

M.Tech. Mechanical Engineering Design CBCS Pattern Semester-III
MED31 - Research Methodology

P. Pages : 1

Time : Three Hours



GUG/W/23/14202

Max. Marks : 70

- Notes :
1. All questions carry equal marks.
 2. Due credit will be given to neatness and adequate dimensions.
 3. Assume suitable data wherever necessary.
 4. Illustrate your answers wherever necessary with the help of neat sketches.
 5. Solve **any five** questions.

1. a) Define Hypothesis. Discuss briefly any five sources of Hypothesis. 7
b) How do you define a research problem? Give three examples to illustrate your answer. 7
2. a) Describe some of the important research designs used in experimental hypothesis-testing research. 7
b) What do you understand by Empirical Research/ How is more relevant to the field of engineering & Technology? 7
3. a) Discuss any FIVE objectives of a good research. 7
b) Distinguish between research methods & research methodology. 7
4. a) What is research design? Discuss the basis of stratification to be employed in sampling public opinion on inflation. 7
b) Explain in brief the difference between collection of data through questionnaires and schedules. 7
5. a) Explain about simple Regression and partial correlation in detail. 7
b) How does the case study method differ from the survey method? Analyse the merits and limitations of case study method in sociological research. 7
6. a) Explain the meaning of analysis of variance. Describe briefly the technique of analysis of variance for one-way and two-way classification. 7
b) What is ANOVA? Explain about the basic principle of ANOVA Technique. 7
7. a) What is probability sampling? Explain any one probability sampling. 7
b) Describe, in brief, the layout of a research report, covering all relevant points. 7
8. a) Explain in detail 7
i) Short-cut method for one way ANOVA ii) ANOVA in Latin-Square Design.
b) Discuss significance of t-test & f-test. 7
