

REV-01
MMB/01/05

2023/22

M.Sc. MICROBIOLOGY
FIRST SEMESTER (REPEAT)
GENERAL MICROBIOLOGY & BACTERIOLOGY
MMB-101

**SET
A**

[USE OMR SHEET FOR OBJECTIVE PART]

Duration: 3 hrs.

Full Marks: 70

Time: 30 mins.

Marks: 20

(Objective)

Choose the correct answer from the following:

1 × 20 = 20

- Which nucleic acid sequences are used to detect evolutionary relationship between the taxonomic groups?
 - 16s rRNA
 - 70s rRNA
 - 18s rRNA
 - Both a & c
- The most important vitamin for the growth of bacteria is:
 - Vitamin C
 - Vitamin B Complex
 - Vitamin E
 - Vitamin A
- Which of the following group of bacteria is considered as link between bacteria and virus?
 - Mycoplasmas
 - Spirochetes
 - Actinomycetes
 - Archaeobacteria
- Which of the following is the nutritional characterization of Escherichia coli?
 - Chemotrophic
 - Autotrophic
 - Chemotrophic, Organotrophic, Heterotrophic
 - Organotrophic
- Mark the common feature between eukaryotes and prokaryotes.
 - A prokaryotic cell is similar to a eukaryotic organelle
 - Shape of DNA
 - Number of chromosomes
 - Cell wall
- Alcohol can kill microorganisms through:
 - Oxidizing the cellular components
 - Alkylation of DNA
 - Denaturation of protein
 - Coagulation
- What is microbial Chemotaxis?
 - In the presence of a chemical compound, swimming towards or away by certain microbes
 - Swimming towards a certain chemical compound
 - Swimming away of a certain chemical compound
 - None of these
- Among the following which one is the most effective method of storing microbes?
 - High temperature
 - Low temperature, high moisture
 - Ultra-low temperature
 - Low temperature

9. Bacteria, as a group, are responsible for:
 - a. Nitrogen oxidation
 - b. Nitrogen fixation
 - c. Nitrogen assimilation
 - d. All of these
10. IMViC test includes:
 - a. Indole and Methyl Red test
 - b. Citrate test
 - c. Voges Proskaur test
 - d. All of these
11. Who is known as father of Microbiology?
 - a. Louis Pasteur
 - b. Anton Von Leewenhoek
 - c. Edward Jenner
 - d. Joseph Lister
12. Fermentation and Pasteurization was first developed by:
 - a. Robert Koch
 - b. Anton Von Leewenhoek
 - c. Louis Pasteur
 - d. Edward Jenner
13. Which of the following is known as Malolactic Fermentation?
 - a. Production of Beer
 - b. Production of Yogurt
 - c. Production of Wine
 - d. Production of Whisky
14. Rhicadhesin is a protein secreted by:
 - a. Bacteria
 - b. Fungi
 - c. Higher Plants
 - d. Yeast
15. Which of the following is a Xenobiotic Compounds?
 - a. Wool
 - b. Paper
 - c. Plastic
 - d. Vegetable waste
16. Mycobacterium sps is stained by AFB due to the presence of:
 - a. Dipicolinic acid
 - b. Calcium
 - c. Mycolic acid
 - d. Iron
17. The portion of the growth curve where rapid growth of bacteria is observed is known as:
 - a. Lag phase
 - b. Logarithmic phase
 - c. Stationary phase
 - d. Decline phase
18. In the growth equation: $n = 3.3 (\log_{10} N - \log_{10} N_0)$, n stands for.....
 - a. Total population
 - b. Initial population
 - c. Number of generations
 - d. Growth constant
19. What is the generation time if 100 bacterial cells growing logarithmically for 5 hours produced 1.7×10^6 cells?
 - a. 0.351 generations/hour
 - b. 0.353 generations/hour
 - c. 0.355 generation/hour
 - d. 0.357 generation/hour
20. NAM and NAM is bonded by:
 - a. Beta 1,4 glycosidic bond
 - b. Alpha 1,4 glycosidic bond
 - c. Pentagycin cross bridge
 - d. Peptide bond

(Descriptive)

Time : 2 hr. 30 mins.

Marks : 50

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

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| 1. Differentiate between Light microscope and electron microscope. Describe the principle of fluorescent microscopy with a neat labelled diagram. | 3+7=10 |
| 2. Describe the phases of bacterial growth curve. Derive mathematically the bacterial growth curve. Write a note on continuous culture. | 10 |
| 3. Who introduced the binomial system of nomenclature? Describe the rules of binomial nomenclature system. Write the demerits of five kingdom classification. | 1+6+3=10 |
| 4. Write short notes on:
a) Bacteria
b) Three domain system of classification | 5+5=10 |
| 5. Write a detailed note on aero-microbiology. | 10 |
| 6. Explain the contribution of microbes in the field of medical and agriculture. | 5+5=10 |
| 7. What is soil microflora? Write about the various microbial interactions with proper examples. | 10 |
| 8. Write a detailed note on diversity of microflora of freshwater and marine habitat. | 10 |

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