

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION DECEMBER 2025
(First Semester)

Branch - FOODS AND NUTRITION

ADVANCED NUTRITION - I

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	Flux refers to a) Energy output b) Storage of nutrients c) Nutrient balance d) The movement of nutrients through metabolic pathways	K1	CO1
	2	Pancreatic enzymes are released into the a) Duodenum b) Stomach c) Colon d) Ileum	K2	CO1
2	3	What is the major storage form of carbohydrates in animals? a) Starch b) Glucose c) Cellulose d) Glycogen	K1	CO2
	4	Which hormone plays a key role in lowering blood glucose levels after meals? a) Insulin b) Epinephrine c) Glucagon d) Cortisol	K2	CO2
3	5	Which organ is primarily responsible for lipid absorption? a) Liver b) Small intestine c) Stomach d) Large intestine	K1	CO3
	6	Beta-oxidation of fatty acids occurs in the a) Nucleus b) Cytoplasm c) Endoplasmic reticulum d) Mitochondria	K2	CO3
4	7	Which of the following is an essential amino acid? a) Leucine b) Alanine c) Glycine d) Glutamine	K1	CO4
	8	Hemoglobin is an example of a protein functioning as a: a) Structural element b) Buffer c) Messenger d) Transporter	K2	CO4
5	9	Thermic effect of food refers to a) Energy required for digestion and absorption b) Energy stored as fat c) Energy used during exercise d) Energy lost as heat during sleep	K1	CO5
	10	During prolonged fasting, the brain adapts to use a) Amino acids b) Ketone bodies c) Glucose only d) Fatty acids	K2	CO5

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SECTION - B (35 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks (5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Explain the concept of nutrient balance and its importance in animal nutrition.	K2	CO1
		(OR)		
	11.b.	Why is electrolyte balance crucial for cellular function?		
2	12.a.	Differentiate between simple and complex carbohydrates with examples.	K3	CO2
		(OR)		
	12.b.	What is gluconeogenesis? Name three precursors and its primary site.		
3	13.a.	What is the role of chylomicrons in lipid transport?	K4	CO3
		(OR)		
	13.b.	Why is HDL called "good cholesterol"? Explain it.		
4	14.a.	Describe the role of skeletal muscle in amino acid metabolism during fasting.	K4	CO4
		(OR)		
	14.b.	Define protein turnover. Why is it essential for cellular homeostasis?		
5	15.a.	Define Total Energy Expenditure (TEE) and list its major components.	K5	CO5
		(OR)		
	15.b.	What is the thermic effect of food and how does it contribute to energy expenditure?		

SECTION - C (30 Marks)

Answer ANY THREE questions

ALL questions carry EQUAL Marks (3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Compare and contrast the roles of catalytic, transport, and receptor proteins in cellular nutrition.	K4	CO1
2	17	Discuss the regulation of blood glucose levels. Explain the roles of insulin, glucagon, and key organs involved.	K4	CO2
3	18	Describe digestion, absorption, and transport of dietary lipids in the human body.	K5	CO3
4	19	Explain the process of protein synthesis, including transcription and translation.	K5	CO4
5	20	Explain the hormonal and genetic factors influencing body composition and energy equilibrium.	K6	CO5

Z-Z-Z END