GALGOTIAS UNIVERSITY

ADMISSION NUMBER												

School of Biological and Life sciences

Master of Science in Biochemistry
Mid Term Examination - May 2024

Duration : 90 Minutes
Max Marks : 50

Sem II - P1PP202T - Bioenergetics and Intermediary Metabolism

General Instructions
Answer to the specific question asked
Draw neat, labelled diagrams wherever necessary
Approved data hand books are allowed subject to verification by the Invigilator

1)	Define Redox reaction? Explain it with one example	K2	(2)
2)	Define Coupled reaction? Explain it with one example	K1	(3)
3)	A biochemical reaction has a ΔG of -686/kcal/mol. Is this an endergonic or exergonic reaction? Explain it.	K2	(4)
4)	Why is ATP considered as “High energy compound”?	K2	(6)
5)	Describe the structure and function of the pyruvate dehydrogenase complex. How does it contribute to the overall process of cellular respiration?	K3	(6)
6)	Explain the malate-aspartate shuttle and its role in cellular energy transfer.	K3	(9)
7)	Explain the glycerol-phosphate shuttle and its role in transferring reducing equivalents between the cytoplasm and mitochondria during cellular respiration.	K4	(8)
8)	Explain complex-I and III of oxidative phosphorylation. Describe the mechanisms of action of any four inhibitors of oxidative phosphorylation.	K4	(12)
	OR		
	Outline the key steps and intermediates of the tricarboxylic acid (TCA) cycle. How does this cycle contribute to the overall catabolism of carbohydrates and other fuel molecules?	K4	(12)