

B.Sc. BOTANY
SECOND SEMESTER
INSTRUMENTATION & LABORATORY TECHNIQUES
BSB – 202

(Use Separate Answer Scripts for Objective & Descriptive)

Duration : 3 hrs.

Full Marks : 70

(PART-A: Objective)

Time : 20 min.

Marks : 20

Choose the correct answer from the following:

1X20=20

- The Russian botanist coined the term chromatography.
a. Mikhail Tswett
b. Lamarck
c. Mikhail Lorentz
d. None of the above
- The first analytical use of chromatography was described by James and Martin as the use of -
a. Paper chromatography
b. Gas chromatography
c. Thin layer Chromatography
d. All of the above
- Chromatography means
a. Colour
b. Paper,
c. colour writing
d. None of the above
- IUPAC means
a. International unit of pure and applied chemicals
b. International union of pure and action chemistry
c. International Union for Pure and Applied Chemistry
d. None of the above.
- The number of components in chromatography are
a. 3
b. 10
c. 1
d. 5
- The phases of chromatography are
a. Mobile and Static phase
b. Stationary phase and mobile phase
c. Only static phase
d. all of them
- The art of Herbarium was initiated by an Italian taxonomist
a. Luca Ghini
b. Darwin
c. Lamarck
d. John Ray
- The first herbarium in the world was established in
a. 1545 in Italy
b. 1560 in India
c. 1660 in Brazil
d. None of the above
- Royal Botanic Garden Herbarium is found in-
a. Kew
b. Italy
c. India
d. U.S.A

10. Plastic bags are avoided in the preservation of-
 - a. Succulents plants
 - b. conifers
 - c. Bryophytes
 - d. All plants
11. The two important chemicals used in herbarium techniques are-
 - a. Ethyl alcohol and Formaldehyde
 - b. alcohol and acetone
 - c. Aldehyde and F.A.A
 - d. All of them.
12. Molarity is measured in
 - a. mols per kg
 - b. mols per L
 - c. mols per mL
 - d. mols per kJ
13. The pH can be kept constant with the help of
 - a. Buffer solution
 - b. Standard solution
 - c. Saturated solution
 - d. Unsaturated solution
14. Which part of the compound microscope helps in gathering and focusing light rays on the specimen to be viewed?
 - a. Magnifying lens
 - b. Eyepiece lens
 - c. Condenser lens
 - d. Objective lens
15. Which of the following are the recommended heat temperature and time periods for the moist heat sterilization method used in an autoclave?
 - a. 121 °C for 15 minutes
 - b. 180 °C for 5 minutes
 - c. 160 °C for 45 minutes
 - d. 126 °C for 3 minutes
16. Name the sterilization agent that is most frequently used in hospitals and clinical laboratories for the heat-labile liquid substances or antibiotics
 - a. Dry heat
 - b. Filtration
 - c. Radiation
 - d. Formaldehyde
17. Name the filter located in laminar air flow
 - a. HEPA filter
 - b. Membrane
 - c. Seitz filter
 - d. Vacuum filter
18. Gram staining is an example of
 - a. Acid fast stain
 - b. Acid stain
 - c. Differential stain
 - d. None of the above
19. Which of the following is not a natural stain?
 - a. Safranin
 - b. Brazilin
 - c. Carmine
 - d. Hematoxyline
20. Which of the following is the conjugate acid of NH_2^- ?
 - a. NH_4^+
 - b. NH_3
 - c. NH_2^-
 - d. NH_4OH

(PART-B : Descriptive)

Time : 2 hrs. 40 min.

Marks : 50

[Answer question no.1 & any four (4) from the rest]

1. What do you understand by chromatography? Write briefly about the applications and principles of chromatography. 3+4+3
=10
2. What is Herbarium? Write the functions and role of the herbarium. 2+8=10
3. Write the techniques of herbarium preparation. Name a few herbaria of the world. 7+3=10
4. What is microscopy? Write the working principle of compound light microscope with diagram 2+8=10
5. What is Sterilization? Describe the different methods of physical methods of sterilization. 2+8=10
6. Write a brief note on buffer solution and its types. Describe the properties of a buffer solution. 5+5=10
7. Discuss the different types of fixative and its application. Write a note on different types of stain and the staining techniques 5+5=10
8. Write short notes on- 5+5=10
 - a. Preservation techniques of conifers
 - b. Pressing method of Succulent and aquatic plants.

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