REV-01
MSB/08/10

2025/11

SET A

M.Sc. BOTANY
THIRD SEMESTER
MICROBIOLOGY
MSB-303(E)

[USE OMR FOR OBJECTIVE PART]

Duration: 1.30 hrs. **Full Marks: 35**

Objective

Time: 15 min. **Marks: 10**

Choose the correct answer from the following: *1X10=10*

1. Which of the following is not a characteristic of Protozoa
   a. One-celled animals
   b. They may or may not have flagella
   c. Nitrogen fixing prokaryotes
   d. They are eukaryotic microbes

2. Siderophores secreted by bacteria are also known as
   a. Iron carriers
   b. Iron diffusers
   c. Protein carriers
   d. Protein diffusers

3. Nitrogen fixation occurs in the root nodules because
   a. Nitrogenase is sensitive to oxygen
   b. Nitrogenase is sensitive to light
   c. Nitrogenase is sensitive to CO_2
   d. All of the above

4. Photosynthetic bacteria which obtain hydrogen from organic source are called
   a. Purple non-sulphur bacteria
   b. Photoorganotrophs
   c. Photoheterotrophs
   d. All of the above

5. Axopodia are characteristic structural projections found in
   a. Flagellates
   b. Amoeba
   c. Ciliates
   d. Heliozoans

6. The Spermosphere is
   a. A short-lived, rapidly changing zone of soil associated with a germinating seed
   b. A long-lived, stable zone of soil associated with a germinating seed
   c. A short-lived, rapidly changing zone of soil associated with a developing root
   d. A long-lived, stable zone of soil associated with a developing root

7. Arachae that are found in extreme saline conditions are known as
   a. Thermoacidophiles
   b. Halophiles
   c. Methanophiles
   d. Hyperthermophyles

8. The association in which a fungus parasitize on another fungus is called
   a. Mycophagy
   b. Mycoparasitism

c. Nematophagy
d. Antibiosis

9. Bacteria that cannot survive or perform their cellular functions in the presence of oxygen are called
   a. Facultative aerobes
   b. Facultative anaerobes
   c. Obligate anaerobes
   d. Obligate aerobes

10. Biological nitrogen cycle is a
   a. Complex but low energy requiring cycle
   b. Simple but high energy requiring cycle
   c. Simple and low energy requiring cycle
   d. Complex and high energy requiring cycle

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Descriptive

Time : 1 hrs. 15 min. **Marks : 25**

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

1. With a simple diagram, write short note on the asexual and sexual life cycle of yeast. **5**

2. Write short notes on **any two**: **5+5=10**
   a. Air microbiology
   b. Carbon cycle
   c. Industrial nitrogen fixation

3. With appropriate diagrams, discuss on the broad classification of bacteria **10**

4. What is rhizosphere? Write in brief the role of rhizospheric microorganisms on plants in nutrient uptake and under biotic stress **2+4+4=10**

5. What are archaea? Discuss about the various classification of archaea on the basis of their occurrence and phylogenetic studies. **2+8=10**

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