Total number of printed pages = 4

19/4th Sem/DFET 402

2022

BASICS OF FOOD CHEMISTRY

Full Marks – 100

Time – Three hours

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

Question No. 1 is compulsory and answer any *four* questions from Questions No. 2 to 7.

1. (A) Fill in the blanks : 1×10=10

   (a) The type of bond that is formed between the two sugars is called _____.

   (b) A fat is _____ at ordinary room temperature.

   (c) Starch is a polymer made from the _____ monomer.

   (d) The common chemical name for vitamin C is _____.

   (e) Milk is an emulsion of water and _____.

[Turn over

(f) If n = 3, then the formula of carbohydrate is _____.

(g) _____ is an example of non-reducing sugar.

(h) The general structure of amino acid is _____.

(i) When the hydrocarbon chain has a double bond, the fatty acid is said to be _____.

(j) _____ deficiency has been associated with a disease called scurvy.

(B) Define any *five* of the following terms : 2×5=10

(i) Sugar (ii) Ester bond

(iii) Amino acid (iv) Emulsion

(v) Monounsaturated (vi) Triose sugar.

2. (a) What are fatty acids ? Give three important characteristics of fatty acids. 4

(b) Define food additives. Write the important functions of food additives. 5

(c) What are D and L isomers ? Show the structure of D and L glyceraldehyde. 6

(d) What holds a protein in its tertiary structure ? 5

3. (a) Explain caramelization and its consequences. 5

(b) Draw molecular diagram showing the formation of peptide bond. 5

(c) Classify oligosaccharide giving suitable examples. 6

(d) Define essential fatty acid giving suitable examples. 4

4. (a) Define water activity. Explain the relationship between moisture content and water activity. 6

(b) What are food enzymes and why these are important ? 5

(c) Show the formation of a disaccharide bond. 5

(d) Explain hydrogenation and its importance. 4

5. (a) Differentiate between on any *four* : 4×4=16

(i) Homopolysaccharide and Heteropoly-saccharide

(ii) Saturated and Unsaturated FA

(iii) Reducing and Non-reducing sugar

(iv) Essential and Non-essential amino acid

(v) Fat soluble and Water soluble vitamins.

(b) What is activation energy ? What are the different factors affecting the enzyme action ? 4

6. Write short notes on any *four* of the following : 5×4=20

(a) Secondary structure of protein

(b) Amylopectin

(c) Rancidity

(d) Minerals in food

(e) Maillard reaction.

7. (a) Explain how will you classify lipids. 6

(b) Give the important functions of protein. 4

(c) Draw the ring forms of glucose and fructose ? 4

(d) Define SCFA. Write the molecular formula of palmitic acid, stearic acid and oleic acid. 6