

Roll No.

Total No. of Pages : 02

Total No. of Questions : 08

M.Tech. (ME / Manufacturing Engg. And Automation) (Sem.-2)

**RESEARCH METHODOLOGY**

Subject Code : MTME-201

M.Code : 92080

Date of Examination : 04-07-22

Time : 3 Hrs.

Max. Marks : 100

**INSTRUCTIONS TO CANDIDATES :**

1. Attempt any FIVE questions out of EIGHT questions.

2. Each question carries TWENTY marks.

1. What is Research problem? Define the main issues which should receive the attention of the researcher in formulating the research problem. Give suitable examples to elucidate your points.
2. Explain the basic principle of Design of experiments. Differentiate between One, 2k and 3k factors of experiments.
3. The Taguchi's method is considered a technique that helps build quality into a product or process. Explain what aspect of quality it influences and how? Discuss and explain the term signal to noise ratio.
4. A stock market analyst wants to study the impact of the type of company on the quarterly averages of the earnings per share (EPS). So, he collected four quarterly averages of EPS data of four different companies during the last financial year from capital market which is summarized below:

	Company			
	C <sub>1</sub>	C <sub>2</sub>	C <sub>3</sub>	C <sub>4</sub>
Replication	12	16	25	13
	8	18	15	8
	16	10	22	20
	19	11	9	5

Check whether there is a significant difference between different companies in terms of EPS at a significance level of 5%.

5. What is the purpose of response surface methodology? Explain the steps of analysis for second order response surface.
6. What is Ethics, and how does it apply to research with human participants?
7. Explain the data analysis features of any statistical software.
8. Write short notes on the following:
  - (a) The techniques of writing report;
  - (b) Characteristics of a good research report;
  - (c) Bibliography and its importance in context of research report;
  - (d) Rewriting and polishing of report.

**NOTE : Disclosure of Identity by writing Mobile No. or Marking of passing request on any paper of Answer Sheet will lead to UMC against the Student.**