

Paper Code: MTCC-101/Pre-PhD

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**M. Tech./PrePhD**  
**FIRST SEMESTER EXAMINATION, 2016-17**  
**RESEARCH PROCESS AND METHODOLOGY**

[Time: 3 hrs.]

[Max. Marks: 70]

**Note:** Attempt all questions. All questions carry equal marks.

1. Attempt any four parts of the following:- [3.5×4=14]
  - (a) Define research. Briefly discuss its objectives and importance.
  - (b) How do you define a research problem? Explain with suitable examples.
  - (c) Briefly discuss the importance of literature review in research.
  - (d) Differentiate between random and systematic sampling.
  - (e) What is t-test? Differentiate between t-test and z-test.
  
2. Attempt any two parts of the following:- [7×2=14]
  - (a) Define research and briefly explain various types of research.
  - (b) Briefly describe the various steps involved in research process.
  - (c) What is Chi-square test? Explain its assumptions and also discuss under what conditions this statistical test is used.
  
3. Attempt any two parts of the following:- [7×2=14]
  - (a) List out the relative advantages and disadvantages of questionnaire and interview methods of data collection.
  - (b) What is research design? Briefly discuss various types of research designs.
  - (c) Differentiate between the following: (2+2+3)
    - (i) Type I and Type II Error
    - (ii) Correlation and regression
    - (iii) Validity and reliability
  
4. Attempt any two parts of the following:- [7×2=14]
  - (a) What is sampling? Differentiate between probability and non-probability sampling techniques with suitable examples.
  - (b) Differentiate between primary and secondary data. Also discuss the relative advantages and disadvantages of using primary and secondary data in research.
  - (c) Write a note on ethical issues involved in research and also discuss the problems faced by researchers in India.
  
5. Attempt any two parts of the following:- [7×2=14]
  - (a) What is hypothesis? Briefly explain steps involved in hypothesis testing.
  - (b) Differentiate between parametric and non-parametric tests. Also discuss various assumptions of parametric tests.
  - (c) What is a research report? What is the importance of research report? Briefly explain the outline of a research report.