

(7 pages)

Reg. No. :

Code No. : 7823

Sub. Code : WMBM 11

M.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2023

First Semester

Microbiology – Core

GENERAL MICROBIOLOGY AND MICROBIAL
DIVERSITY

(For those who joined in July 2023 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (15 × 1 = 15 marks)

Answer ALL questions.

Choose the correct answer :

1. Father of Modern Microbiology _____
- (a) Anton de bary
(b) Anton von Leewwen hoek
(c) Louis pasteur
(d) Robert Koch

2. Which microscopy technique requires coating of metals for electron conduction?
- (a) Bright field microscope
(b) Transmission electron microscope
(c) Scanning electron microscope
(d) Confocal microscope
3. Achromates, Fluorites and Achromates are the different types of _____
- (a) Lens (b) Eye piece
(c) Objectives (d) Numerical Aperture
4. National collection of Industrial Microorganism (NCIM) is located at _____
- (a) Hyderabad (b) Pune
(c) New Delhi (d) Chandigarh
5. Sterilization by hot air oven kills the microorganisms by _____
- (a) Coagulation of protein
(b) Denaturation of proteins
(c) denaturation of fat
(d) denaturation of nucleic acid

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6. In laboratory, Ethanol is effective at _____%
- (a) 70 (b) 60
(c) 95 (d) 40
7. Algae number in soil is considerably less and ranges from _____/gm of soil
- (a) 1 million to 2 million
(b) 2 billions to 3 billions
(c) 100–10,000
(d) 10 to 100
8. _____ possess a blue pigment called phycoyanin. Hence they are called the blue green algae
- (a) Cyanophyceae (b) Chlorophyce
(c) Xanthophyceae (d) Bacillariophyceae
9. Algae can grow at an optimum pH range of _____
- (a) 1–3 (b) 7–10
(c) 10 to 12 (d) 0–5

10. Which macroelement or macronutrients are required for microorganisms?
- (a) Calcium, Oxygen, Magnesium
(b) Potassium, Calcium, Iron
(c) Potassium, Calcium, Oxygen
(d) Calcium, Magnesium, Iron
11. The organism which was reduced organic compounds as carbon are known as _____
- (a) Autotrophs (b) Heterotrophs
(c) Organotrophs (d) Chemotrophs
12. Stationary phase for bacteria is generally reached at population density of _____
- (a) 10^7 cells/ml (b) 10^8 cells/ml
(c) 10^9 cells/ml (d) 10^{10} cells/ml
13. The organisms which requires temperature above 80°C are known as _____
- (a) Mesophiles
(b) Thermophile
(c) Hyperthermophile
(d) Psychrophile

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[P.T.O.]



14. Which organisms utilize C_1 compounds such as methane, methanol, formaldehyde etc as
- (a) Methylophils
 - (b) Methanotrophs
 - (c) Chemolithotrophs
 - (d) Chemolithoautotrophs

15. Dilution rate during chemostat is expressed as

- (a) $F=D/V$
- (b) $D = V/f$
- (c) $D=f/V$
- (d) $F = V/D$

PART B — (5 × 4 = 20 marks)

Answer ALL questions, choosing either (a) or (b).

16. (a) Differentiate between bright and dark field microscopy.

Or

- (b) Define microbiology and write about its scope and importance.

17. (a) Discuss about the major microbiology laboratory safety guidelines.

Or

- (b) Differentiate between ATCC and NCTC.

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18. (a) How do you isolate algae from pond water?

Or

- (b) Describe about the classification of algae.

19. (a) What are the factors affecting bacterial growth?

Or

- (b) Focus on the different types of growth kinetics?

20. (a) Discuss about Thermophilic Archaeobacteria and its applications.

Or

- (b) Explain about Microbial diversity.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

21. (a) What is a phase contrast Microscope and how does it work?

Or

- (b) What is Micrometry in Microbiology? Write about its basic principle.

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22. (a) Describe the different methods of disinfection in Microbiology.

Or

- (b) Explain in detail about the methods of cultivation of anaerobic microorganisms.

23. (a) Discuss about the life cycle of Chlamydomonas.

Or

- (b) Write a detail notes on algal reproduction.

24. (a) Discuss about gram positive cell wall structure.

Or

- (b) Explain in detail about batch culture.

25. (a) What is Methanogens and write about its classification and Applications?

Or

- (b) Discuss about osmoadaptation or halotolerance.

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