Total No. of printed pages = 4

FPT-403/BOFC/4th Sem/2015/M

BASICS OF FOOD CHEMISTRY

Full Marks – 70

Pass Marks – 28

Time – Three hours

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

Answer any *five* questions.

1. (a) What is Saccharide ? Which is the smallest possible sugar unit ? 2

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

   (c) What is non-reducing sugar ? Give two examples. 3

   (d) Define glycosidic bond and hydrogen bond. 2

   (e) Write four important characteristics of amino acid. 4

[Turn over

2. (a) Glucose has which functional group ? 2

(b) What is Epimers ? Draw the Haworth projection of β-D-Glucopyranose. 3

(c) What are food enzymes ? What are the different factors effecting the enzyme action? 4

(d) Draw the structure of ribose and hexose sugar. 2

(e) Define storage stability of food and explain the effect of a_w on storage stability. 3

3. (a) Differentiate between : 3×3=9

(i) Homopolysaccharide and hetero-polysaccharide.

(ii) Fat soluble and water soluble vitamins.

(iii) Saturated and unsaturated fatty acid.

(b) Define hydrogenation and its effect on shelf life of fat / oil. 3

(c) Give an example of tetrasaccharide. 1

(d) What are the products of hydrolysis of lactose ? 1

4. (a) Which two monosaccharides combine to form sucrose ? 2

(b) Distinguish between emulsions and emulsifiers. 3

(c) What are food additives ? What are main purposes of direct food additives that serve in our foods ? 4

(d) Give examples of essential and non-essential amino acid. 3

(e) Write two important functions of proteins. 2

5. (a) What is the general formula of carbohydrate and amino acid ? 2

(b) Explain calamelization. 3

(c) Explain how a protein molecule is formed. 3

(d) What are plant pigments ? Explain any one of the plant pigments. 2+3=5

(e) What is non-enzymatic browning ? 1

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

(i) starch

(ii) monomer

(iii) amide linkage

(iv) disulphide bond

(v) cellulose.

(b) Show the formation of disaccharide molecule. 2

(c) Classify lipids. 2

7. (a) What are carbohydrates ? Write the important properties of carbohydrates. Differentiate between simple and complex carbohydrates. 6

(b) Write short notes on any *two* : 3×2=6

(i) Minerals in food

(ii) Polysaccharides

(iii) Protein secondary structure.

(c) Draw the Fischer projection of D- and L-glyceraldehyde. 2