

Name:  
Enrolment No:



**UNIVERSITY OF PETROLEUM AND ENERGY STUDIES**  
**School of Health Sciences**

**End Semester Examination, December 2020**

**Programme Name: B.Sc. Food, Nutrition and Dietetics**  
**Course Name : Digestion and Nutrition Physiology**  
**Course Code : HSCC2004**

**Semester : III rd**  
**Time: 3 hour**  
**Max. Marks: 100**

**Instructions : Read all questions carefully**

**SECTION A**

<b>Each Question will carry 5 marks</b>		<b>Marks</b>	
<b>Instructions: Complete the statement/Select the correct answer(s)</b>			
1.	Give the response of the following hormones on hunger (increase or decrease) as well as their tissue of origin 1. Ghrelin (a)....., (b)..... 2. Leptin (c)....., (d).....	<b>5</b>	<b>CO1</b>
2.	The major fats in the diet are (a) .....and to a lesser extent (b) ..... Give one example of each amino acids category 1. Aromatic amino acids: ..... 2. Sulphur-containing amino acids..... 3. Basic amino acids.....	<b>5</b>	<b>CO2</b>
3.	The major short chain fatty acids (SCFAs) produced in the gut are (a)..... (b)..... and (c)..... (d)..... is the main energy source for human colonocytes (e) ..... the most abundant SCFA and an essential metabolite for the growth of other bacteria	<b>5</b>	<b>CO2</b>
4.	Write the proposed biomarker of the following food components. 1. Garlic (a)..... 2. Fruits and Vegetables (b) ..... 3. Meat and Fish (c) ..... 4. Protein (d)..... 5. Apple (e) .....	<b>5</b>	<b>CO4</b>
5.	Select the correct Statement a. An example of biomarker of exposure is the nitrogen in urine which serves as a biomarker for protein intake. b. Biomarker of effect not only do they reflect intake but also nutrient metabolism and, possibly, effects on physiological or disease processes.	<b>5</b>	<b>CO4</b>

	<p>c. Biomarkers of health/disease and physiological status are biomarkers which indicate an end-point, relate to a state of health and/or disease risk.</p> <p>d. All are correct</p> <p>e. None of the above are correct</p>		
6.	<p>To convert between calories and joules: 1 kcal = .....kJ</p> <p>The energy yield of metabolic fuels are</p> <p>a. Carbohydrates .....Kcal/g and .....kJ/gm</p> <p>b. Protein .....Kcal/g and .....kJ/gm</p>	<b>5</b>	<b>CO1</b>
<b>SECTION B</b>			
	<p>1. Each question will carry 10 marks</p> <p>2. Instruction: Write short / brief notes</p>		
7.	What are macronutrients? Explain why there is a need for macronutrients and micronutrients.	<b>CO1</b>	<b>10</b>
8.	Name the hypothalamic appetite control centres. Describe the major functions of each region of the gastrointestinal tract.	<b>CO2</b>	<b>10</b>
9.	Define bioavailability, bioaccessibility and bioactivity of nutrients. Discuss the in-vitro static model of digestion of food.	<b>CO4</b>	<b>10</b>
10.	What are enzymes? Name the enzymes which are used commercially in Industries. What is the function of Lipase enzyme in digestion of fats?	<b>CO5</b>	<b>10</b>
11.	Discuss Enzymatic transformations. Write the nomenclature, description and functions of any two carbohydrate digesting enzymes.	<b>CO5</b>	<b>10</b>
<b>SECTION C</b>			
12.	<p>Draw the structure of colon. Define Gut microbiota and also name the gut microbes. Discuss the role of gut bacteria in carbohydrate fermentation also mention the functions of metabolites formed by the fermentation of carbohydrates.</p> <p style="text-align: center;">Or</p> <p>Name the good bacteria and bad bacteria present in the gut. What are the functions performed by the gut bacteria? Discuss the carbohydrate fermentation process and metabolites of carbohydrate formed in the gut.</p>	<b>CO3</b>	<b>20</b>