QP Code: P25DRIS022

Reg. No : .....
Name : .....

ST MARY'S COLLEGE (AUTONOMOUS), THRISSUR-20

I SEMESTER (CBCSS - PG) DEGREE EXAMINATIONS, NOVEMBER 2025
(Regular/Improvement/Supplementary)
M. Sc. General Biotechnology
GBT1C03 : Microbiology
2024 Admission Onwards

Time: 3 Hours **Maximum Weightage: 30**

Part A

*Short answer type questions. Answer **any four**. Weightage **2** for each.*
(4x2 = 8 Weightage)

1. Explain how CFU and TVC are related to each other.
2. Discuss the process of microbial fermentation, including the key steps and reactants involved.
3. List major factors affecting the growth of microorganis in air.
4. If you needed to sterilize a heat-sensitive solution, which physical method would you choose and why?
5. Determine the benefits and risks of the Oral Poliovirus Vaccine (OPV) compared to the Inactivated Poliovirus Vaccine (IPV)?
6. Describe how the E - test is performed and explain when it might be preferred over the Kirby-Bauer test?
7. Explain the most suitable staining method for visualizing bacterial endospores.

Part B

*Short essay-type questions. Answer **any four**. Weightage **3** for each.*
(4x3 = 12 Weightage)

8. Define the key features of virus, according to the Baltimore classification.
9. Explain why the slide culture technique is preferred over a teased mount for observing fungal structures.
10. Compare the mechanism of action of the antiviral drugs.
11. Compare and contrast the regulatory mechanisms of the Entner-Doudoroff pathway and Glycolysis.
12. Design a flowchart for identifying an unknown bacterial isolate using biochemical tests and molecular techniques.
13. Predict the potential impact on plant health if a crucial symbiotic microbe, like Rhizobium, is absent from the soil.

Turn Over

14. How would you demonstrate tolerance of microbes to different environmental factors?

Part C

*Essay-type questions. Answer **any two**. Weightage **5** for each.*
(2x5 = 10 Weightage)

15. List the contributions of key scientists associated with the Golden Era of Microbiology.
16. Discuss Virus cultivation and the role of Viral assays as essential tools in virology research and diagnosis.
17. Why is the carbon cycle important for maintaining a stable ecosystem?
18. Compare and contrast the difference between direct and an indirect methods for measuring bacterial growth.

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