

SEC11 - Biotechnology-Biotechnological Skills and Analytical Techniques

P. Pages : 4

Time : Two Hours



GUG/W/24/15901

Max. Marks : 40

Notes : 1. All questions are compulsory. Each question carries 1 mark

1. What is the name of the Indian government's initiative to boost the biotechnology industry?
2. What is one advantage of a small biotechnology enterprise?
3. What is the role of analytical thinking in biotechnology?
4. Why is risk assessment crucial in biotechnology industry?
5. What is the importance of clear writing skills in a biotechnology laboratory?
6. What is Biotechnology?
7. What is the purpose of using Microsoft Excel in a biotechnology laboratory?
8. Define Molarity.
9. Define Molality.
10. Define Normality.
11. What is the primary purpose of Clean-in-Place (CIP) in a biotechnology laboratory?
12. What should be worn when handling chemicals?
13. What personal protective equipment (PPE) is essential for handling hazardous chemicals?
14. Why is it important to follow Standard Operating Procedures (SOPs) when handling chemicals?
15. Why is it important to follow SOPs in a biotechnology laboratory?
16. What is the purpose of using a biosafety cabinet in a biotechnology laboratory?
17. What is Buffer solution and their role in biotechnology laboratory?
18. Why it is important to store media in a sterile environment?
19. What is Disinfection? the purpose of using disinfectants in a biotechnology laboratory?

20. What is Data Collection?
21. Which organization regulates biotechnology products in India?
a) Central Drugs Standard Control Organization (CDSCO)
b) Indian Council of Medical Research (ICMR)
c) Department of Biotechnology (DBT)
d) Genetic Engineering Appraisal Committee (GEAC)
22. What is the importance of intellectual property rights in the biotechnology industry?
a) To reduce competition
b) To increase profits
c) To protect innovations and encourage investment in research and development
d) To limit access to genetic resources
23. What is the primary goal of planning and organizing skills in biotechnology?
a) To reduce costs and increase efficiency
b) To improve safety protocols and reduce risks
c) To ensure accurate data collection and analysis
d) To facilitate effective project management and achievement of research objectives
24. What is the purpose of risk assessment in biotechnology?
a) To identify potential hazards and mitigate risks to human health and the environment
b) To ensure compliance with regulatory requirements
c) To optimize research protocols and experimental design
d) To evaluate the economic feasibility of a project
25. What skill is necessary to interpret research data in biotechnology?
a) Communication skills
b) Analytical skills
c) Technical skills
d) Leadership skills
26. What is the purpose of clear writing skills in biotechnology?
a) To persuade investors to fund research projects
b) To communicate complex research findings effectively to various audiences
c) To document laboratory procedures and protocols
d) To promote biotechnology products to the public
27. What is the primary use of MS Excel in a biotechnology workplace?
a) Data analysis and visualization
b) Word processing and document creation
c) Presentation design and delivery
d) Email management and communication
28. Which technique is used to analyze data in a biotechnology laboratory?
a) Gel electrophoresis
b) Polymerase chain reaction (PCR)
c) Statistical analysis (e.g. ANOVA, regression)
d) Spectrophotometry

29. What is a stock solution?
- A solution of known concentration used as a reference
 - A solution of unknown concentration used for experimentation
 - A concentrated solution used to prepare multiple dilutions
 - A solution used for a single experiment only
30. What is normality used for?
- To express the concentration of a solution *in* terms of weight per volume
 - To express the concentration of a solution in terms of number of moles per liter
 - To express the concentration of a solution in terms of equivalents per liter
 - To express the concentration of a solution in terms of percentage
31. What is Sterilize-in-Place (SIP) used for?
- To clean equipment and surfaces
 - To sanitize equipment and surfaces
 - To sterilize equipment and pipes without disassembling them
 - To dispose of hazardous waste
32. What is meant by "autoclaving" in laboratory cleaning?
- Cleaning with a disinfectant solution
 - Sterilizing using high-pressure steam
 - Wiping down surfaces with a detergent
 - Soaking equipment in a cleaning solution
33. What is the purpose of a Material Safety Data Sheet (MSDS)?
- To provide instructions for using a product
 - To list the ingredients of a product
 - To provide safety information and handling procedures for hazardous materials
 - To certify that a product is safe for use
34. What is SOP?
- Standard Operating Procedure
 - Safety Operating .Protocol
 - Systematic Operational Plan
 - Scientific Operating Principle
35. What information should be recorded for research experiments?
- Only the results and conclusions
 - Only the methods and materials used
 - All of the following: research question, hypothesis, methods, materials, procedures, data, results, and conclusions
 - Only the researcher's name and date
36. What is the principle of operation of a colorimeter?
- Measuring the absorption of light by a sample
 - Measuring the reflection of light by a sample
 - Measuring the transmission of light through a sample
 - Measuring the scattering of light by a sample

- 37.** What property of water makes it a good solvent?
- a) High boiling point
 - b) Low surface tension
 - c) Polarity
 - d) High viscosity
- 38.** Which media is used for the plant tissue culture?
- a) Murashige and Skoog (MS) medium
 - b) Luria-Bertani (LB) medium
 - c) Potato dextrose agar (PDA) medium
 - d) Sabouraud dextrose agar (SDA) medium
- 39.** Which method is commonly used for decontaminating heat-resistant materials?
- a) Autoclaving
 - b) Dry heat sterilization
 - c) Ethylene oxide sterilization
 - d) Gamma radiation sterilization
- 40.** What provide brief summary of laboratory report?
- a) Introduction
 - b) Methods
 - c) Results
 - d) Abstract (or Summary)
