

Enrollment No. _____



**NAVRACHANA
UNIVERSITY**
a UGC recognized University

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

Course Code: BIO102
Date: 6/12/2022
Time: 8:30 am to 10:30 am
Course Name: Plant, Animal and Microbial Biotechnology
Total Marks: 40
Total Pages: 2

Instructions:

- Draw labelled diagrams where ever necessary
- * COs=Course Outcome mapping. # BTL=Bloom's Taxonomy Level mapping

Q. No.	Details	Marks	COs*	BTL#
Q.1	Objective Type Questions (11 x 1 mark = 11 marks)			
	1. First transgenic primate is _____. a. UTDi b. GENi c. CLONi d. ANDi 2. Neural stem cells in a 15-year-old boy are categorized as a. Fetal stem cells c. Placental stem cells b. Adult stem cells d. Pleuripotent stem cells 3. Which of these are not inhibited by chemical fertilizers? a. Blue Green Algae c. VAMs b. Azotobacter d. Rhizobium 4. Which of the excipients are more preferred for influenza and yellow fever vaccines and why? Justify your choice a. Formaldehyde c. Monosodium glutamate b. Thiomersal d. Egg proteins 5. Which of these falls in the category of "fresh cheese"? a. Paneer b. Brie c. Cheddar d. Mozzarella 6. _____ nitrogen fixing bacteria lives in high sugar rich soils. 7. Give two examples of eye cheese: _____ and _____. 8. Human umbilical cord has two types of stem cells ____ & ____. 9. In cheese production, salt water is known as _____. 10. Inactivated vaccines more safe than live vaccines. True or False. Justify. 11. <i>Aspergillus niger</i> is the organism of choice for citric acid production. Once citric acid is synthesized, it immediately leaves the cell. Why?	11	CO1, CO2, CO3	BT1, BT3, BT4

Q.2	Answer in brief (5 x 2 marks = 10 marks) 1. Define vaccine adjuvant with some examples. 2. Citric acid can be produced by solid state, surface and submerged fermentation methods. Elucidate any one method briefly. 3. Classify stem cells based on their source. 4. Amylase makes up over 25% of the world enzyme market. What are its uses in the commercial market? 5. With respect to cheese production, what is cheddaring and ripening?	10	CO1, CO2, CO3	BT1, BT3, BT4										
Q.3	Answer in detail (Any Three) (3 x 3 marks = 9 marks) 1. Explain the stages of vaccine development in brief. 2. Enlist and explain the types of fermentation based on state of fermentation. 3. Describe the following: a. Differentiation b. Trans differentiation c. Reprogramming 4. How are the terms iPSCs and Yamaka factors co-related with each other?	9	CO1, CO2, CO3	BT1, BT3, BT4										
Q.4	Answer in detail (Any Two) (2 x 5 marks = 10 marks) 1. Describe the embryonic stem cell mediated gene transfer process in detail with suitable diagram. 2. How are algae used as bio fertilizers? Give their advantages and disadvantages. 3. Match the following (5M) <table border="1" style="margin-left: 20px;"> <tr> <td>a. Red Biotech</td> <td>i. Industrial</td> </tr> <tr> <td>b. White Biotech</td> <td>ii. Environment</td> </tr> <tr> <td>c. Yellow Biotech</td> <td>iii. Land</td> </tr> <tr> <td>d. Brown Biotech</td> <td>iv. Medicine and Pharma</td> </tr> <tr> <td>e. Grey Biotech</td> <td>v. Insects</td> </tr> </table>	a. Red Biotech	i. Industrial	b. White Biotech	ii. Environment	c. Yellow Biotech	iii. Land	d. Brown Biotech	iv. Medicine and Pharma	e. Grey Biotech	v. Insects	10	CO1, CO2, CO3	BT1, BT3, BT4
a. Red Biotech	i. Industrial													
b. White Biotech	ii. Environment													
c. Yellow Biotech	iii. Land													
d. Brown Biotech	iv. Medicine and Pharma													
e. Grey Biotech	v. Insects													

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