

B.Sc. BOTANY
SECOND SEMESTER
INSTRUMENTATION AND LABORATORY TECHNIQUES
BSB-202

**SET
A**

[USE OMR SHEET FOR OBJECTIVE PART]

Duration: 1hr. 30 mins.

Full Marks: 35

(Objective)

Time: 15 mins.

Marks: 10

Choose the correct answer from the following:

1 × 10 = 10

- Which of the following materials is commonly sterilized using an autoclave?
 - Metals
 - Glassware
 - Plastics
 - All of the above
- Which of the following is defined as the number of moles of solute per kilogram of solvent?
 - Molarity
 - Normality
 - Molality
 - Mole fraction
- What is a primary benefit of using Laminar Airflow in controlled environments?
 - It reduces energy consumption
 - It provides rapid air circulation
 - It minimizes airborne contamination
 - It increases humidity levels
- What is paper chromatography used for?
 - Separating and identifying mixtures of substances
 - Measuring pH of solutions
 - Calculating density of liquids
 - Counting cells in a sample
- What is the purpose of a phosphate buffer solution?
 - To neutralize acids
 - To resist changes in pH
 - To increase solubility of proteins
 - To enhance enzymatic reactions
- Which wavelengths are commonly used to measure chlorophyll absorbance in spectrophotometry?
 - 500 nm and 550 nm
 - 645 nm and 663 nm
 - 400 nm and 800 nm
 - 620 nm and 680 nm
- Which of the following is NOT a component used in paper chromatography?
 - Sample mixture
 - Paper strip
 - Test tube
 - Solvent
- Which of the following is an advantage of virtual herbariums over traditional herbarium collections?
 - Lack of global collaboration opportunities
 - Limited access to specimen data
 - Facilitated data sharing and remote access
 - High cost of maintenance

9. Which one of the following is dicot plant?
- a. Bamboo
 - b. Mango
 - c. Garlic
 - d. Lilies
10. The largest Herbaria in the India located at:
- a. Blatter Herbarium, St. Xavier's college, Mombay
 - b. Herbaria BSI, Eastern circle, Shillong
 - c. Malabar Botanical Herbarium, Calicut
 - d. Central National Herbarium, Howrah

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(Descriptive)

Time : 1 hr. 15 mins.

Marks : 25

[Answer question no.1 & any two (2) from the rest]

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| 1. Write short notes on: (<i>any one</i>) | 5+5=10 |
| a) Paper chromatography | |
| b) Procedure for phosphate buffer | |
| 2. Write the definition of Molarity, Normality and Molality with suitable examples. | 10 |
| 3. Describe in brief the parts of Laminar Air-flow with neat diagram. Mention also the precautions. | 10 |
| 4. What is herbarium? Outline the step-by-step methodology of collecting plant specimens for a herbarium, emphasizing proper field techniques to ensure specimen quality. | 2+8=10 |
| 5. Explain the importance of herbarium collections in botanical research and conservation efforts. | 10 |

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