B.Sc. Part–I Semester–I Examination

FOOD SCIENCE

BASIC CHEMISTRY OF FOODS

Time : Three Hours] [Maximum Marks : 80

N.B.:— (1) All questions are compulsory.

(2) Draw diagram if necessary.

1. (A) Fill in the blanks :

(i) The solutions having pH more than 7 are _____ in nature.

(ii) Vitamin D is a water _____ vitamin.

(iii) Fatty acids having double/triple bonds are known as _____ fatty acids.

(iv) The basic monomer units of protein are _____. 2

(B) Choose the correct alternative :

(i) Dietary Fibres are _____.

(a) Proteins (b) Vitamins

(c) Carbohydrates (d) Lipids

(ii) The normality of solution is related to the _____ of the solute.

(a) Solubility (b) Molecular Weight

(c) Vapour pressure (d) Equivalent Weight

(iii) BMR is related with _____.

(a) Obesity (b) Cooking method

(c) Dietary fibres (d) Pectic substances.

(iv) $\text{Density} = \frac{?}{\text{Volume}}$

(a) Length (b) Mass

(c) Time (d) Speed 2

(C) Answer in **one** sentence :

(i) Name the disease caused due to deficiency of Iron 1

(ii) Define malnutrition 1

(iii) Elaborate the term BMI 1

(iv) Give the general structure of simple amino acids. 1

2. (A) 20g of NaOH dissolved in water to make 250 ml solution. Calculate the normality (Given : Equivalent weight of NaOH = 40) 4

(B) Give an account of unit operations in Food Processing. 4

(C) Convert the following :

(a) $3m^3$ into Litre

(b) 270°C into °F (Fahrenheit) 4

OR

(P) Define units, give its classification. Give the units of Length, Mass, Time & Temperature in S.I. and CGS System. 4

(Q) Define viscosity & specific gravity & give the units 4

(R) How much oxalic acid will be required to prepare 0.2 Normal 250 ml solution ? (Given : Equivalent weight of oxalic acid = 45) 4

3. (A) What are basic food groups ? Explain. 4

(B) Explain the factors affecting BMR. 4

(C) Explain balanced diet & malnutrition. 4

OR

(P) Give an account of calorific value of food. 4

(Q) What is RDA ? Explain Marasmus. 4

(R) Describe Bomb Calorimeter. 4

4. (A) Give an account of functions of carbohydrates . 4

(B) Discuss the Food Sources of carbohydrates. 4

(C) Describe the classification of Carbohydrates depending upon the number of monomer units present with examples. 4

OR

(P) Explain the role of dietary Fibres. 4

(Q) Discuss the properties of starch with its Food Sources. 4

(R) Give the physical properties of Sugars. 4

5. Explain classification of proteins, give the functions. 12

OR

What are amino acids ? Classify. Give the Food Sources of essential amino acids. 12

6. (A) Define lipids. Differentiate between fats & oils. 4

(B) Discuss the sources of Fats & Oils. 4

(C) Explain the importance of lipids in diet. 4

OR

(P) Discuss the chemical properties of lipids 4

(Q) Differentiate between saturated & unsaturated fatty acids 4

(R) Explain chemical composition of lipids. 4

7. Classify Vitamins. Discuss the Food Sources & deficiency symptoms of Fat soluble vitamins. 12

OR

Discuss classification of minerals. Explain the Food Sources & deficiency symptoms of any 3 minerals. 12