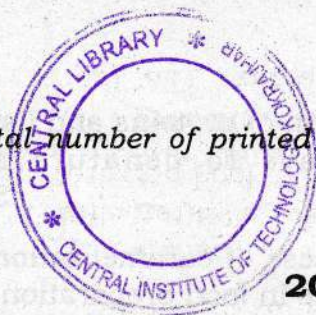


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53 (FPT 304) FCNU

2019

**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 sugars. Why monosaccharides are referred to as simple sugars? 2+2=4
- (b) Explain the term, moisture sorption isotherm. What is hysteresis in sorption isotherm? 5
- (c) What is ester bond? Show the hydrolysis of triglycerides. 5
- (d) What is an antioxidant and why is it important? Explain vitamins and minerals as antioxidant. 2+4

*Contd.*

2. (a) Define denaturation of proteins and list five different ways to denature a protein. 5
- (b) Describe the process of caramelization and its significance in food preparation. 5
- (c) Define MUFA. Compare 'Cis' fat with 'Trans' fat. 5
- (d) Define rancidity. Explain the ways in which fats are deteriorated and become rancid. 5
3. (a) Define the following terms : **(any five)**  
2×5=10
- (i) Bound water
  - (ii) SCFA
  - (iii) N-terminal
  - (iv) Triose
  - (v) Glycogen
  - (vi) Hydrogen bond
  - (vii) Hydrolysis.
- (b) What are flavouring agents? Explain the differences between artificial and natural flavours. 2+4=6
- (c) Explain EFA giving suitable examples. 4

4. (a) Explain why nutritional assessment is important. 5
- (b) Define D and L-isomers. Show the structures of D and L-amino acid. 4
- (c) What is S-S bridge? Write the differences between alpha-helix and beta-sheet protein conformations. 6
- (d) What is peptide bond? Explain the amphoteric behavioural of amino acid. 5
5. (a) Distinguish between : **(any three)**  
4×3=12
- (i) Fats and Oils
  - (ii) Amylose and amylopectin
  - (iii) Water activity and moisture content
  - (iv) Reducing and non-reducing sugar
  - (v) Essential and non-essential amino acid.
- (b) Explain PUFA, SCFA, VLCFA and MCFA. 4
- (c) What are acidic and basic amino acids? Give examples. 4



6. (a) Give the chemical formula for glucose, glycerol, ribose, palmitic acid and stearic acid. 5
- (b) What is asymmetric carbon atom? Explain glycosidic linkage with the example of sucrose. 5
- (c) Define Epimers, Enantiomers and Diastereomers.  $2 \times 3 = 6$
- (d) What are fatty acids? Give important characteristics of fatty acids. 4
7. (a) Differentiate between aldo and keto sugars. 3
- (b) What is meant by saturation or unsaturation when referring to oils and fats? 4
- (c) Why are unsaturated fats considered healthier? 3
- (d) Write short notes on : **(any two)**  
 $5 \times 2 = 10$
- (i) BMR
  - (ii) Phospholipids
  - (iii) Maillard reaction.