53 (FPT 304) FCAN

2013

(December)

FOOD CHEMISTRY AND NUTRITION

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 are Nutrients ? List all the nutrients components of food and give 2 sources and functions for each of then. 3+5=8

   (b) What is water Activity ? Explain the relation between water activity and moisture content. 3

   (c) Briefly explain solubility of lipids. 3

   (d) Give the chemical names for vitamins *A*, *E* B_2 and *C*. 2

(e) List and differentiate between the various classes of carbohydrates. 4

2. (a) Explain the following terms : 2×5=10

(i) Bound water

(ii) *HMF*

(iii) Solvation

(iv) R-group

(v) Salt bridge.

(b) List the functions of lipids in food. 3

(c) What is Haworth projection ? 4

(d) What are the importance of food colourants ? 3

3. (a) What is Dietary fiber ? Write the classification of dietary fiber. 4

(b) Show the formation of Ketal. 5

(c) What is C-terminal and N-terminal ? Explain the primary structure of proteins. 5

(d) What is Reducing and Non-reducing sugar ? Give examples. 4

(e) What is Saponification ? 2

4. (a) What are sugars ? Give examples. 3

(b) Explain the secondary structure of proteins. 8

(c) Explain the different minerals present in food. 4

(d) Differentiate between Homopolysaccharide and Heteropolysaccharide. 5

5. (a) What is Peptide bond ? Explain how a protein molecule is formed. 5

(b) What is Pro-vitamin A ? How fat soluble vitamin differs from water soluble vitamin ? 5

(c) Discuss the structure of water molecule. 4

(d) What is Essential Fatty Acid ? What are the problems associated with the deficiency of Essential fatty Acid ? 4

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

6. *(a)* What are Ester bonds ? Differentiate between hydrophobic and hydrophilic. 6

(b) Show the formation of triglycerides. 3

(c) Draw the structure of acetal and Ribose. 3

(d) What is streaker aldehyde ? 3

(e) Discuss on various technology which is applied to preserve the green colour. 5

7. *(a)* Write short notes on : 4×4=16

(i) Carameligation

(ii) Pyranose and Furanose ring structure

(iii) Amadori rearrangement

(v) Aldose-Ketose isomers.

(b) What is Deoxyosone ? What are the secondary products formed from 3 deoxyosone ? 4