

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

P. Pages : 1

Time : Three Hours



GUG/W/24/14202

Max. Marks : 70

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- 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. Diagrams and Chemical equation should be given wherever necessary.
 5. Illustrate your answers wherever necessary with the help of neat sketches.
 6. Solve **any five** questions.

1. a) Discuss any five objectives of a good research. 7
b) Distinguish between an experiment and survey. Explain fully the survey method of research. 7
2. a) Define Hypothesis. Discuss briefly any five sources of Hypothesis. 7
b) What is probability sampling? Explain any one probability sampling. 7
3. a) Explain in brief the difference between collection of data through questionnaires and schedules. 7
b) Examine the merits and limitations of the observation method in collecting material. Illustrate your answer with suitable examples. 7
4. 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
5. a) How do you define a research problem? Give three examples to illustrate your answer. 7
b) Distinguish between research methods & research methodology. 7
6. a) Describe, in brief, the layout of a research report, covering all relevant points. 7
b) Explain the significance of a research report and narrate the various steps involved in writing such a report. 7
7. a) Enlist any seven characteristics of case study. 7
b) What are various types of reports? Explain each type briefly. 7
8. Distinguish between: 14
a) Restricted and unrestricted sampling;
b) Convenience and purposive sampling;
c) Systematic and stratified sampling;
d) Cluster and area sampling
