

**M.Sc. BIOTECHNOLOGY
FIRST SEMESTER
MICROBIOLOGY
MBT-101**

**SET
A**

[USE OMR SHEET FOR OBJECTIVE PART]

Duration: 3 hrs.

Full Marks: 70

Time: 30 mins.

Marks: 20

(Objective)

1 × 20 = 20

Choose the correct answer from the following:

- Nitrification is an example of:
 - Mutualism
 - Commensalism
 - Cooperation
 - Competition
- Cooperation is a..... relationship.
 - Positive
 - Positive and obligatory
 - Positive and non-obligatory
 - Negative
- If a symbiont host more than one organism the relationship is termed as:
 - Mutualism
 - Consortium
 - Cooperation
 - Amensalism
- Rhizosphere ratio (RS ratio=1) indicates:
 - No rhizosphere effect
 - Selective stimulation
 - Inhibition
 - None of the above
- The zone directly adjacent to root surface is known as:
 - Ectorrhizosphere
 - Rhizoplane
 - Endorhizosphere
 - Non rhizosphere
- In autochthonous production the source is:
 - In-stream
 - Outside-stream
 - Both a and b
 - None of the above
- Removal of silica from rivers causes:
 - Increase in no. of diatoms
 - Inhibits the growth of diatoms
 - Both a and b
 - None of the above
- In thermally stratified lakes:
 - Epilimnion oxic, hypolimnion anoxic
 - Epilimnion anoxic, hypolimnion oxic
 - Epilimnion cold, hypolimnion hot
 - Couldn't define
- Chlorobium is..... bacteria.
 - Photosynthetic non-sulfur
 - Non-photosynthetic sulfur
 - Non-photosynthetic non-sulfur
 - Photosynthetic sulfur
- An example of free-living microbe that fix nitrogen anaerobically is:
 - Clostridium
 - Trichodesmium
 - Azotobacter
 - All of the above

11. Which of these is NOT considered as a selective media?
 - a. Blood agar
 - b. MacConkey agar
 - c. Eosin methylene blue agar
 - d. Mannitol salt agar
12. Which of the following is the nutritional characterization of Escherichia coli?
 - a. Autotrophic
 - b. Chemotrophic
 - c. Chemotrophic, Organotrophic, Heterotrophic
 - d. Organotrophic
13. Which of the following is an example of ionizing radiation that is used to kill microbes?
 - a. Gamma rays
 - b. UV-rays
 - c. X-rays
 - d. Both a & c
14. Which one is known as fungi imperfecti??
 - a. Deuteromycetes
 - b. Zygomycetes
 - c. Ascomycetes
 - d. Basidiomycetes
15. Culture media used for cultivation of various fungus is.....
 - a. Czapek Dox Agar
 - b. Rose Bengal media
 - c. Tellurite medium
 - d. Both a & b
16. What kinds of viruses use the enzyme lysozyme to help them attack host cells?
 - a. Animal Viruses
 - b. Plant Viruses
 - c. Bacteria infecting viruses
 - d. Human Viruses
17. The structural component that is found in all viruses is:
 - a. Spikes
 - b. The envelope
 - c. Capsid
 - d. DNA or RNA
18. What is Chemotaxis?
 - a. Swimming towards a bacterium
 - b. Swimming away of a bacterium
 - c. In the presence of a chemical compound
 - d. None of these
19. Which nucleic acid sequences are used to detect evolutionary relationship between the taxonomic groups?
 - a. 16s rRNA
 - b. 70s rRNA
 - c. 18s rRNA
 - d. Both a & c
20. The most important vitamin for the growth of bacteria is:
 - a. Vitamin C
 - b. Vitamin B Complex
 - c. Vitamin E
 - d. Vitamin A

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(Descriptive)

Time : 2 hr. 30 mins.

Marks : 50

[Answer question no.1 & any four (4) from the rest]

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| 1. Brief about the importance of control of microbial growth. Outline about the various physical methods used in controlling of microbial growth. | 3+7=10 |
| 2. Write a short note on bacterial identification, classification and nomenclature. Give a brief idea about concept of species. | 7+3=10 |
| 3. What is the difference between virus and virion? Write about the specific characters and diversity of viral genome. | 2+8=10 |
| 4. Write a brief account on contributions of microbes or microbial fermentation in various fields of human welfare. | 10 |
| 5. Define microbial interactions. With an example explain the Predation and competition. | 2+8=10 |
| 6. Describe nitrogen cycle with neat labelled diagram. | 10 |
| 7. What is a salt wedge? Describe microorganisms in a lake ecosystem with neat labelled diagram. | 2+8=10 |
| 8. Define rhizosphere effect. How rhizosphere microorganisms help in the growth of a plant? Discuss insect-microbes-plants mutualism. | 3+4+3=10 |

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