LOYOLA COLLEGE (AUTONOMOUS) CHENNAI – 600 034

M.Sc. DEGREE EXAMINATION – **FOOD CHEMISTRY AND FOOD PROCESSING**

FIRST SEMESTER – **NOVEMBER 2024**

PFP1MC03 – HUMAN NUTRITION AND BIOCHEMISTRY

Date: 13-11-2024 Dept. No. Max. : 100 Marks

Time: 01:00 pm-04:00 pm

	SECTION A – K1 (CO1)	
	Answer ALL the questions	**(5 x 1 = 5)**
1	**Definitions**	
a)	Homeostasis	
b)	Chylomicrons	
c)	Kwashiorkor	
d)	Complex II of electron transport chain	
e)	Na^+ -K^+ ATPase pump	
	SECTION A – K2 (CO1)	
	Answer ALL the questions	**(5 x 1 = 5)**
2	**Fill in the blanks**	
a)	Marasmus is manifested owing to ---------- and ---------- deficit.	
b)	Anaerobic energy system leads to ---------- threshold causing muscle fatigue.	
c)	---------- type of membrane transport does not require energy expenditure.	
d)	The number of ATP molecules per fatty acid being oxidized in the β oxidation of fats is--------	
e)	Removal of amino acids in amino acid metabolism is referred as ----------	
	SECTION B – K3 (CO2)	
	Answer any THREE of the following	**(3 x 10 = 30)**
3	Give an account on the digestion of carbohydrates tabulating the different kinds of transporters involved in its absorption.	
4	Write the factors affecting BMR and calculate the BMR for the following individuals: a. Parvathi aged 36 years weighing 65kg and measuring 155 cm b. Ashok aged 54 years and weighs 72 kg	
5	Discuss briefly the phosphagen system of energy release.	
6	Explain oxidative phosphorylation in detail.	
7	Illustrate glycogen metabolism and explain its hormonal regulation.	

	SECTION C – K4 (CO3)
	Answer any TWO of the following **(2 x 12.5 = 25)**
8	Highlight the importance of proteins in our body and briefly discuss the conditions that occur owing to its deficiency.
9	Enumerate the different methods of evaluating energy expenditure in our body.
10	Analyze the significance of urea cycle in amino acid metabolism.
11	Investigate the prokaryotic DNA transcription process in detail.
	SECTION D – K5 (CO4)
	Answer any ONE of the following **(1 x 15 = 15)**
12	Ms. Preethi, aged 26, works as a stone cutter in a quarry on the borders of Tamilnadu. She consumes on average an 1800 Kcal diet daily. He measures 5ft 5 inches and weighs 50 kg. Evaluate her energy balance.
13	Evaluate the efficiency and accuracy of DNA replication in prokaryotes.
	SECTION E – K6 (CO5)
	Answer any ONE of the following **(1 x 20 = 20)**
14	Evaluate and analyze the significance of the shift in the different types of energy systems in our body.
15	Design an integrated metabolic pathway that links fatty acid metabolism with cholesterol biosynthesis. Propose potential impacts on cellular function if disruptions occur in either pathway.
