



## BRAINWARE UNIVERSITY

Term End Examination 2024-2025

Programme – M.Sc.(BT)-2024

Course Name – Microbial Biology

Course Code - MBT10103

( Semester I )

Full Marks : 60

Time : 2:30 Hours

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

### Group-A

(Multiple Choice Type Question)

1 x 15=15

1. Choose the correct alternative from the following :

- (i) State the correct order of taxonomic groups from higher to lower rank
- |  |  |
|--|--|
| a) Kingdom—Order—Class—Family                        | b) Order—Class—Division—Family—Genus—Species         |
| c) Kingdom—Order—Division—Family—Class—Genus—Species | d) Kingdom—Division—Class—Order—Family—Genus—Species |
- (ii) Tell by which method % Similarity (%S) of each strain to every other strain is calculated
- |                        |                             |
|------------------------|-----------------------------|
| a) Intuitive Method    | b) Numerical Taxonomy       |
| c) Genetic Relatedness | d) DNA homology experiments |
- (iii) Show the property where two organisms that are very closely related to each other have\_\_
- |  |  |
|--|--|
| a) similar mol% G+C values                               | b) different mol% G+C values                                   |
| c) similar mol% G+C values and heteroduplexes are formed | d) different mol% G+C values and heteroduplexes are not formed |
- (iv) Identify the integral parts of ribosomes
- |                          |                       |
|--------------------------|-----------------------|
| a) lipid+DNA             | b) carbohydrate+Lipid |
| c) glycerol+carbohydrate | d) RNA+Protein        |
- (v) Select the portion of the growth curve where rapid growth of bacteria is observed
- \_\_\_\_\_
- |                     |                      |
|---------------------|----------------------|
| a) Lag phase        | b) Logarithmic phase |
| c) Stationary phase | d) Decline phase     |
- (vi) Choose what Lag phase is known as \_\_\_\_\_
- |                                 |                           |
|---------------------------------|---------------------------|
| a) period of initial adjustment | b) transitional period    |
| c) generation time              | d) period of rapid growth |
- (vii) Select the generation time for E.coli \_\_\_\_\_
- |               |               |
|---------------|---------------|
| a) 20 minutes | b) 35 minutes |
|---------------|---------------|

- c) 2 minutes  
d) 13 minutes
- (viii) Corelate the growth rate during exponential phase \_\_\_\_\_  
a) same as generation time  
b) reciprocal of generation time  
c) time required for population to double  
d) rate of doubling population
- (ix) Select the phase during growth where secondary metabolites are produced  
a) Lag phase  
b) Log/Exponential phase  
c) Stationary phase  
d) Death phase
- (x) Choose the study of relationships among different organisms \_\_\_\_\_  
a) Taxonomy  
b) Biology  
c) Systematics  
d) Ornithology
- (xi) Write the correct one for Orders that grouped to form a \_\_\_\_\_  
a) Family  
b) Genus  
c) Class  
d) Phylum
- (xii) Relate the Oxidation ponds for secondary waste water tretment that is designed to promote growth of  
a) Algae  
b) fungi  
c) plants  
d) bacteria
- (xiii) Connect the yoghurt production process with  
a) Lactobacillus bulgaricus  
b) Streptococcus thermophilus  
c) S. cremoris  
d) Mixture culture of (1) and (2)
- (xiv) Relate Botulism with  
a) Clostridium botulinum  
b) All clostridium  
c) Clostridium tetani  
d) Clostridium subtilis
- (xv) Write the process where phosphatase enzyme in milk is destroyed  
a) Sterilization  
b) Canning  
c) Dehydration  
d) Pasteurization

**Group-B**  
(Short Answer Type Questions)

3 x 5=15

2. Describe the properties on the basis of which Organisms are placed into five kingdoms. (3)
3. Indicate that endospores exhibit resistance to heat and lysozyme. (3)
4. Explain the arrangement of peptidoglycan chains in B. subtilis. (3)
5. Describe the process of bacterial transformation. (3)
6. Lysozyme cannot act on the cell wall of archaebacteria' defend why? (3)

OR

Write a short note on negative staining. (3)

**Group-C**  
(Long Answer Type Questions)

5 x 6=30

7. Classify the cheeses on the basis of curdling. (5)
8. Define sterilization. List the various methods of sterilization with suitable examples (5)
9. Compare between archaca and bacteria on the basis of their cell wall and cell membrane chemistry. (5)
10. Explain what is meant by microbial food spoilage. (5)
11. Suggest five examples of food borne pathogens other than bacteria with causative agents & disease they cause briefly. (5)
12. Classify the major types of cheese and microorganisms Used in their production (5)

OR

Decide what are some of the major genera involved in food-borne intoxication. (5)