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Reg. No. :

**Code No. : 10380 E Sub. Code : EMMI 11/
FCMI 11**

**B.Sc.(CBCS) DEGREE EXAMINATION,
NOVEMBER 2025.**

First Semester

Microbiology – Core

**FUNDAMENTALS OF MICROBIOLOGY AND
MICROBIAL DIVERSITY – Main**

(For those who joined in July 2023 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Who was the first scientist to discover the antibiotic penicillin?
(a) Robert Koch
(b) Alexander Flemming
(c) Lord Lister
(d) Edward Jenner

2. Which of the following is not one of the five kingdoms proposed by Whitaker?
(a) Monera (b) Protista
(c) Fungi (d) Archaea
3. Cell wall of gram negative bacteria _____
(a) Thick
(b) Lipids are present
(c) Teichoic acids are absent
(d) Teichoic acids are present
4. Bacterial locomotion is accomplished by _____
(a) Fimbriae (b) Flagella
(c) Cytoskeleton (d) None of the above
5. The major constituents in agar are _____
(a) Fats (b) Amino acids
(c) Polysaccharides (d) Polypeptides
6. The first phase of growth curve is _____
(a) Log phase (b) Lag phase
(c) Decline phase (d) Death phase

7. The light gathering capacity of microscope is called _____
(a) Numerical aperture
(b) Angular aperture
(c) Condensation
(d) None of the above
8. In electron microscope, source of electron is from _____
(a) Mercury lamp (b) Tungsten metal
(c) Fluorescence light (d) None of the above
9. Infra red radiation is a method of sterilization by _____
(a) Dry heat (b) Moist heat
(c) Chemical method (d) Mechanical method
10. Glassware's are sterilized by _____
(a) Autoclaving
(b) Hot air oven
(c) Incineration
(d) None of the above

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).
Each answer should not exceed 250 words.

11. (a) Write the contributions of Anton van Leuwenhoek.
Or
(b) Explain the three kingdom concepts of microbial classification.
12. (a) With neat diagram explain the structure of bacterial flagella.
Or
(b) With neat diagram explain the structure of microalgae.
13. (a) Give short note on measurement of microbial growth.
Or
(b) Explain anaerobic culture techniques.
14. (a) With neat diagram explain the parts of a compound microscope.
Or
(b) Explain the steps of simple staining.

15. (a) What is filtration? Explain different types of filters used in sterilization.

Or

- (b) Explain the working principle and applications of Hot air oven.

PART C — (5 × 8 = 40 marks)

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

Each answer should not exceed 600 words.

16. (a) Elaborate the features of Whitakers five kingdom concept.

Or

- (b) Explain how Archaeobacteria differ from Eubacteria.

17. (a) Elaborate the general characteristics of Algae.

Or

- (b) With neat diagram explain the structure of Gram positive and Gram negative bacterial cell wall.

18. (a) Give a detailed account on different bacteriological media.

Or

- (b) Write about different modes of bacterial cell division with neat diagram.

19. (a) Explain the structure and applications of fluorescent microscopy.

Or

- (b) Write about the principle, construction and applications of Transmission Electron Microscope.

20. (a) Elaborate the methods of moist heat sterilization.

Or

- (b) Explain in detail about anti microbial agents and their mode of action.