Total number of printed pages–4

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 glycoridic linkage with the example of sucrose. 5

(c) Define Epimers, Enantiomers and Diastereomers. 2×3=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)*** 5×2=10

(i) BMR

(ii) Phospholipids

(iii) Maillard reaction.
