

**M.Sc. BIOTECHNOLOGY**  
**Third Semester**  
**RESEARCH METHODOLOGY**  
**(MBT - 303)**

**Duration: 3Hrs.**

**Full Marks: 70**

**Part-A (Objective) =20**  
**Part-B (Descriptive) =50**

**(PART-B: Descriptive)**

**Duration: 2 hrs. 40 mins.**

**Marks: 50**

**Answer the following questions:**

1. Write short notes on the following : (2×5=10)

- (i) Experience survey                      (ii) Pilot survey  
(iii) Objective of research              (iv) Depth interview  
(v) Research Hypothesis

2. How do you define a research problem? Give your views on its significance towards the benefit of the society and people. (4+6=10)

Or

Give a comparative account on 'research problem' and the 'research constraint'. Explain the major constraints encountered by the researchers in carrying out research in our country. (5+5=10)

3. What is research design? Discuss the basis of stratification to be employed in sampling public opinion on inflation. (4+6=10)

4. How Professor R. A. Fisher's name became associated with the experimental design? Explain the three basic principles of experimental design. (4+6=10)

Or

What is 'statistical method'? Explain the importance of applying 'statistical methods' of data analysis in the processing of experimental data. (5+5=10)

5. "Interpretation is an art of drawing inferences, depending upon the skill of the researcher". Elucidate the given statement explaining the technique of interpretation, (10)

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**M.Sc. BIOTECHNOLOGY**  
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**Duration: 20 minutes**

**Marks – 20**

**(PART A - Objective Type)**

**I. Tick the correct answer:**

**1×10=10**

1. Applied research is to –
  - a) Acquire knowledge
  - b) Solve society's immediate problem
  - c) Develop theory
  - d) Stop corruption
2. Research designs of a project is prepared on the basis of –
  - a) Survey informations
  - b) Hypothesis of study
  - c) Overall aim of the project
  - d) One objective
3. Application of statistical methods in biological research was introduced by-
  - a) Watson
  - b) R.A. Fisher
  - c) Gregor Mendel
  - d) John Goss
4. The act of selecting and constructing research technique is referred as –
  - a) Research-designing
  - b) Research-methods
  - c) Research-planning
  - d) Research modelling
5. The observation method commonly used in studies relating to behavioural sciences is –
  - a) A scientific method
  - b) Not a scientific method
  - c) An accepted method
  - d) None of the above
6. Inference drawing from the experimental data collected is performed through –
  - a) Discussion
  - b) Comparison
  - c) Interpretation
  - d) Computation

7. For phylogenetic relationship studies the most reliable marker can be –
  - a) Morphological
  - b) Phylogenetic
  - c) Molecular
  - d) Biochemical
8. A search for knowledge through objective and systematic method of finding solution to a problem is -
  - a) Experimentation
  - b) Demonstration
  - c) Research
  - d) None of the above
9. The main aim of research is to establish the –
  - a) Truth
  - b) False
  - c) Belief
  - d) Trust
10. Classification of collected data to homogeneous groups is important –
  - a) for preparing project report
  - b) for data presentation
  - c) to get meaningful relationships
  - d) For none of the above

**II. Tick true or false:**

**1×10=10**

1. Validity is more critical to measurement, than reliability. (True/False)
2. The basic objective of scientific research is to establish the truth. (True/False)
3. Time targeted work plan is important in the successful completion of the scientific researches. (True/False)
4. Paired t-test is applied to examine the correlation between two variables of a statistically designed field experimental data. (True/False)
5. Pilot survey provides final data for analysis and compilation of the conclusive research report. (True/False)
6. Search for documented records of past research works is the primary requirement before finalization of the study programme. (True/False)
7. To assess the reliability of any experimental data, statistical analysis using appropriate method is indispensable. (True/False)

8. 'Experience survey' provides facilitates in successfully carrying out the exploratory research studies. (True/False)
9. 'Latin square design' is not applicable in the agronomical researches. (True/False)
10. The pre-determined plots or the blocks, where different treatments are applied, are known as 'Experimental units'. (True/False)

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