

# RAMAKRISHNA MISSION VIDYAMANDIRA

(Residential Autonomous College affiliated to University of Calcutta)

B.A./B.Sc. FOURTH SEMESTER EXAMINATION, MAY 2025

SECOND YEAR [BATCH 2023-27]

**MICROBIOLOGY**

**Paper : 4MCBMJC2**

Date : 06/05/2025

Time : 11 am – 1 pm

Full Marks : 50

1. Answer **any ten** questions: [2×10]
- Why is air not a suitable environment for the growth of microorganisms?
  - How air infectious droplets differ from air infectious dusts?
  - Define allergens. Give example of an allergen
  - Name two air borne fungi and their impact on human health
  - What are the effects of propylene glycol on airborne microorganisms?
  - What is the full form of HEPA filter and where are HEPA filter commonly used?
  - What is the most preferred method of air sanitization in operation theatres and why is it so?
  - Name the media used for the culture of airborne bacteria and fungi.
  - What is “4 R’s concept” in waste management?
  - What are the differences between primary, secondary and tertiary waste water treatment?
  - What are ‘coliforms’? Explain with example.
  - Why is it beneficial to remove nitrates and phosphates in wastewater?
  - What advantages does the membrane filter technique offer for microbiological analysis of water?
  - What are ‘Paracolon bacteria’? Explain with some cultural characteristics.
  - How is a zoogeal film formed in waste water treatment system?

Answer **any three** questions:

2.
  - What is bioaerosol sampling? 2
  - How do bioaerosols differs from other airborne particles? 3
  - How do bioaerosols contribute to respiratory infections and allergies? 3
  - How do you get an idea of all the bacterial species present in an environment sample? 2
3.
  - What are the micro flora found in air? Give examples. (2+1)
  - Briefly state the name of different process of enumerating air microbes and explain. 4
  - State the significance of air microflora in food processing industry. 3
4.
  - What is potable water? Why ground water is less contaminated than surface water. (2+2)
  - ‘Septic tanks are the most satisfactory method for disposing of sewage from small installations’- explain. 4
  - In terms of sewage treatment, what problem has accompanied the wide usage of detergents? 2
5.
  - Compare and contrast the activated sludge process and the trickling filter system used in secondary treatment of wastewater. (2+2)
  - What are the advantages and disadvantages of landfilling as a disposal method. (2+2)
  - What are the differences between ‘dumping’ and ‘landfilling’? 2
6.
  - Briefly describe the general scheme of laboratory testing for detection of coliform group in water. 4
  - Mention the importance of ‘coagulation and flocculation’ in liquid waste management 4
  - What is false presumptive test? 2