53 (FPT 304) FCNT

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)* What is reducing sugar? Give examples. 3

   (b) What are Carbohydrates? Write the important properties of Carbohydrates. Differentiate between Simple and Complex carbohydrates. 2+2+2=6

   (c) Explain the amphoteric behaviour of amino acid. 4

(d) What is Non-enzymatic browning? Explain the process of Hydrogenation. 2+3=5

(e) What are D- and L-isomers? 2

2. (a) Write brief notes on : ***(any five)*** 2×5=10

(i) Rancidity

(ii) Sugar

(iii) Amino acid

(iv) Stereoisomerism

(v) Peptide bond

(vi) Triose.

(b) What is Ester bond? How will you classify lipids? 5

(c) What is Fatty acid? Give important characteristics of fatty acids. 5

3. (a) Differentiate between : ***(any four)*** 4×3=12

(i) 'cis' and 'trans' fat

(ii) Amylose and Amylopectin

(iii) Primary and Secondary structure of protein

(iv) Free water and Bound water

(v) Fat-soluble and Water-soluble vitamins.

(b) Define Nutritional Assessment. What is the purpose of nutritional assessment? 4

(c) What is Disulphide bond? Write the tertiary level of protein structure. 4

4. (a) What is Antioxidant? Explain vitamins and minerals as antioxidant. 6

(b) Draw the structure of Glucose and give the chemical formula for glucose. 3

(c) Explain the ways in which fats are deteriorated and become rancid. 6

(d) Write the differences between artificial and natural flavours. 5

5. (a) What is nutritional deficiency disease? Explain in brief, how you will prevent malnutrition. 6

(b) Explain MUFA, VLCFA, SCFA and PUFA. 4

(c) Explain Oligosaccharides with examples. 5

Contd.

(d) Describe the structural similarities and differences between Glycogen and Amylopectin. 5

6. (a) What is Saponification? Show the hydrolysis of triglycerides. 5

(b) Explain EFA giving suitable examples. 4

(c) Write the molecular formula of the following fatty acids: 4

(i) Palmitic acid

(ii) Stearic acid

(iii) Oleic acid

(iv) Palmitoleic acid.

(d) What is BMR? Discuss some factors effecting on BMR. 4

(e) What are emulsifying agent? 3

7. (a) What is Water activity? Explain Moisture sorption isotherm for a typical food product showing the hysteresis. 6

(b) Differentiate between Essential and Non-essential Amino acid. 4

(c) Write the *two* functional groups of monosaccharide. 2

(d) Write short notes on: ***(any two)*** 2×4=8

(i) Maillard reaction

(ii) Moisture content

(iii) Phospholipid.