

**M TECH**  
**THIRD SEMESTER EXAMINATION 2020-2021**  
**RM031**  
**RESEARCH METHODOLOGY**

Time: 2 Hours

Max. Marks: 100

Note:

- Attempt ALL questions.
- All questions are equal marks.
- All symbols have usual meaning.

1. Attempt any two parts of the following [2x5]

- a) What are the main issues which should receive the attention of the researcher in formulation of the research problem?
- b) What is a hypothesis? Discuss the parametric tests of hypotheses in detail. Distinguish between null hypothesis and alternative hypothesis.
- c) What is literature review? Discuss the significance of literature review in the formulation of objective of a research.

2. Attempt any two parts of the following: [2x5]

- a. Explain with suitable examples how the research is connected with proper fact finding, analysis and evaluation.
- b. What is statistical analysis and inference? Explain the significance of the formulation of any research problem.
- c. Enumerate the different method of data collection. What do you understand by primary data and secondary data? [2x5]

3. Attempt any two parts of the following:

- a. How does the case study method differ from the survey method? Analyse the merits and limitations of case study method. Derive the expression for autocorrelation and cross-correlation function.
- b. Define auto-correlation and cross-correlation function. Describe binomial distribution for autocorrelation function. Describe Chi-Square distribution and distribution with mathematical expression.
- c. Define the probability distribution function. Describe binomial distribution and distribution with mathematical expression.

4. Attempt any two parts of the following:

[2x5]

- a. Explain the significance of a research report and narrate the various steps involved writing such report.
- b. Discuss the environmental impacts and ethical issues in research issues of results. Describe the structure of ethical committees.
- c. Describe and differentiate between bibliography, referencing and footnote.

5. Write short notes on any two of the following:

[2x5]

- a. Research Objective
- b. Intellectual property
- c. Oral Presentation