

2025

M.Sc. 1st Semester Examination

**BIOTECHNOLOGY AND
BIOINFORMATICS**

Paper : BTIC403X0

[Research Methodology and Ethics]

Full Marks : 50

Time : Two Hours

*The figures in the margin indicate full marks.
Candidates are required to give their answers
in their own words as far as practicable.*

Group - A

Answer any *four* questions : $2 \times 4 = 8$

1. Distinguish between method and methodology.
2. Give short note on 'Survey'.
3. Define 'concept' with examples.
4. What is a proposition?
5. Write brief note on plagiarism.
6. Distinguish between 'data' and 'information'.

P.T.O.

(2)

Group - B

Answer any *four* questions : $4 \times 4 = 16$

7. Give the definition of 'Research Design'.
8. Write short notes on :
 - (i) Biosafety
 - (ii) Sampling
9. What is meant by relevance of a research design?
10. What is meant by 'validity' in research?
11. What do you mean by 'standard error'?
12. Distinguish between quantitative and qualitative data.

Group - C

Answer any *two* questions : $8 \times 2 = 16$

13. Explain the importance of studying research methodology.
14. State the characteristic features of quantitative and qualitative data.
15. Prepare a research design by following the different steps.
16. How can quantitative and qualitative data be combined? Explain.

Internal Assessment - 10 marks

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Group - A

Answer any *four* questions : 2×4=8

1. What is impact factor?
2. What is null hypothesis?
3. What is conflict of interest?
4. What is non-probability sampling?
5. What is misrepresentation of data?
6. Define salami slicing.

P.T.O.

(2)

Group - B

Answer any *four* questions : $4 \times 4 = 16$

7. Define research and discuss its importance in scientific studies. $1+3$
8. Write note on plagiarism detection tools and prevention.
9. What is research design? Explain the components of research design. $1+3$
10. Compare probability and non-probability sampling method.
11. Explain various ethical issues involved in research.
12. Explain the role of Institutional Ethical Committee (IEC).

Group - C

Answer any *two* questions : $8 \times 2 = 16$

13. Explain basic and applied research with suitable example. Explain data analysis and interpretation. $5+3$
14. Briefly explain the different types of probability sampling methods : random, stratified, cluster and systemic sampling.
15. Explain peer review process and its importance in scientific publication. What is data reproducibility? $(4+2)+2$
16. Write note on authorship ethics. Explain importance of blinding and randomization in experiments. $4+(2+2)$

Internal Assessment : 10 marks
