53 (FPT 304) FCAN

2017

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)* Define Sugars. Write *two* examples of simplest possible sugar unit. 3

   (b) What is Disulphide bridge ? Explain the tertiary level of protein structure. 4

   (c) What is Ester bond ? Compare 'cis' fat with 'trans' fat. 6

   (d) What is Antioxidant ? Explain vitamins as antioxidant. 7

2. *(a)* Define Glucans and Fructans. Draw the pyranose and furanose structure of Glucose. 6

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

(c) What is water activity ? Explain moisture sorption isotherm for a typical food product showing the hysteresis. 7

(d) Define hydrogen bond and Glycosidic bond. 3

3. *(a)* Draw the structures of : 2×5

(i) Ketal

(ii) Ribose

(iii) Glucose

(iv) Glycerol

(v) Amino acid.

(b) Define reducing sugar giving suitable examples. 3

(c) What is polysaccharide ? Give *two* examples of structural polysaccharides. 4

(d) Give *three* properties of lipids. 3

4. *(a)* What are D and L isomers ? Show the structure of D and L glyceraldehydes. 2+2+2

(b) Write a brief note on Fat soluble vitamins. 5

(c) What is C–terminal and N–terminal ? Explain the primary structure of protein. 2+3

(d) Differentiate between essential and non-essential fatty acid. 4

5. *(a)* What is HMF ? Name the *three* monosaccharide units in raffinose. 3

(b) What is Isoelectric point ? What is the isoelectric point of Glycine ? 2

(c) Explain hydrogenation and its effect on shelf life of fat/oil. 5

(d) Define the following terms : 2×5

(i) Peptide bond

(ii) Hydrolysis

(iii) PUFA

(iv) Glycogen

(v) Amylose.

6. *(a)* Differentiate between : 3×3

(i) Homopolysaccharides and Heteropolysaccharides

(ii) Aldehyde and Ketone

(iii) Simple and complex lipids.

(b) Explain the different minerals present in food. 5

(c) What is Maillard reaction ? 4

(d) What are the *two* functional groups of monosaccharide ? 2

7. *(a)* Write short notes on : 4×4

(i) Strecker Aldehyde

(ii) Oligosaccharides

(iii) Caramelization

(iv) Food colorants.

(b) Write the molecular formula of stearic and palmitic acid. 2

(c) Give *two* examples of saponifiable lipids. 2
