

Name:

Enrolment No:



**UNIVERSITY OF PETROLEUM AND ENERGY STUDIES**  
**End Semester Examination, December 2022**

**Course: Food and Nutrition**  
**Program: B.Tech Food Technology**  
**Course Code: HSFT1001**

**Semester: I**  
**Time : 03 hrs.**  
**Max. Marks: 100**

**Instructions: All Questions are compulsory**

**SECTION A**

S. No.	MCQs or Fill in the blanks	30 Marks	CO
1	Water is also known as a) Essential Nutrient b) Silent Nutrient c) Micronutrient d) None of the above	1.5 mark	CO1
2	Define balanced diet a) Take all nutrients in an adequate amount b) Take less amount of all nutrients c) Take an adequate amount of selective nutrients d) Take the excess amount of all nutrients	1.5 mark	CO1
3	Unit of Energy in dietary calculations a) Watt b) Calories c) Volt d) Horsepower	1.5 mark	CO4
4	What is a safety Factor? a) Less amount of nutrient consumption than RDA b) Same amount consumption as RDA c) Wear safety equipment d) Take slight more amount then RDA	1.5 mark	CO1
5	Which one is not a source of Energy a) Starch b) Calcium c) Butter d) Gluten	1.5 mark	CO5
6	What is the normal BMR range of an adult man? a) 25 to 28 Cal/m <sup>2</sup> body surface/h b) 45 to 48 Cal/m <sup>2</sup> body surface/h c) 35 to 38 Cal/m <sup>2</sup> body surface/h	1.5 mark	CO1

	d) 30 to 33 Cal/m <sup>2</sup> body surface/h		
7	Sulphur containing amino acid a) Glutamic acid b) Lysine c) Tryptophan d) Methionine	1.5 mark	<b>CO4</b>
8	Calculate the Body Mass Index of a man having 164 cm height and 71 kg weight? a) 24.81 b) 27.43 c) 21.47 d) 26.40	1.5 mark	<b>CO1</b>
9	Compositional difference between protein and carbohydrates, fats a) Carbon b) Hydrogen c) Oxygen d) Nitrogen	1.5 mark	<b>CO4</b>
10	Who first give term protein a) Luious Pasteur b) G.J. Mulder c) J.G Molder d) N.M Potter	1.5 mark	<b>CO1</b>
11	What is the conversion factor in protein? a) 100/carbohydrate content b) 100/hydrogen c) 100/nitrogen d) 100/oxygen	1.5 mark	<b>CO1</b>
12	Which amino acid is acidic in nature? a) Lysine b) Arginine c) Histidine d) Aspartic	1.5 mark	<b>CO5</b>
13	Mineral present in Thyroxine a) Iron b) Zinc c) Iodine d) Cobalt	1.5 mark	<b>CO5</b>
14	Mineral present in insulin a) Zinc b) Copper c) Cobalt	1.5 mark	<b>CO1</b>

	d) Potassium		
15	Which mineral is Non-essential Trace elements? a) Iron b) Cobalt c) Selenium d) Boron	1.5 mark	CO5
16	Calcium deficiency in children leads to a) Osteoporosis b) Osteomalacia c) Rickets d) Osteoarthritis	1.5 mark	CO5
17	Vitamins associated with genetic regulation a) Vitamin A and D b) Vitamin E and K c) Vitamin C and B2 d) Vitamin E and C	1.5 mark	CO1
18	Retinol palmitate is a a) Esterified form of vitamin A b) Ethanoic form of vitamin A c) Ketonic form of vitamin A d) Aldehyde form of vitamin A	1.5 mark	CO5
19	What is the comparative biological activity of A2 in composition to A1 a) 60% b) 80% c) 40% d) 70%	1.5 mark	CO1
20	Sources of Ergocalciferol a) Mushroom b) Mango c) Chicken d) Both A and B	1.5 mark	CO5
<b>SECTION B 20 marks 4 questions 5 marks each</b>			
Q	Short Answer Type Question (5 marks each)	<b>20 Marks</b>	<b>CO</b>
1	Why food and Nutrition is important for Human health? How is RDA associated with health?	<b>5</b>	<b>CO3</b>
2	Define carbohydrates? Classification of carbohydrates? Sources of carbohydrates?	<b>5</b>	<b>CO4</b>
3	Describe proteins? Explain the composition and significance of protein in human nutrition?	<b>5</b>	<b>CO1</b>
4	Importance of minerals in human nutrition? Describe importance, function and deficiency diseases due to Iron and Iodine?	<b>5</b>	<b>CO2</b>

**SECTION C 30 marks**

Q	Two case studies 15 marks each subsections	30 Marks	CO
1	<p>Rats are fed with 5 gm of protein per day. After 28 days their weight increase from 60 g to 130 g. Protein in faeces of protein diet group rats is 30 g and in the protein-free diet, it is 7g. Protein in the urine of protein-free diet is 4 g and protein in the nitrogen-free group is 1 g.</p> <p>a) What is the Protein efficiency ratio and calculate it?                      b) Calculate Biological value                      c) Calculate Net protein utilisation.</p>	<p>5 marks                      5 marks                      5 marks</p>	<b>CO3</b>
2	<p>If a Man carry out moderate physical activity with weight 65 kg and he consumes the following food materials: 100 g of wheat (75% CHO, 12 % protein, 3% fat), 200 ml standardised milk (protein 3%, CHO 5%, fat 4.5%), 30 g ghee(99.9% fat), 50 g pulses (protein 25%, CHO 60% and Fat 5%), 100 g apple (CHO 14%, protein 0.5% and fat 0.2%), 50 g potato (CHO 20%, Protein 2%, Fat 0.2), 50 g green leafy vegetable (20% CHO, 11% protein and 3.5% fat) and 120 g ethanol.</p> <p>a) Calculate the energy consumption and explain if he consumes a sufficient amount of energy?                      b) Elaborate about his protein requirement and he consumes the right amount of proteins?</p>	<p>8 marks                      7 marks</p>	<b>CO2</b>
<b>SECTION- D 20 marks</b>			
Q	Long Answer type Questions Scan and Upload (10 marks each)	20 Marks	CO
1	<p>a) What do you mean by fat-soluble vitamins?                      b) Describe the functions, RDA values, sources and their deficiency diseases of vitamin A, E and K?</p>	<p>1 mark                      3+3+3                      Marks</p>	<b>CO5</b>
2	<p>a) Importance of lipids in nutrition? Describe lipid digestion &amp; absorption?                      b) Describe vitamin D? Types of vitamin D, sources and deficiency disease?</p>	<p>5 marks                      5 marks</p>	<b>CO4</b>