53 (FPT 304) FCHN

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

   (b) What is meant by saturation or unsaturation when referring to oils and fats ? 4

   (c) What is Covalent bond ? Why is maltose a reducing sugar ? 4

   (d) Define nutritional assessment. What is the purpose of nutritional assessment ? 5

   (e) What is R-group ? Give *one* example each of polar and non-polar amino acid. 4

2. *(a)* What is Peptide bond ? Show the difference between alphahelix and betasheet protein conformations. 5

(b) What is HMF ? Draw the structure of Glucose and Ribose. 4

(c) Write the chemical name of vitamin C and K. 2

(d) Explain Oligosaccharides giving examples. 4

(e) What is Antioxidant ? Explain vitamins as antioxidant. 5

3. (a) Write the important properties of carbohydrates. 4

(b) Differentiate between essential and non-essential amino acid. 4

(c) What is free water ? What is the difference between moisture content and water content ? 4

(d) Give important characteristics of amino acid. 4

(e) Explain caramelization and its consequences. 4

4. (a) Define the following terms : ***(any five)*** 2×5

(i) Monomer

(ii) Melanoidin

(iii) Rancidity

(iv) Ionic bond

(v) Glycogen

(vi) Stereoisomerism.

(b) What is nutritional deficiency disease ? Explain how do you prevent malnutrition. 5

(c) Draw the structure of Amylose and Amylopectin. 3

(d) Explain EFA giving examples. 2

5. (a) Distinguish between : ***(any four)*** 4×4

(i) 'Cis' and 'trans' fat

(ii) Homopolysaccharide and Heteropolysaccharide

(iii) Hydrolytic and Oxidative rancidity

(iv) Simple and Complex carbohydrates

(v) Fat soluble and Water soluble vitamins.

(b) Explain how a protein molecule is formed. 4

6. (a) Draw the structure of the following : ***(any five)*** 2×5

(i) Glycine

(ii) Glycerol

(iii) Oleic acid

(iv) Stearic acid

(v) Palmitic acid

(vi) D-amino acid.

(b) Write the important properties of fatty acids. 4

(c) What is D and L isomers ? Show the structure of D and L-glyceraldehyde. 4

(d) Name the three monosaccharide units in raffinose. 2

7. (a) Write brief notes on : ***(any four)*** 4×4

(i) Quaternary structure of protein

(ii) Artificial flavouring agents

(iii) Phospholipids

(iv) Trisaccharides

(v) Saponification

(vi) Minerals in food.

(b) What is strecker aldehyde ? 2

(c) Give *two* examples of disaccharide molecule. 2
