Enrollment No._____

NAVRACHANA UNIVERSITY
a UGC recognized University

School: School of Science
Program/s: BMS
Year: 2nd **Semester:** 3rd
Examination: End Semester Examination
Examination year: December - 2021

Course Code: BM304 **Course Name:** Biochemistry 2: Metabolism
Date: 02/12/2021
Time: 8.30 am to 10.30 am

Total Marks: 40
Total Pages:

Instructions:

- *Write each answer on a new page.*
- *Use of a calculator is permitted/not permitted.*
- ** COs=Course Outcome mapping. # BTL=Bloom's Taxonomy Level mapping*

Q. No.	Details	Marks	COs*	BTL#
Q.1	**Do as directed.** 1. The NADH formed during the TCA cycle enters the electron transport system at which site? A. NADH dehydrogenase B. cytochrome C. coenzyme Q D. ATP synthase 2. When branched chain amino acids are deaminated in muscle, the ammonia produced is mostly: A. Converted into arginine and released from the muscle B. Converted into alanine and glutamine and released from the muscle C. Converted into urea and released from the muscle D. Used to synthesise purines and pyrimidines in the muscle 3. In the pentose phosphate pathway, the major products are _____ A. Ribulose and NADPH B. Ribulose and NADH C. Ribulose and NAD^+ D. Ribulose and ATP 4. _____ is the final electron acceptor of aerobic respiration. 5. Ammonia Is Incorporated into Biomolecules through _____ and _____. 6. _____ Enzymes are responsible for the breakdown of amino acid.	**16**	CO1, CO2, CO3, CO4. CO5	BT1, BT2, BT3, BT4

	7. Oxidation of palmitic acid (C16) involves eight rounds of b-oxidation and yields seven molecules of acetyl-CoA – True/False 8. Fructose-1,6-Bisphosphate negatively regulates pyruvate kinase – True/False 9. **Match the following-** a. insulin — 1. Oxidative irreversible b. high concentration of NADPH — 2. Stimulates HMP shunt c. 1st phase — 3. Non-oxidative reversible d. 2nd phase — 4. Inhibits HMP shunt 10. Discuss the fate of pyruvate in presence and absence of oxygen molecule 11. Why is the formation of ketone bodies increased during starvation? 12. Why does muscle glycogen not contribute its glucose to blood?			
Q.4	**Answer *any four* from the following in brief. (Use chart or figure wherever required)** 1. Briefly discuss the hormonal regulation of glycolysis. 2. Define the Chemiosmosis theory. Explain Working mechanism of ATP synthase. 3. Define secondary metabolite and its role with examples. 4. Briefly discuss the role of regulation of glyoxylate pathway. 5. State the name and function complex 1, complex 2 and electron transporters of oxidative phosphorylation pathway.	**12**	CO1, CO2, CO3, CO4. CO5	BT1, BT2, BT3, BT4
Q.5	**Answer *any three* from the following in detail. (Use chart or figure wherever required)** 1. State the mechanism by which liver regulate the glucose level in blood in detail. 2. Explain urea cycle in detail and its significance. 3. Predict the major consequences of deficiencies of the following; (i) Hexokinase in adipose tissue (ii) Glucose-6-phosphatase in liver (iii) Defective glycogenin. 4. Discuss the how the glycogen metabolism is regulated in fed and starved condition.	**12**	CO1, CO2, CO3, CO4. CO5	BT1, BT2, BT3, BT4

**********End of Question Paper**********