



## BRAINWARE UNIVERSITY

Term End Examination 2024-2025

Programme – B.Sc.(Ag)-Hons-2022/B.Sc.(Ag)-Hons-2023/B.Sc.(Ag)-Hons-2024

Course Name – Agricultural Microbiology

Course Code - CC-BAG275(T)

( Semester II )

Full Marks : 50

Time : 2:0 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 20=20

1. Choose the correct alternative from the following :

- (i) Which scientist introduced the pure culture method of isolation?
  - a) O.Brefeld
  - b) Robert Koch
  - c) Antony von Leeuwenhoek
  - d) F. Spallanzani
- (ii) What is the term used for sterilization by discontinuous heating ?
  - a) Inoculation
  - b) Tyndallization
  - c) Ionization
  - d) Heat sterilization
- (iii) Choose the right type of ribosome that is present in prokaryotic organism
  - a) 70S
  - b) 80S
  - c) 50S
  - d) 30S
- (iv) Choose the correct option for the primary stain that is used in gram staining technique
  - a) Safranin
  - b) Crystal violet
  - c) Fuschin
  - d) Iodine
- (v) What is the name of the layer present in gram+ve bacterial cell wall?
  - a) Murein
  - b) Peptidoglycan
  - c) Pseudomurein
  - d) Lipoprotein
- (vi) What is the size of prokaryotic cell?
  - a) 10-12 micrometer
  - b) 50-55 micrometer
  - c) 1-10 micrometer
  - d) 2-6 micrometer
- (vii) Select the correct option for the generation time of E. coli
  - a) 13hrs
  - b) 24hrs
  - c) 20hrs
  - d) 32hrs

- (viii) What are the different growth phases of bacteria?
- |                      |                |
|----------------------|----------------|
| a) Lag and Log phase | b) Death phase |
| c) Stationary phase  | d) all of them |
- (ix) Select the correct option: The organism that depends on organic compounds for the supply of carbon and nitrogen
- |                   |                    |
|-------------------|--------------------|
| a) Chemoautotroph | b) Heterotroph     |
| c) Autotroph      | d) Chemolithotroph |
- (x) Choose the correct answer: Thiobacilli can be classified within the group of
- |                          |                               |
|--------------------------|-------------------------------|
| a) Denitrifying bacteria | b) Sulphur oxidizing bacteria |
| c) PSB                   | d) None of these              |
- (xi) Choose the correct option: Fixation of atmospheric nitrogen occurs by natural means of
- |                       |                |
|-----------------------|----------------|
| a) Biological process | b) Lightening  |
| c) UV ray             | d) all of them |
- (xii) Select the associative symbiotic N<sub>2</sub> fixer in non-legumes
- |                |                 |
|----------------|-----------------|
| a) Rhizobium   | b) Azospirillum |
| c) Azotobacter | d) Derxia       |
- (xiii) Indicate the process that converts NH<sub>4</sub><sup>+</sup> to NO<sub>3</sub><sup>-</sup> is called
- |                      |                   |
|----------------------|-------------------|
| a) Nitrogen fixation | b) Ammonification |
| c) Denitrification   | d) Nitrification  |
- (xiv) Choose the correct answer: Mineralization refers to as
- |  |  |
|--|--|
| a) Conversion of inorganic complex to simple inorganic compound            | b) Conversion of complex organic compound into simple inorganic compound |
| c) Conversion of complex organic compound into simple organic constituents | d) Conversion of inorganic complex materials into elements               |
- (xv) Choose the right option: The true nucleolus is present in
- |                  |                    |
|------------------|--------------------|
| a) Prokaryote    | b) Eukaryote       |
| c) Cyanobacteria | d) Archaeobacteria |
- (xvi) Identify the name of the method by which the gene is transferred through pili in bacteria.
- |                   |                 |
|-------------------|-----------------|
| a) Transduction   | b) Conjugation  |
| c) Transformation | d) Transfection |
- (xvii) Show the right answer: Aflatoxin is not produced by
- |                         |                          |
|-------------------------|--------------------------|
| a) Aspergillus niger    | b) Aspergillus flavus    |
| c) Aspergillus nidulans | d) Aspergillus fumigatus |
- (xviii) Which species of Clostridium most likely to cause spoilage of canned food?
- |                           |                             |
|---------------------------|-----------------------------|
| a) Clostridium sporogenes | b) Clostridium pasteurianum |
| c) Clostridium botulinum  | d) Clostridium tetani       |
- (xix) Choose the correct answer: Nigrosin is used in
- |                       |                      |
|-----------------------|----------------------|
| a) Acid fast staining | b) Flagella staining |
| c) Gram staining      | d) Negative staining |
- (xx) Which of the following refers to Lichen as the symbiotic association ?
- |                     |                     |
|---------------------|---------------------|
| a) Fungi & Bacteria | b) Fungi & Algae    |
| c) Protozoa & Virus | d) Algae & Bacteria |

### Group-B

(Short Answer Type Questions)

2.5 x  
10=25

2. Identify the important functions of bacterial capsule and ribosome. (2.5)
3. Outline and label the bacterial growth curve and growth dynamics. (2.5)
4. Interpret Nitrogen metabolism in the ecosystem with examples. (2.5)
5. Show the steps of transformation in sulphur cycle. (2.5)
6. Prepare a note on bacterial Plasmid. (2.5)
7. Explain symbiotic nitrogen fixing bacteria with example. (2.5)
8. Prepare a note on chemoragantotrophs. (2.5)
9. Prepare a note on Parasitism in plants with typical examples. (2.5)
10. Prepare a brief note on Bacterial cell wall and draw the figure. (2.5)
11. Explain about the structure of the bacterial flagella with the suitable illustrations. (2.5)

OR

Explain the term 'Rhizosphere and Rhizoplane'. (2.5)

**Group-C**

(Long Answer Type Questions)

5 x 1=5

12. Explain the role of biofertilizer in agriculture. (5)

OR

Summarize various types of biopesticides with examples. Can it replace chemical pesticides? (5)

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