

**LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034****M.Sc. DEGREE EXAMINATION – FOOD CHEMISTRY AND FOOD PROCESSING****FIRST SEMESTER – NOVEMBER 2022****PF1MC03 – HUMAN NUTRITION AND BIOCHEMISTRY**

Date: 28-11-2022

Dept. No.

Max. : 100 Marks

Time: 01:00 PM - 04:00 PM

SECTION A**Answer ALL the Questions**

1. True or False	(5 x 1 = 5)	
a) A balance achieved through the control of various interrelated physiological mechanisms is referred as homeostasis	K1	CO1
b) Energy intake 5000 kcal and expenditure 6000 kcal leads to weight gain	K1	CO1
c) The physical unit "calorie" is the energy required to decrease the temperature of one gram of water by 1 degree Celsius,	K1	CO1
d) Phenyl ketonuria is one of an inborn error of metabolism	K1	CO1
e) Glycogen phosphorylase is an enzyme responsible for converting glucose to glycogen	K1	CO1
2. Define the following	(5 x 1 = 5)	
a) Functions of small intestine	K2	CO1
b) Nutrigenomics	K2	CO1
c) Replication	K2	CO1
d) PRIBNOW and TATAAT boxes	K2	CO1
e) Glycogen metabolism	K2	CO1

SECTION B**Answer any THREE of the following in 500 words****(3 x 10 = 30)**

3. Calculate the BMR for the following individuals: i). Ms. Harshini aged 41 years weighing 120 kg ii). Mr. Rajesh aged 75 years measuring 180 cm and weighs 65 kg	K3	CO2
4. Explain the energy expenditure using direct and indirect calorimeter.	K3	CO2
5. Illustrate the accessory organs of the digestive system.	K3	CO2
6. Apply the concept of electron transport chain and predict the total number of ATP yield as per oxidation of NADH and FADH ₂ .	K3	CO2
7. Illustrate the beta oxidative pathway of fatty acids.	K3	CO2

SECTION C**Answer any TWO of the following in 500 words****(2 x 12.5 = 25)**

8. Explain the digestion of carbohydrate.	K4	CO3
9. Categorize the nutritional need changes over the life span, highlighting the changing nutritional needs across the life cycle.	K4	CO3

10.	Critically evaluate the roles of Acetyl CoA in TCA cycle and illustrate the pathway of TCA cycle.	K4	CO3
11.	Distinguish the Rho dependent and Rho independent termination and summarize the translation mechanisms of protein synthesis.	K4	CO3
SECTION D			
Answer any ONE of the following in 1000 words			(1 x 15 = 15)
12.	Assess the technical difference between BMR and RMR. Critically evaluate the distribution of Body fat in the subcutaneous layers for a healthy living.	K5	CO4
13.	Prepare a process flowchart for glycolytic pathway and highlight its regulation.	K5	CO4
SECTION E			
Answer any ONE of the following in 1000 words			(1 x 20 = 20)
14.	Design the nutritional requirement and food preferences from childhood to adolescent.	K6	CO5
15.	Write the in vivo mechanisms of enzymes in regulating the gluconeogenic pathway and compare with glycolysis. Also highlight the supramolecular architecture of enzymes.	K6	CO5

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