

**M.Sc. BOTANY
THIRD SEMESTER
RESEARCH METHODOLOGY
MSB-302**

**SET
B**

Duration: 1.30 hrs.

Full Marks: 35

Time: 15 min.

Marks: 10

$$1 \times 10 = 10$$

Choose the correct answer from the following:

- Choose the correct pattern of writing reference in literature review
 - (Singh 2024)
 - 2024 (Singh)
 - Singh 2024
 - Singh (2024)
- Which dye is commonly used for Gram staining in microbiology?
 - Methylene blue
 - Safranin
 - Crystal violet
 - Eosin
- In a certain distribution, if $CV = 20\%$, $\text{mean} = 25$, what is SD?
 - $\frac{1}{5}$
 - 5
 - 50
 - None of the above
- t-test is applied when
 - The population is normal
 - Sample size is small
 - Population standard deviation is not given
 - All of the above
- Focuses on techniques and tools used to gather data is called
 - Research methodology
 - Research methods
 - Data collection
 - Survey
- A larger standard error indicates
 - A less precise estimate of the population parameter.
 - A more precise estimate of the population parameter
 - A smaller sample size
 - An outlier in the data.
- Quoting someone's words but not properly citing the author's information is known as
 - Plagiarism
 - Copyright
 - Patent
 - Informed consent
- The best measure of dispersion is____
 - Standard deviation
 - Mean
 - Coefficient of variation
 - None of the above

9. What is the principle behind UV-Vis spectroscopy?
- a. Measuring the absorption of ultraviolet and visible light by a sample
 - b. Measuring the scattering of light by a sample
 - c. Measuring the emission of light by a sample
 - d. Measuring the fluorescence of a sample
10. What is the recommended storage condition for most biological stains?
- a. In a bright, sunlit area
 - b. At room temperature
 - c. In a dark, cool place
 - d. In a freezer

(Descriptive)

Time : 1 hrs. 15 min.

Marks : 25

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

1. How does the process of micropropagation work in tissue culture 5

2. What is microtomy and what is its primary purpose in biological research? What are the steps involved in preparing a tissue sample for microtomy? 3+7=10

3. Calculate mean, variance and coefficient of variation of the following distribution 3 + 4 + 3 = 10
Observations: 0 - 10 10 - 20 20 - 30 30 - 40 40 - 50 50 - 60 60 - 70
No. of items: 3 8 11 13 12 64

4. Write short notes on (any 2) 5 + 5 = 10
A. Difference between research methods and research methodology.
B. the art of scientific writing
C. Ethical and legal issues of research.

5. Define hypothesis. Explain null hypothesis and alternative hypothesis. 5 + 5 = 10
A random sample of size 10 from a normal population has mean 42 and standard deviation 5. Test the hypothesis at 5% significance level that the population mean is 45. [Critical value of the test statistic at 5% level of significance for 9 degrees of freedom is 2.262]

= = *** = =