

Enrollment No. _____



**NAVVRACHANA
UNIVERSITY**
a UGC recognized University

School: School of Science
Program/s: M.Sc. Microbiology
Year: 2nd **Semester:** III
Examination: End Semester Examination
Examination year: December - 2022

Course Code: CTC301 **Course Name:** Cell and Tissue Culture Technology
Date: 8/12/2022 **Total Marks:** 40
Time: 8:30 am to 10:30 am **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	<p>Objective Type Questions (11 x 1 mark = 11 marks)</p> <ol style="list-style-type: none"> 1. Neural stem cells present in a 15-year-old boy are categorized as <ol style="list-style-type: none"> a. Fetal stem cells b. Adult stem cells c. Placental stem cells d. Pleuripotent stem cells 2. Which of these are not inhibited by chemical fertilizers? <ol style="list-style-type: none"> a. Blue Green Algae b. Azotobacter c. VAMs d. Rhizobium 3. Which of the excipients are more preferred for influenza and yellow fever vaccines and why? Justify your choice <ol style="list-style-type: none"> a. Formaldehyde b. Thiomersal c. Monosodium glutamate d. Egg proteins 4. Phenoxyethanol is a type of <ol style="list-style-type: none"> a. Excipient b. Preservative c. Antibiotic d. Adjuvant 5. Aerating is done at which step of cheese production <ol style="list-style-type: none"> a. Cheddaring b. Salting c. Coagulation d. Ripening 6. In cheese production, salt water is known as _____. 7. Yellow biotechnology caters to the understanding of _____ and _____. 8. _____ was the first human protein manufactured in a bacteria and was developed by _____ company. 9. <i>Aspergillus niger</i> is the organism of choice for citric acid production. Once citric acid is synthesized, it immediately leaves the cell. Why? 10. How is eye forming cheese produced? 	10	CO1, CO2, CO3	BT1, BT3, BT4

Q.2	Answer in brief (Any Five) (6 x 2 marks = 12 marks) (within 100 words) <ol style="list-style-type: none"> 1. Define vaccine adjuvant with some examples. 2. Amylase makes up over 25% of the world enzyme market. What are its uses in the commercial market? 3. With respect to cheese production, what is cheddaring and ripening? 4. Why are algae considered to be the 3rd generation fuels? 5. Which are the methods and techniques in biological control? 6. What type of vaccines require a booster dose and why? 	10	CO1, CO2, CO3	BT1, BT3, BT4
Q.3	Answer in detail (Any Five) (5 x 4 marks = 20 marks) (within 200 words) <ol style="list-style-type: none"> 1. Explain the stages of vaccine development in brief. 2. Describe the following: <ol style="list-style-type: none"> a. Differentiation b. Trans differentiation c. Reprogramming 3. Explain the working of a biogas plant along with the types and pros and cons of biofuels. 4. With the help of a diagram, describe the process of cheese production. 5. Citric acid can be produced by solid state, surface and submerged fermentation methods. Elucidate briefly. 6. Classify and elucidate the types of stem cells based on their sources. 	20	CO1, CO2, CO3	BT1, BT3, BT4

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