

M.Sc. BIOTECHNOLOGY
Third Semester
RESEARCH METHODOLOGY
(MBT - 13)

Duration: 3Hrs.

Full Marks: 70

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

(PART-B: Descriptive)

Duration: 2 hrs. 40 mins.

Marks: 50

(Answer *Question No. 1* and any *four* from *Question Nos. 2 – 8*)

1. Write in brief on any *five* of the following: (2×5=10)
- i. Research motivation.
 - ii. Pantry audits.
 - iii. Diagnostic research studies.
 - iv. Questionnaire.
 - v. Pilot Survey.
 - vi. Sampling error.
 - vii. Review of literature.
2. What is research constraint? Explain the constraints faced by the Indian researchers who are engaged in empirical research. Explain the important problems. (2+3+5=10)

OR

- What do you mean by hypothesis? Explain the importance of hypothesis in formulation a research problem. (4+6=10)
3. Explain what research methodology is. Distinguish between research methods and methodology. (5+5=10)

4. What do you mean by interpretation of data? Discuss its importance in research. What precautions a researcher need to take while interpreting his finding?
(2+4+4=10)
5. What is research design? Discuss its significance in research, siting some of the important designs being used in the experimental hypothesis – testing research study.
(3+7=10)
6. Write on the importance of reporting the research findings. Discuss the layout of a research report to be submitted for a degree of a University covering all relevant points.
(4+6=10)
7. “Empirical research in India in particular creates so many problems for the researchers”. State the problems that are usually faced by such researchers. (10)
8. Write in details on the importance of statistical applications in biological research.
(10)

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Duration: 20 minutes

Marks – 20

(PART A - Objective Type)

I. Choose the correct answer:

1×10=10

- i) The first approach of any research work is
 - a. collection of materials.
 - b. survey of literature.
 - c. procurement of equipments.
- ii) After data collection, the researchers need to follow the task of
 - a. preparing graph.
 - b. analyzing the data.
 - c. writing the report.
- iii) t-test is applied to examine the significance of mean differences between
 - a. two related samples of smaller size.
 - b. multiple samples.
 - c. samples of unknown sample size.
- iv) Computer technology and its applications have made research
 - a. complicated.
 - b. easy.
 - c. dynamic.
- v) The main aim of research is to establish the
 - a. truth.
 - b. false.
 - c. belief.
- vi) Classification of collected data to homogeneous groups is important
 - a. for preparing project report.
 - b. for data presentation.
 - c. to get meaningful relationships.
- vii) Applied research is to
 - a. acquire knowledge.
 - b. solve society's immediate problem.
 - c. develop theory.

- viii) Sequential sampling is usually adopted under
 - a. field experimentations.
 - b. statistically accepted sampling plan of quality control.
 - c. laboratory scale experimentations.
- ix) Research designs of a project is prepared on the basis of
 - a. survey informations.
 - b. hypothesis of study.
 - c. overall aim of the project .
- x) From the experimental data collected, inferences can be drawn after processing and compilation through
 - a. discussion.
 - b. comparison.
 - c. interpretation.

II. Fill in the blanks:

1×10=10

- i) Research design in exploratory studies must not be _____.
(flexible/definite/indefinite)
- ii) A search for knowledge through objective and systematic method of finding solution to a problem is _____. (experimentation/demonstration/research)
- iii) _____ leads to the establishment of explanatory concepts that can serve as a guide for future research studies. (interaction/ interpretation /discussion)
- iv) _____ proves to be an important database of the available informations related to research activities. (Biostatistics/ Bioinformatics/ Biotechnology)
- v) The term 'Variance' was first used by _____ in biological research. (C. Darwin/ Professor R. A. Fisher / Johann Mendel)
- vi) The task of defining the research problem often followed as _____ pattern. (systematic/ rhythmic / sequential)
- vii) The past report / papers mentioned in the text of a project/report/dissertation/thesis is to be listed under _____. (Literature/ reference/ bibliography)
- viii) For collection of relevant informations in various economic and business surveys, carefully prepared _____ are used. (question-forms/questionnaires/query-formats)
- ix) Results obtained from a scientifically designed systematic experimentation are defined as an outcome of _____ research work. (meticulous/routine/ good).

x) The formal question that a researcher intends to resolve is _____.
(quarry/hypotheses/objective)
