Total No. of printed pages = 7

RETEST EXAMINATION - 2019

Semester : 4th

Subject Code : FPT-403

BASICS OF FOOD CHEMISTRY

Full Marks – 70

Time – Three hours

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

Instructions :

1. *All* questions of PART – A are compulsory.
2. Answer any *five* questions from PART – B.

PART – A

Marks – 25

1. Fill in the blanks : 1×10=10

   (a) Deficiency of vitamin _____ has been associated with a disease called scurvy.

   (b) Hydrogen and oxygen atom ratio in carbohydrate is _____.

[Turn over

(c) _____ is the sugar present in milk.

(d) Sugars with keto group is called _____.

(e) The term to describe the relationship between galactose and mannose is _____.

(f) Monosaccharaides with three carbons are known as _____.

(g) If OH group is to the left of last stereo-center carbon, then configuration is _____.

(h) The fatty acids in which double bond occurs are called _____.

(i) Compounds having same structural formula but differing in spatial configuration are known as _____.

(j) Disulphide bonds are formed between _____.

2. Write true or false : 1×10=10

(a) Maillard reactions may reduce the nutritional value of a product.

(b) Carbohydrates are polyhydroxy aldehydes or ketones, or compounds that cannot be further hydrolyzed.

(c) Complex lipids contain more than two components.

(d) Caramelization is a form of enzymatic browning.

(e) Sucrose is an example of non-reducing sugar.

(f) Lipids are insoluble in water (hydrophobic).

(g) Unsaturated fatty acid can be converted into saturated by the process of saponification.

(h) Cis fats are liquid at room temperature.

(i) Glycogen is known as animal starch.

(j) Vitamin C is a fat-soluble vitamin.

3. Choose the correct answer : 1×5=5

(a) Theepimers of glucose is

(i) Fructose (ii) Galactose

(iii) Ribose (iv) Deoxyribose

(b) Amylose contains glucose units

(i) 1000 - 2000

(ii) 2000 - 3000

(iii) 3000 - 4000

(iv) 5000 - 6000

(c) Which part of the amino acid gives its uniqueness ?

(i) Amino group

(ii) Carboxyl group

(iii) Side chain

(iv) None of these

(d) The number of carbon atoms in MCFA is

(i) 6 - 12 (ii) 4 - 8

(iii) 8 - 12 (iv) None of these

(e) Which of the following vitamin acts as antioxidant ?

(i) Vitamin E (ii) Vitamin A

(iii) Vitamin K (iv) Vitamin B

PART – B

Marks – 45

Answer any *five* questions.

4. (a) What are hexoses ? Give some examples of hexoses with important biological functions. 4

(b) Name the essential fatty acid and one function of EFA. 2

(c) What is the chemical basis of rancidity ? How can it be prevented ? 3

5. (a) What is the monomer of proteins ? How are amino acids bonded together to form a polypeptide ? 4

(b) What are fatty acids ? Write the important characteristics of fatty acids. 3

(c) Draw the ring form structure of glucose and ribose. 2

6. (a) Explain the advantages and disadvantages of food additives. 3

(b) Explain caramelization and its consequences. 3

(c) What is free water ? What is the difference between moisture content and water content ? 3

7. (a) What is activation energy ? What are the important factors that influence enzyme activity ? 4

(b) Name any two essential amino acid. 2

(c) What is C and N-terminal ? 3

8. Distinguish between : (any *three*) 3×3=9

(i) MUFA and PUFA

(ii) Homopolysaccharide and Heteropolysaccharide

(iii) Cis and trans fat

(iv) Fats and oils

9. (a) What is emulsion ? What are the basic requirements of an emulsifier to form stable emulsion ? 4

(b) Define enzymes. Why food enzymes are important ? 3

(c) Why maillard reaction is important in foods ? 2

10. Write brief notes on any *three* : 3×3=9

(i) Tertiary structure of protein

(ii) Minerals in food

(iii) Carotenoids

(iv) Amylopectin

(v) Amino acid.