

MSc Sem.-2 Examination

407

Pharma Science

May-2025

Time : 2-30 Hours]

[Max. Marks : 70

Q1A	Explicate biochemical pathways of glycogenesis & glycogenolysis in stepwise manner.	7 Marks
Q1B	Examine the biochemical basis and metabolic consequences of Diabetes Mellitus and one inherited carbohydrate metabolism.	7 Marks
OR		
Q1A	Evaluate the Pentose Phosphate Pathway highlighting its significance in carbohydrate metabolism.	7 Marks
Q1B	Designate all major disorder related to carbohydrate metabolism in detail.	7 Marks
OR		
Q2A	Write a detailed note on β -oxidation of fatty acids.	7 Marks
Q2B	Explain Ketogenesis and utilization of ketone bodies.	7 Marks
OR		
Q2A	How do hormones affect lipolysis? Write a note on fate of glycerol.	7 Marks
Q2B	What is Type III Hyperlipoproteinemia? Write a detailed note on it.	7 Marks
OR		
Q3A	Explain the breakdown of hemoglobin into bile pigments. Include the steps involved in bilirubin metabolism and its clinical implications in jaundice.	7 Marks
Q3B	Discuss the catabolic fate of amino acids in the body and how nitrogen is ultimately excreted.	7 Marks
OR		
Q3A	Write a note on glutathione—its structure, functions, and its significance.	7 Marks
Q3B	Describe the urea cycle with reactions, enzymes involved, and its regulation.	7 Marks
OR		
Q4A	Explain enzyme kinetics using the Michaelis-Menten equation. How does it help in understanding enzyme activity?	7 Marks
Q4B	Differentiate between competitive & non-competitive inhibition with suitable examples.	7 Marks
OR		
Q4A	Discuss the various factors that affect enzyme activity. Explain how each factor influences the rate of enzymatic reactions.	7 Marks
Q4B	Describe the role of vitamins as co-enzymes. Give examples highlighting their biological significance.	7 Marks
Q5	Answer the following questions (Any Seven)	14 Marks
I	What is the function of coenzyme Q in ETC?	2 Marks
II	Discuss the role and specificity of glucose transporters (GLUTs) in various tissues.	2 Marks

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III	Differentiate between oxidative and substrate-level phosphorylation.	2 Marks
IV	Why can erythrocytes not utilize fatty acids for energy?	2 Marks
V	What is the inheritance pattern of Familial Hypercholesterolemia?	2 Marks
VI	State the caloric value of triacylglycerols compared to carbohydrates and proteins.	2 Marks
VII	What is the function of pyridoxal phosphate in amino acid metabolism?	2 Marks
VIII	Name two end products of purine degradation.	2 Marks
IX	Name two enzymes involved in transamination.	2 Marks
X	Explain why V_{max} remains unchanged in competitive inhibition.	2 Marks
XI	What happens when an enzyme is denatured?	2 Marks
XII	Define Michaelis-Menten constant (K_m). What does it indicate?	2 Marks

BEST OF LUCK