

M.Sc. BOTANY  
THIRD SEMESTER [SPECIAL REPEAT]  
MICROBIOLOGY  
MSB-303 E

**SET  
A**

[USE OMR SHEET FOR OBJECTIVE PART]

Duration: 1hr. 30 mins.

Full Marks: 35

Time: 15 mins.

(Objective)

Marks: 10

Choose the correct answer from the following:

1×10=10

- Who is the Father of Microbiology?
  - Robert Koch
  - Louis Pasture
  - Antonie van Leeuwenhoek
  - Hans Christian Gram
- Which of the given group represent a link between prokaryotes and eukaryotes?
  - Unicellular eukaryotes
  - Archaea
  - Cell membrane bound prokaryotes
  - Protozoa
- Halophiles are microorganisms found in:
  - Extreme saline environment
  - Hot springs
  - Dry arid deserts
  - None of the above
- The presence of axopodial projection giving rise to a sun-like appearance is a characteristic feature of:
  - Heliozoans
  - Ciliates
  - Protozoans
  - Flagellates
- In present day context, microbial taxonomic studies rely on:
  - Classical approaches
  - Molecular approaches
  - Polyphasic approach
  - Phylogenetic approach
- A common example of aquatic nitrogen fixation is:
  - Rhizobium-Leguminous symbiosis
  - Alnus-Frankia symbiosis
  - Azolla-Anabaena symbiosis
  - Arbuscular-Mycorrhizal symbiosis
- Plant to plant communication within the root system in the soil is achieved through:
  - Rhizodeposites
  - Rhizospheric microorganisms
  - Volatile Organic Compounds (VOCs)
  - Pathogenic microorganisms
- The situation in which one fungus parasitize on another fungus is called:
  - Mycophagy
  - Mycoparasitism
  - a and b
  - Parasitism
- Harber-Bosch process of nitrogen fixation is an example of:
  - Atmospheric nitrogen fixation
  - Industrial nitrogen fixation
  - Biological nitrogen fixation
  - Carbon-Nitrogen fixation

10. Which of the following act as a sink of carbon dioxide?
- a. Animal respiration
  - b. Terrestrial plants
  - c. Photosynthetic aquatic algae
  - d. b and c

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( Descriptive )

Time : 1 hr. 15 mins.

Marks : 25

[ Answer question no.1 & any two (2) from the rest ]

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| 1. Define rhizosphere. Write in brief the effect of rhizospheric microorganisms on nutrient acquisition in plants. | 1+4=5  |
| 2. What is carbon? With appropriate chemical representations, discuss on the various types of carbon cycle.        | 2+8=10 |
| 3. Write notes on:<br>a) Microbial taxonomy<br>b) Oxygenic and anoxygenic microorganisms                           | 5×2=10 |
| 4. Write notes on:<br>a) Root nodule formation<br>b) Air microbiology  | 5×2=10 |
| 5. With appropriate diagrams, discuss on the diversity and classification of bacteria.                             | 10     |

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