

M.Sc. 2nd Semester Examination, 2025

MICROBIOLOGY

(Microbes and Their Activity)

PAPER — MCB-204(CBCS)

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

GROUP — A

Answer any four of the following questions :

2 × 4

1. Who is known as the father of modern surgery ? Who discovered chemolithotrophy ?

1 + 1

(Turn Over)

2. State the salient contribution of Fanny Hesse and Julius Petri in microbiology.
3. What are Koch's postulates ?
4. Define psychrophiles. What is the function of thioglycolate in anaerobic media ? 1 + 1
5. Why is 70% ethanol more effective than 100% ethanol in disinfection ?
6. UV light controls microbial growth-explain.

GROUP – B

Answer any four of the following questions :

4 × 4

7. Explain the role of Winogradsky and Beijerinck in the development of environmental and soil microbiology.

8. Write the difference between Bacteriological and BOD incubator. State the working principle of Laminar air flow. 2 + 2
9. Explain the principle behind the serial dilution method and state its significance. Give one example of a capnophilic bacterium. 3 + 1
10. Mention two harmful impacts of microbial imbalance caused by antibiotics in animals. What is the principle of the Most Probable Number (MPN) method ? 2 + 2
11. Describe the bacterial growth curve with suitable labelling of all phases.
12. How do mycorrhizal fungi support plant growth ? State the role of gut microbiota in digestion of animal. 2 + 2

GROUP - C

Answer any two of the following questions :

8×2

13. Define resolving power of microscope. State the resolving power of human eye, light microscope and electron microscope. State the mode of action of dry heat sterilization. Write two beneficial roles of microbes in the rhizosphere.

2 + 2 + 2 + 2

14. Discuss the contributions of Louis Pasteur and Robert Koch to the development of microbiology. What is Germ Theory of Disease ? Discuss how nitrogen-fixing bacteria are beneficial for plants growth.

3 + 2 + 3

15. Briefly describe the types of waste generate in Biosafety Laboratories with probable disposal technique. Write three good laboratory practices (GLPs) in microbiology. Why nutrient broth is considered as general-purpose medium ?

4 + 2 + 2

- 16. Discuss the different types of culture media used in microbiology with examples. Name two microorganisms that categorized under Risk Group 3 (RG3). Mention the advantages and disadvantages of Deep Burial in waste disposal method. 4 + 1 + 3**

[Internal Assessment – 10 Marks]

