerides. 4
- (c) Why lipids are insoluble in water ? 2
- (d) What is malnutrition ? Explain how do you prevent malnutrition. 4
5. (a) What are Fatty acids ? Compare 'cis' fat with 'trans' fat. 2+4
- (b) Explain the two ways in which fats are deteriorated and become rancid. 4
- (c) Explain in brief, the tertiary level of protein structure. 4
- (d) What is BMR ? Discuss some factors affecting BMR. 2+4
6. (a) Distinguish between : **(any four)** 4×4
- (i) Fat soluble and water soluble vitamins.
- (ii) Amylose and cellulose.
- (iii) Water content and moisture content.
- (iv) Essential and non-essential amino acids.



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- (v) Homopolysaccharide and Heteropolysaccharide.
- (vi) Simple and complex lipids.
- (b) Explain EFA, VLCFA, PUFA and LCFA. 4
7. (a) Explain in brief, the purpose of nutritional assessment. 4
- (b) Describe the structural similarities between glycogen and amylopectin. 4
- (c) Write brief notes on : **(any three)** 4×3
- (i) Saponification
 - (ii) Food colorants
 - (iii) Maillard reaction
 - (iv) Oligosaccharides
 - (v) Phospholipid.

