

**M.Sc. BIOTECHNOLOGY
FOURTH SEMESTER
RESEARCH METHODOLOGY
MBT – 402**

(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

1. Which is the sequence of events for analysis of data i) coding ii) editing iii) statistical inference iv) tabulation
 - a. i, ii, iii, iv
 - b. i, ii, iv, iii
 - c. i, iv, iii, ii
 - d. i, iii, ii, iv
2. Interpretation should be
 - a. Integral
 - b. Objective
 - c. Subjective
 - d. Differential
3. Why is data analysis concerned with data reduction?
 - a. Because far too much data is collected than is required
 - b. Because we need to make sense of the data
 - c. Because of the repetitions in answers to questionnaires
 - d. Because the sample size has been exceeded
4. Preliminary survey is also known as
 - a. Start up survey
 - b. Pilot survey
 - c. both
 - d. none
5. Which of the following is an example of non continuous variation?
 - a. No of students in a class
 - b. age
 - c. Sex of a person
 - d. none
6. Extraneous variable can be minimised by
 - a. control
 - b. Experimental error
 - c. Dependant variable
 - d. all
7. Which type of survey obtain insight into the relationships between variables and new ideas?
 - a. Survey of literature
 - b. Insight stimulating
 - c. exploratory
 - d. Experience survey
8. Accuracy of an experiment is increased by
 - a. replication
 - b. randomization
 - c. Local control
 - d. all
9. Limitation of two group randomized design is eliminated in
 - a. CR design
 - b. Randomized block design
 - c. Random replication design
 - d. all

10. Which is the most reliable data collection method?
- observation
 - interview
 - questionnaire
 - schedule
11. _____ is related to some abstract ideas or theory.
- Contextual research
 - Conceptual research
 - Empirical research
 - Ideal research
12. Reports are often used to display the result of:
- Experiment
 - Investigation
 - Inquiry
 - All of these
13. Multiple regression is the
- average relationship between a dependent variable and an independent variable.
 - average relationship between a dependent variable and two or more independent variables.
 - mathematical relationship between two kinds of variables.
 - none of the above.
14. The test of equality of two variances, is used by:
- Z test
 - t test
 - χ^2 (chi-square) test
 - F test
15. ANOVA technique is used to test the
- specified population mean
 - equality of two population means.
 - equality of several population means
 - none of the above
16. In two tailed test, to test the null hypothesis $H_0: \mu = 4$, the alternative hypothesis is
- $\mu \neq 4$
 - $\mu > 4$
 - $\mu < 4$
 - None of the above
17. Hypothesis is an assumption made about the
- population
 - sample
 - Both a and b
 - None of the above
18. What is the consequence of fundamental research?
- generalizations
 - Formulation of theory
 - Both a and b
 - Finding a solution
19. Ex post facto research signifies
- Descriptive research
 - Analytical research
 - fundamental
 - none
20. Which is the most important criteria of a good research?
- reproducibility
 - Clearly defined
 - Both
 - Cost effective

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PART-B : Descriptive

Time : 2 hrs. 40 min.

Marks : 50

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

1. Elucidate the 2 group simple random design and random replication design with the help of diagram. 5+5=10
2. Explain the different types of research with examples. 10
3. a. Differentiate between research methods and methodology. 3+7=10
b. Elaborate on the different types of sampling methods.
4. a. What is the significance of research? 4+6=10
b. Discuss the different techniques used in defining a research problem.
5. What are the criteria of a good research design? 10
6. Define primary data and secondary data. Write about their significances. Make a comparative differentiation between the two types of data. 2+4+4=10
7. Write a detailed note on data interpretation. 10
8. Explain the importance of testing of hypothesis in Research. 10

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