

Roll No:

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B.Sc.-M.Sc. Integrated, Semester-III Examination-2023
Paper Title: Metabolism of Carbohydrates and Lipids. Paper Code: BBC CC-07

Time: 3 hours

Max Marks: 75

Note: This paper has 3 sections A, B, and C, Attempt all the three sections

Section A: Answer all the questions; Section B: Answer any 2 out of 4; Section C: Answer all the questions, each question has an internal choice

Abbreviations Used

CLO- Course Learning Outcome, PLO- Program Learning Outcome, BTL- Bloom Taxonomy Level: BT level 1-Remember; BT level 2-Understand; BT level 3-Apply; BT level 4-Analyse; BT level 5-Evaluate, BT level 6-Create

Section A (Attempt all questions)

(10X1=10 Marks)

Q. No	Questions	BTL	CLO	PLO
a	Substrate level phosphorylation does NOT involve..... (Proton gradient/High energy compounds)	4	1	2
b	Fructose 2,6-bisphosphate Glycolysis (Stimulate/Inhibits)	3	2	3
c	Redox imbalance during glycolysis occurs due to..... (Lactate formation/NAD ⁺ short supply)	4	2	3
d	The product of the hydration reaction of the TCA cycle is.....	3	2	3
e	Hormone-promoting Glycogenesis is.....	2	2	3
f	The major site for fatty acid oxidation in plant cells is	1	1	3
g	Individuals with Zellweger syndrome are unable to make	2	4	3
h	The Metabolite Malonyl CoA is associated with	3	2	2
i	 is a nucleotide associated with phospholipid biosynthesis	1	2	2
j	The Liver remains in gluconeogenic mode in Refed state (True/False)	4	3	3

SECTION B: Long type Questions (Attempt any two out of four)**(2X15=30 Marks)**

Q. No	Questions (Any Two)	BTL	CLO	PLO
1	Discuss in detail the glyoxylate pathway and its coordinated regulation with the citric acid cycle.	2	2	2
2	Explain Glycogenesis and Glycogenolysis reactions in detail	3	2	3
3	What are chylomicrons, discuss their role in the exogenous transport of lipids	4	3	2
4	Outline the cholesterol biosynthesis pathway and discuss its regulation	2	3	3

SECTION C: Short-type Questions. (Attempt all questions, each question has an internal choice)**(7X5=35 Marks)**

Q. No	Questions	BTL	CLO	PLO
1	Explain briefly the following processes A. Ethanol fermentation B. Galactosemia OR Summarize the possible fates of pyruvate.	3	2	3
2	Describe the reciprocal regulation of glycolysis OR In gluconeogenesis, list out the reactions involved with (a) an enzyme located in the mitochondrial matrix (b) an enzyme located in the smooth endoplasmic reticulum	3	2	3
3	The TCA cycle is important for biosynthetic reactions. Explain. OR Write the difference between catabolism and anabolism in terms of chemical transformation and chemical energy change. What are the usual end products of these reactions?	4	2	3
4	What is a Carnitine shuttle discuss its role OR Explain peroxisomal beta-oxidation	5	2	3
5	Explain the regulation of fatty acid biosynthesis OR Discuss the mechanism of Acetyl CoA transport from mitochondria to the cytoplasm for fatty acid biosynthesis	1	2	3
6	What is Glyceroneogenesis discuss its role OR Discuss Caloric Homeostasis Discuss the metabolism in a well-fed state	2	2	3
7	Explain Lipid Storage Diseases OR Discuss Caloric Homeostasis	4	4	3
