53 (FPT 304) FCAN

2018

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 from* ***seven.***

1. *(a)* What is Peptide linkage? Write the Zwitterionic form of amino acids. 5

   (b) What are emulsifying agents? What are the basic requirements of an emulsifier to form stable emulsion? 5

   (c) Explain Non-enzymatic Browning and its consequences. 4

   (d) What is Phospholipid? Compare 'cis' fat with 'trans' fat. 6

2. *(a)* What is C-terminal and N-terminal? Explain the tertiary structure of protein. 5

(b) What are saponifiable lipids ? Show the hydrolysis of triglycerides. 5

(c) Define nutritional assessment. Explain how do you prevent malnutrition. 6

(d) Explain Moisture sorption isotherm for a typical food product showing the hysteresis. 4

3. (a) Define the following terms : 2×5

(i) Monoglyceride

(ii) HMF

(iii) Malt Sugar

(iv) Epimers

(v) PUFA.

(b) What is Melanoidin ? Explain the secondary products formed from 3-Deoxyosone. 4

(c) Define rancidity. Explain the various types of rancidity. 6

4. (a) Why monosaccharides are referred to as simple sugars ? Differentiate between simple and complex carbohydrates. 5

(b) What is SCFA and LCFA ? Give example for each. 4

(c) What is Glycosidic Linkage ? Show the removal of water from monosaccharide molecule resulting in the formation of lactose. 5

(d) What is Isoelectric point ? What are acidic and basic amino acids ? Give examples. 2+4

5. (a) Describe the structural similarities and differences between the following pairs of polysaccharides.

(i) Amylose and Cellulose

(ii) Glycogen and Amylopectin. 4+4

(b) Explain hydrogenation and its effect on shelf life of fats/oils. 5

(c) What is Caramelization ? Explain its consequences. 4

(d) Explain EFA, giving suitable examples. 3

6. (a) Distinguish between :

(i) Free water and Bound water

(ii) Water content and Moisture content. 3+3

(b) What is meant by the denaturation of proteins ? Explain some of the causes of protein denaturation. 4

(c) What is Water activity? Explain its significance. 4

(d) Explain the vitamins and minerals functioning as antioxidants. 6

7. (a) Draw molecular diagrams of glycerol, glucose, a saturated fatty acid and a generalized amino acid. 4

(b) Explain the natural flavouring substances used in food. 5

(c) What is Strecker degradation? 3

(d) White short notes on: ***(any two)*** 2×4

(i) Oligosaccharide

(ii) Essential Amino Acids

(iii) BMR.