Total No. of printed pages = 4

19/3rd Sem/ UFET302

2021

FOOD CHEMISTRY

Full Marks – 100

Time – Three hours

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

Answer any *five* questions.

1. (a) Define simple sugar giving examples. Show the formation of glycosidic bond. 5

   (b) What are saponifiable lipids ? Write the important properties of fatty acids. 5

   (c) What do you mean by isomer ? Draw Fischer projection of D-Glucose & L-Glucose, D and L-glyceraldehyde. 6

   (d) What are hydrophobic and hydrophilic amino acids ? Give examples. 4

[Turn over

2. (a) Define peptide bond. Draw molecular diagram showing the formation of peptide bond. 5

(b) Explain reducing and non-reducing sugar giving examples. Why glucose is a reducing sugar ? 4+2=6

(c) Briefly describe four ways in which a protein could be denatured. 4

(d) Name two water soluble vitamins, their sources and the diseases caused due to their deficiency in diet. 5

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

(i) Zwitterion (ii) Triose sugar

(iii) Rancidity (iv) Ascorbic acid

(v) S-S Bridge (vi) Polypeptide.

(b) What are intentional food additives ? Write the important reasons for adding colours to food. 5

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

4. (a) Define hydrolysis. What are the product of hydrolysis of lactose, maltose, and sucrose ? 2+6=8

(b) Compare 'Cis' fat with 'trans' fat. 5

(c) What is ADI ? Explain the functions of thickeners, stabilizers and emulsifiers in food. 1+6=7

5. (a) Distinguish between (any *three*) : 4×3=12

(i) Simple and complex lipids

(ii) Essential and non-essential amino acids

(iii) Free water and bound water

(iv) Globular and fibrous protein.

(b) Define non-enzymatic browning ? Explain in brief the consequences of Maillard reaction. 4

(c) What are flavour enhancers and its function ? Give examples. 4

6. (a) Explain MUFA, PUFA, LCFA and VLCFA. 2×4=8

(b) What is meant by water activity ? How do water activity and moisture content differ ? 2+4=6

(c) Explain the similarities and differences between amylose and amylopectin. 3+3=6

7. (a) Write short notes on any *four* of the following : 4×4=16

(i) Essential fatty acids

(ii) Alpha helix structure of protein

(iii) Caramelization

(iv) Saponification

(v) Anticaking agents.

(b) How are food additives regulated ? Why is it important to regulate the use of food additives ? 4