TUTOR MARKED ASSIGNMENT

Course Code	**:**	**MCO – 03**
Course Title	**:**	**Research Methodology and Statistical Analysis**
Assignment Code	**:**	**MCO - 03 /TMA/2026-27**
Coverage	**:**	**All Blocks**

Maximum Marks: 100

Attempt all the questions.

Q. 1 a) Discuss the significance of research design in research. Compare exploratory, descriptive, and causal research designs with suitable examples. **(10+10)**

b) Explain the concept of measurement and scaling. Discuss different levels of measurement scales and evaluate their usefulness in research.

Q. 2 a) Discuss various methods of data collection. Compare primary and secondary data sources and explain their relevance in modern research. **(10+10)**

b) Describe various methods of data presentation. Explain the role of statistical tables and graphical presentations in communicating research findings.

Q. 3 a) Explain the concepts of central tendency and dispersion. Discuss how these measures assist managers in interpreting business data. **(10+10)**

b) Discuss the concept of correlation. Explain different types of correlation and evaluate the usefulness and limitations of Karl Pearson's coefficient of correlation.

Q. 4 **Distinguish between the following:** **(4×5)**

a) Nominal Scale and Ordinal Scale
b) Parametric and Non-Parametric Test
c) Editing and Coding of Data
d) Discrete Frequency Distribution and Continuous Frequency Distribution
e) Statistical Independence and Statistical Dependence

Q. 5 **Write Short Notes on the following:** **(4×5)**

a) Issues in Attitude Measurement and their implications for research quality.
b) Geographical and Chronological Classification of Data.
c) Scatter Diagram as a tool for studying relationships between variables.
d) Interpretation, Generalization, and Statistical Fallacies in research studies

Q. 1 a) Discuss the significance of research design in research. Compare exploratory, descriptive, and causal research designs with suitable examples. (10+10)

Answer

Research design is the overall plan or blueprint that connects a research problem with the evidence needed to answer it. It specifies what information is required, from whom it will be obtained, how variables will be measured, how data will be collected, and how the data will be analysed. A sound design therefore converts a broad research idea into a workable and logically organised study.

Significance of research design

The first importance of research design is **clarity of direction**. It forces the researcher to state the objectives, questions or hypotheses in operational terms and to decide what evidence can actually answer them. This reduces the risk of collecting large amounts of interesting but irrelevant information. The design also helps in choosing an appropriate population, sampling method, measurement instruments and statistical techniques.

A second function is **control of error and bias**. Research findings may be distorted by poor sampling, ambiguous questions, interviewer influence, uncontrolled extraneous factors or inappropriate comparison groups. A design planned in advance identifies such threats and provides procedures to minimise them. In causal studies, for example, control groups and randomisation improve the ability to separate the effect of an independent variable from other influences.

Research design also improves **efficiency and feasibility**. Time, money and manpower are limited in most business studies. A clear design states the sequence of activities, the data required and the method of analysis, so resources can be allocated realistically. It also supports reliability and validity because measurement and data-collection procedures are specified consistently.

Comparison of major research designs

Basis	Exploratory design	Descriptive design	Causal design
Main purpose	To gain insight, clarify a problem and generate ideas or hypotheses.	To describe characteristics, frequencies, trends or associations accurately.	To test whether a change in one variable produces a change in another.