

**M.Sc. BOTANY
THIRD SEMESTER
MICROBIOLOGY
MSB-303 E**

[USE OMR SHEET FOR OBJECTIVE PART]

Duration: 1hr. 30 mins.

Time: 15 mins.

(Objective)

2023/12

**SET
A**

Full Marks: 35

Marks: 10

Choose the correct answer from the following:

1×10=10

1. Who is the Father of Microbiology?
a. Robert Koch
b. Louis Pasture
c. Antonie van Leeuwenhoek
d. Hans Christian Gram
2. Which of the given group represent a link between prokaryotes and eukaryotes?
a. Unicellular eukaryotes
b. Archaea
c. Cell membrane bound prokaryotes
d. Protozoa
3. Halophiles are microorganisms found in:
a. Extreme saline environment
b. Hot springs
c. Dry arid deserts
d. None of the above
4. The presence of axopodial projection giving rise to a sun-like appearance is a characteristic feature of:
a. Heliozoans
b. Ciliates
c. Protozoans
d. Flagellates
5. In present day context, microbial taxonomic studies rely on:
a. Classical approaches
b. Molecular approaches
c. Polyphasic approach
d. Phylogenetic approach
6. A common example of aquatic nitrogen fixation is:
a. Rhizobium-Leguminous symbiosis
b. Alnus-Frankia symbiosis
c. Azolla-Anabaena symbiosis
d. Arbuscular-Mycorrhizal symbiosis
7. Plant to plant communication within the root system in the soil is achieved through:
a. Rhizodeposits
b. Rhizospheric microorganisms
c. Volatile Organic Compounds (VOCs)
d. Pathogenic microorganisms
8. The situation in which one fungus parasitize on another fungus is called:
a. Mycophagy
b. Mycoparasitism
c. a and b
d. Parasitism
9. Harber-Bosch process of nitrogen fixation is an example of:
a. Atmospheric nitrogen fixation
b. Industrial nitrogen fixation
c. Biological nitrogen fixation
d. 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. Write notes on:
a) Microbial taxonomy
b) Oxygenic and anoxygenic microorganisms | 5×2=10 |
| 3. With appropriate diagrams, discuss on the diversity and classification of bacteria. | 10 |
| 4. Write notes on:
a) Root nodule formation
b) Air microbiology | 5×2=10 |
| 5. What is carbon? With appropriate chemical representations, discuss on the various types of carbon cycle. | 2+8=10 |

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