Enrollment No._____

NAVRACHANA UNIVERSITY
a UGC recognized University

School: School of Science
Program/s: M.Sc.
Year: 1st **Semester:** 1st
Examination: End Semester Examination
Examination year: December - 2022

Course Code: LS165 **Course Name:** Cell Biology and Biochemistry
Date: 12/12/2022 **Total Marks:** 40
Time: 08:30 pm to 10:30 pm **Total Pages:** 2

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	**Choose the correct answer.** 1. Which of the following is the best suitable example for the process of transamination-deamination? a. Glycerol-3-P shuttle b. Malate-Aspartate Shunt c. Glycerol-3-P to DHAP shuttle d. None of the above 2. Gap junction is important for: a. Cell-to-cell communication b. Embryonic development c. Both (a) and (b) d. None of the above 3. Which of the following cannot be considered as a cytochrome mediated blue light response of plants? a. Phototropism b. Phototaxis b. Stomatal opening c Parthenocarpy 4. A type of signaling in which a cell targets nearby cells is known as: a. Paracrine signaling b. Autocrine signaling c. Endocrine signaling d. None of the above	**4**	CO1, CO2, CO3, CO4. CO5	BT1, BT2, BT3, BT4
Q.2	**Fill in the blanks.** 1. _____ is the enzyme responsible for the transition stage during metabolism. 2. The end product of the oxidation of the monomer of carbohydrate is _____. 3. The transporter that simultaneously transfer two solute molecules in the same direction, are called _____.	**6**	CO1, CO2, CO3, CO4. CO5	BT1, BT2, BT3, BT4

	4. _____ is a mechanism by which bacteria regulate gene expression in accordance with population density through the use of signal molecules. 5. The_____ are calcium dependent adhesion molecules. 6. The most abundant extracellular matrix in our body is _____.			
Q.3	**Do as directed.** 1. Define chemiosmotic theory. Discuss the fate of the process if catalytic beta subunit is mutated in the system. 2. If palmitic acid undergoes beta oxidation, after the completion of the process how many ATP(s) are generated? (Give the detailed view on process and the ATP count). 3. Name the main types of cell surface receptors and state one importance of each type of receptor. 4. Define enzyme kinetics. What are the different types of enzyme inhibition? 5. Define apoptosis and state the difference between apoptosis and necrosis.	**10**	CO1, CO2, CO3, CO4. CO5	BT1, BT2, BT3, BT4
Q.4	**Answer *any five* from the following in detail.** 1. Discuss the overview and integration of metabolism (metabolic map). 2. Discuss the glyoxylate pathway in detail, its significance and its correlation with TCA cycle. 3. Discuss the regulation of hematopoiesis. 4. Discuss in detail the currently accepted model of membrane structure. 5. What is meant by protein trafficking? Explain the mechanism of protein trafficking in detail. 6. Explain in detail the structure and working of Na+/K+ ATPases. 7. What is cell sorting? Explain any two methods of cell sorting.	**20**	CO1, CO2, CO3, CO4. CO5	BT1, BT2, BT3, BT4

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