53 (FPT 304) FCAN

2014

FOOD CHEMISTRY & NUTRITION

Paper : FPT 304

Full Marks : 100

Pass Marks : 30

Time : Three hours

The figures in the margin indicate full marks for the questions.

Answer ***any 5 (five)*** *questions out of 7 (seven).*

1. *(a)* What is amino acid ? Define essential and non-essential amino acid with example. 1+2+2

   (b) What is Reducing Sugar ? Give *two* examples. 2+2

   (c) What is Glucans ? Draw the Haworth projection of Alpha-D-Glucopyranose. 3

(d) What is Essential FA ? What are the problems associated with deficiency of EFA ? 2+3

(e) What are the *three* principal types of flavorings used in foods ? 3

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

(i) Alpha Carbon

(ii) Basic amino acid

(iii) Glycerol

(iv) HMF

(v) Solvation.

(b) Define water activity and explain its significance. 1+3

(c) Why monosaccharides are referred to as simple sugars ? Give examples of Simple Sugar. 2+1

(d) Write the chemical names for vitamin K, E and B_6. 3

3. *(a)* Draw the structure of the following : 2×5

(i) Glycine

(ii) Acetal

(iii) Ribose

(iv) Fructose

(v) L-amino acid.

(b) Discuss in brief the importance of food colorants. 4

(c) Show the removal of water from monosaccharides molecules resulting in the formation of disaccharides. 3

(d) Show the formation of Acetal. 3

4. *(a)* What is dietary fiber ? Write the classification of dietary fiber with a brief explanation. 2+4=6

(b) Differentiate between : 3×3

(i) Saturated and unsaturated FA

(ii) Acidity and R anacidity

(iii) Hydrophobic and hydrophilic.

(c) What is strecker degradation ? 3

(d) Write *two* important properties of Hydration. 2

5. (a) Define Deoxysone. What are the secondary products formed from 3 deoxysone ? 4

(b) What is peptide linkage ? Explain various levels in the structure of protein. 1+5

(c) What is BMR ? Discuss some factors effecting on BMR. 1+4

(d) Classify lipids and explain the formation of triglyceride. 3+2

6. (a) What do you mean by dissociation of water and give the relation between *pH* and temperature. 1+2

(b) What are D and L isomers ? Show the structure of D and L-Glyceraldehydes. 2+2+2

(c) Briefly discuss the high fiber diet. 4

(d) Discuss on various technologies which are applied to preserve the green color. 5

(e) Explain solubility of lipids. 2

7. (a) Write short notes on : ***(any three)*** 4×3

(i) Amadori rearrangement

(ii) Aldose-Ketose isomers

(iii) Vitamins as antioxidant

(iv) Minerals in food

(v) Polysaccharides.

(b) What is Pro-vitamin A ? Explain how fat soluble vitamin differs from water soluble vitamin ? 2+2

(c) Draw the pyranose and furanose ring structure of Glucose. 4