

**Total Pages— 5 PG/IIIS/MCB/204.1 & 204.2/25
(CBCS)(Old)**

M. Sc. 2nd Semester Examination, 2025

MICROBIOLOGY

(Microbes and Their Activity)

PAPER — MCB-204.1 & 204.2 (CBCS) (Old)

Full Marks : 50

Time : 2 hours

Answer all questions

The figures in the right hand margin indicate marks

*Candidates are required to give their answers in
their own words as far as practicable*

PAPER — MCB-204.1

GROUP—A

Answer any two of the following questions :

1. Which microorganism lacks true nucleus ? 2 × 2
Name a fungus used in bread-making ? 1 + 1

(Turn Over)

(2)

2. Differentiate between sterilization and disinfection.
3. What is the basic structural difference between bacteria and fungi ?
4. What is variolation ? Name the scientist who first coined the term "cell". 1 + 1

GROUP - B

Answer any two of the following questions :

4 × 2

5. State the resolving power of human eye, light microscope and electron microscope. State the mode of action of 'Moist heat sterilization'. 2 + 2
6. Describe the structure of a bacterial cell with labeled diagram. Name two diseases caused by virus in animal. 3 + 1
7. Write down the applications of Hot Air Oven. Mention the mode of action of heavy metals as microbial control agent. 3 + 1

(3)

8. Write the doctrine of biogenesis and abiogenesis. What is golden era of microbiology ?

GROUP— C

Answer any one of the following question :

- 8 × 1
9. Explain the role of Winogradsky and Beijerinck in the development of environmental and soil microbiology. 4 + 4
10. Discuss the contributions of Louis Pasteur and Robert Koch to the development of microbiology. What is Germ Theory of Disease ? Compare bacteria and viruses based on their structure.. 4 + 2 + 2

PAPER — MCB-204.2

GROUP— A

Answer any two of the following questions :

- 2 × 2
11. Differentiate between batch culture and continuous culture.

(4)

12. Write the importance of bacteria in food industry.
13. Explain the importance of selective and differential media with suitable example.
14. What is Colony-Forming Unit (CFU)? Name a microbe that requires CO_2 for growth.

GROUP - B

Answer any two of the following questions :

15. Explain mode of action of "Plant Growth-Promoting Rhizobacteria (PGPR)". What is mycorrhiza? 4 × 2
3 + 1
16. Describe the bacterial growth curve with suitable labelling of all phases.
17. Compare direct and indirect methods for measurement of microbial growth.

(5)

18. Explain the principle of the spread plate technique. What are psychrophiles (microbes) and where are they found ? 2 + 2

GROUP - C

Answer any one of the following question : 8 × 1

19. Why is the stationary phase reached in batch culture ? How can you manage biohazard waste in laboratories ? Write three Good Laboratory Practices (GLPs) in microbiology laboratory. 2 + 4 + 2
20. Discuss the different types of culture media used in microbiology study with examples. Discuss the role of temperature, pH and oxygen for microbial growth. Name two microorganisms that categorized under Risk Group 3 (RG3). 4 + 3 + 1

[Internal Assessment — 10 Marks]

