



**NAVACHANA
UNIVERSITY**
a UGC recognized University

School: School of Science
 Program/s: B.Sc.
 Year: 3rd Semester: 5th
 Examination: End Semester Examination
 Examination year: December - 2022

Course Code: MI202 Course Name: Microbial Physiology & Metabolism
 Date: 02/12/2022
 Time: 02:30 am to 04:30 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	<p>Choose the correct answer.</p> <p>1. Which of the following features differs archaebacteria from eubacteria?</p> <p>a. Cell shape b. Mode of nutrition c. Mode of reproduction d. Cell membrane structure</p> <p>2. A batch process is</p> <p>a. Closed system b. Open system c. Biphasic system d. Intermittently fed system</p> <p>3. Some hyperthermophilic acidophiles belong to the two groups called _____.</p> <p>a. Cyanobacteria and Diatoms b. Liverworts and Yeasts c. Protists and Mosses d. Eubacteria and Archaea</p> <p>4. E. coli bacterium is</p> <p>a. Gram Positive and anaerobic</p>	4	CO1, CO2, CO3, CO4, CO5	BT1, BT2, BT3, BT4

	b. Gram negative and aerobic c. Gram positive and aerobic d. Gram negative anaerobic			
Q.2	Fill in the blanks. 1. Carbon chain is shorten by removal of a carbon atom (-COO) as CO ₂ . This type of reaction / process is known as _____. 2. _____ is example of amphibolic metabolism. 3. Final electron acceptor in anaerobic respiration is _____. 4. Breed method aids in the counting of _____ types of cells. 5. The end product of the oxidation of the monomer of carbohydrate is _____. 6. Anaerobic respiration by yeast produces _____.	6	C01, C02, C03, C04. C05	BT1, BT2, BT3, BT4
Q.3	Do as directed. 1. State the principle of electronic coulter counter. 2. Define coliforms, its characteristics and its examples. 3. State the metabolic fate of pyruvate in bacterial metabolism.	6	C01, C02, C03, C04. C05	BT1, BT2, BT3, BT4
Q.4	Answer <u>any four</u> from the following in brief. 1. Describe the MPN test in detail. 2. Discuss the overview of microbial metabolism. 3. Explain the characteristic features and adaptation of halophiles. 4. Write major adaptations of psychrophiles. 5. Write a note on alcoholic fermentation.	12	C01, C02, C03, C04. C05	BT1, BT2, BT3, BT4
Q.5	Answer <u>any three</u> from the following in detail. 1. Explain pentose phosphate pathway in detail along with its significance. 2. Discuss the factors affecting microbial growth. 3. Discuss the various aspects of photosynthesis in green bacteria, purple bacteria and cyanobacteria. 4. Explain KREB cycle by graphical/chart representation.	12	C01, C02, C03, C04. C05	BT1, BT2, BT3, BT4

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