

QP Code : P24A025

Reg. No :

Name :

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

I SEMESTER M.Sc. (CBCSS-PG) DEGREE EXAMINATION, November 2024

**MSc Biotechnology
GBT1C03 : Microbiology
2024 Admission Onwards**

Time : 3 Hours

Maximum Weightage : 30

Part A

*Short answer type questions: Answer **any four** questions. Weightage 2 for each question*

1. Explain the historical development of immunization. [BTL2]
2. Explain how chemostats and turbidostats work, and highlight the key differences between them. [BTL2]
3. Analyze the mechanism of acid-fast staining and how it differentiates acid-fast bacteria (e.g., Mycobacterium) from non-acid-fast bacteria. [BTL4]
4. Define dermatomycoses and list the clinical features. [BTL1]
5. List the common media used for fungal cultivation and its importance in fungal isolation [BTL1]
6. How would you use AFM to study the surface topography of a biological sample? [BTL3]
7. What are the advantages of using Bt biopesticides over chemical pesticides in terms of environmental impact ? [BTL3]

(4x2 = 8 Weightage)

Part B

*Short essay-type questions: Answer **any four** questions. Weightage 3 for each question*

8. Predict the effects of (1) delivery route, (2) metabolism, and (3) local concentration on the effectiveness of an antimicrobial drug [BTL3]
9. Describe the role of fungi in causing diseases in plants and animals. [BTL2]
10. Describe the causative agent of diphtheria, its mode of transmission, pathogenesis, and prophylaxis. [BTL2]
11. Describe the characteristics used to classify bacteria into different phyla. [BTL2]
12. Discuss 3 metabolic pathways that microorganisms employ to catabolize glucose and other sugars. [BTL2]

Turn Over

13. Analyze the mechanisms of phage-host interaction, including adsorption, penetration, and injection of DNA. [BTL4]
14. Analyze the principle and applications of pure culture techniques . How do these techniques enable the isolation of individual microbial species? [BTL4]
- (4x3 = 12 Weightage)**

Part C

*Essay-type questions: Answer **any two** questions. Weightage 5 for each question*

15. Discuss the importance of regular bacteriological monitoring and testing in ensuring the safety of drinking water. [BTL4]
16. Describe the difference between passive and active transport mechanisms in microbial nutrient uptake. How do these processes influence the efficiency of nutrient absorption? [BTL2]
17. Illustrate the differences between aerobic and anaerobic respiration in microbes. [BTL3]
18. Explain the physical and chemical methods of Sterilization. [BTL2]
- (2x5 = 10 Weightage)**

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