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**MTECH**  
**(SEM I) THEORY EXAMINATION 2025-26**  
**RESEARCH PROCESS & METHODOLOGY**

TIME: 3 HRS

M.MARKS: 100

**Note:** Attempt all Sections. In case of any missing data; choose suitably.

**SECTION A**

**1. Attempt all questions in brief.**

**02 x 7 = 14**

Q. No.	Question
a.	What is the meaning and objective of research?
b.	Differentiate between Thesis and Dissertation as types of research reports.
c.	What is a research hypothesis? Give one example.
d.	Briefly explain the role of Intellectual Property in research.
e.	What are ethical considerations that must be adhered to during the data collection phase of research?
f.	List the four main types of research (e.g., descriptive, analytical, etc.).
g.	Define Sampling and state one advantage of using it.

**SECTION B**

**2. Attempt any three of the following:**

**07 x 3 = 21**

a.	Describe the complete steps involved in research, from identifying the problem to reporting the results.
b.	What is Research Design? Explain the various methods of research design (e.g., experimental, descriptive, diagnostic, etc.) with suitable examples.
c.	Discuss the problem of Plagiarism in technical writing. What measures can researchers take to avoid it?
d.	Explain the procedure of Hypothesis Testing. Describe the concepts of Null Hypothesis (H <sub>0</sub> ) and Alternative Hypothesis (H <sub>1</sub> ) and the two types of errors involved.
e.	Classify and describe the various Methods of Data Collection, highlighting the difference between primary and secondary data.

**SECTION C**

**3. Attempt any one part of the following:**

**07 x 1 = 07**

a.	Explain the significance and procedure for defining a research problem. Discuss the qualities of a good research problem statement.
b.	Discuss the Classification of Data in detail. Explain the role of data in achieving the objectives of research.

**4. Attempt any one part of the following:**

**07 x 1 = 07**

a.	Elaborate on the different Sampling Techniques (e.g., probability and non-probability sampling). Explain the procedure and methods of any two probability sampling techniques.
b.	What are the various steps involved in the research process? Explain how a comprehensive Literature Survey is conducted and its importance in this process.

**5. Attempt any one part of the following:**

**07 x 1 = 07**

a.	What is Data Analysis? Explain the process of choosing an appropriate statistical technique for data analysis and the need for Statistical Inference in drawing conclusions.
b.	Describe the characteristics and applications of various types of research reports, such as review articles, short communications, and conference presentations.



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**6. Attempt any one part of the following: 07 x 1 = 07**

a.	Discuss the various Referencing and Referencing Styles (e.g., APA, MLA, IEEE). Explain why proper referencing is crucial for the ethical reporting of research.
b.	Explain the purpose and features of Data Processing Software (e.g., SPSS) in research. Detail the procedure of Data Processing before interpretation of results.

**7. Attempt any one part of the following: 07 x 1 = 07**

a.	What are Research Journals? Explain the terms Indexing and Citation of Journals and their significance in determining the quality and reach of a research paper.
b.	Elaborate on the concept of Interpretation of Results in research. Explain how it differs from mere data analysis and what cautions should be observed during this stage.

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