

**QP Code: U25B029**

**Reg. No** : .....

**Name** : .....

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

**II SEMESTER (FYUGP) DEGREE EXAMINATION, MARCH 2025**

**B.A./B.Sc./B.Com/BSW**

**BTY2MN102 : GOOD LABORATORY PRACTICES AND QUALITY  
CONTROL IN BIOTECHNOLOGY LABS**

**2024 Admission Onwards**

**(Credits: 4)**

**Time: 2 Hours**

**Maximum Marks: 70**

**Section A**

*Answer all. Each question carries 3 Marks (Ceiling: 24 Marks)*

1. Define a biological safety cabinet (BSC) and explain its primary purpose in laboratory settings. [BTL2]
2. Explain the difference between BSL-2 and BSL-3 in terms of safety precautions and the types of pathogens they are designed to handle. [BTL2]
3. Why is it important to have clear and unambiguous records in scientific research? [BTL2]
4. Distinguish between quality control and quality assurance. [BTL2]
5. How do hazard symbols on reagent bottles contribute to ensuring safety, and why is their presence crucial for proper handling and risk prevention? [BTL3]
6. Explain the steps involved in properly using a micropipette to dispense a liquid sample. [BTL3]
7. How would you remove stubborn grease stains from glassware? [BTL3]
8. How would you handle a situation where a reagent is spilled on the laboratory bench? [BTL3]
9. If you were setting up a new research laboratory, what are two key biosafety protocols you would implement to ensure the safety of staff and the environment? [BTL3]
10. Define PPE. Mention the PPE used in the laboratory. [BTL1]

**Section B**

*Answer all. Each question carries 6 Marks (Ceiling: 36 Marks)*

11. Define molarity, normality, and molality. Describe the differences between these terms with suitable examples. [BTL1]
12. Define toxic chemicals and explain their potential impact on human health and the environment. Provide two examples of such chemicals commonly used in industrial processes. [BTL1]

**Turn Over**

13. Define internal quality control (IQC) in laboratories. What is its role in ensuring the accuracy of laboratory results? [BTL1]
14. Compare and contrast the effectiveness of different fire prevention methods in a laboratory. [BTL4]
15. Describe how Material Safety Data Sheets (MSDS) function as a critical tool for effectively managing chemical hazards within a workplace, outlining the information they provide about potential risks and necessary safety procedures to protect workers and emergency responders. [BTL4]
16. Assess the effectiveness of current biosafety practices in laboratories dealing with high-risk biological materials (e.g., BSL-4). Are existing protocols sufficient to manage emerging threats, and what improvements would you suggest? [BTL5]
17. Analyze the differences in handling safety measures required for two common toxic chemicals: one that is highly flammable (e.g., ethanol) and one that is highly corrosive (e.g., sulfuric acid). How do the safety procedures differ based on the chemical's properties? [BTL4]
18. Define toxicology and explain its significance in understanding the effects of toxic substances on human health. [BTL1]

### Section C

*Answer **any one**. Each question carries 10 Marks (1x10=10 Marks)*

19. Define laboratory-associated infections (LAIs), list some common pathogens responsible for these infections in a laboratory setting. Also mention the route of laboratory transmission. [BTL1]
20. Evaluate the potential health risks of prolonged radiation exposure in the workplace, and propose a comprehensive strategy to minimize these risks. Include control measures, personal protective equipment, and safety protocols. [BTL3]

\*\*\*\*\*