MODULE - 3

Defining the Research Problem

Research Design: Meaning of Research Design, Need for Research Design, Features of a Good Design, Important Concepts Relating to Research Design, Different Research Designs, Basic Principles of Experimental Designs, Important Experimental Designs. Design of Sample Surveys: Introduction, Sample Design, Sampling and Non-sampling Errors, Sample Survey versus Census Survey, Types of Sampling Designs **8 Hours**

Introduction to Research Design

1. **What is research design?**
   a) A framework for conducting research
   b) A method of data collection
   c) A statistical analysis method
   d) A type of sampling technique

   Answer: a) A framework for conducting research

2. **Which of the following is NOT an element of research design?**
   a) Sampling design
   b) Statistical analysis
   c) Review of literature
   d) Data collection methods

   Answer: c) Review of literature

3. **The primary objective of research design is to:**
   a) Minimize errors in research
   b) Maximize the reliability of research findings
   c) Structure the research process efficiently
   d) All of the above

   Answer: d) All of the above

4. **Which of the following factors influences research design?**
   a) Nature of the research problem
   b) Time and resources available
   c) Ethical considerations
   d) All of the above

   Answer: d) All of the above

5. **What is the first step in research design?**
   a) Data analysis
   b) Identifying the research problem
   c) Literature review
   d) Report writing

   Answer: b) Identifying the research problem

Types of Research Design

6. **Which of the following is NOT a type of research design?**
   a) Exploratory research design
   b) Descriptive research design
   c) Hypothetical research design
   d) Experimental research design

   Answer: c) Hypothetical research design

7. **Descriptive research design primarily aims to:**
   a) Find cause-and-effect relationships
   b) Explore unknown phenomena
   c) Describe characteristics of a population
   d) Test hypotheses

   Answer: c) Describe characteristics of a population

8. **Exploratory research design is used when:**
   a) The problem is well-defined
   b) The researcher seeks to establish causal relationships
   c) There is little prior knowledge about the problem
   d) The sample size is large

   Answer: c) There is little prior knowledge about the problem

Key Features of Research Design

9. **Which of the following is a characteristic of a good research design?**
   a) Flexibility
   b) Objectivity
   c) Accuracy
   d) All of the above

   Answer: d) All of the above

10. **What is the role of hypothesis in research design?**
    a) It defines the population
    b) It provides a tentative explanation
    c) It eliminates the need for sampling
    d) It serves as the final conclusion

    Answer: b) It provides a tentative explanation

11. **Which research design is most suitable for studying rare events?**
    a) Case study
    b) Experimental
    c) Survey
    d) Cross-sectional

    Answer: a) Case study

12. **A research design must include:**
    a) Objectives of the study
    b) Methods of data collection
    c) Sampling techniques
    d) All of the above

    Answer: d) All of the above

13. **Which of the following is NOT a component of research design?**
    a) Theoretical framework
    b) Data collection methods
    c) Sample size determination
    d) Literature review

    Answer: d) Literature review

Experimental and Non-Experimental Research Design

14. **Which research design involves manipulating one or more independent variables?**
    a) Exploratory
    b) Descriptive
    c) Experimental
    d) Correlational

    Answer: c) Experimental

15. **The difference between experimental and quasi-experimental research is:**
    a) Experimental research does not require a hypothesis
    b) Quasi-experimental research lacks randomization
    c) Experimental research is purely qualitative
    d) Quasi-experimental research does not use variables

    Answer: b) Quasi-experimental research lacks randomization

Sampling in Research Design

16. **Sampling design refers to:**
    a) The method used to collect data
    b) The way a sample is selected from a population
    c) The statistical tools used for data analysis
    d) The process of defining research objectives

    Answer: b) The way a sample is selected from a population

17. **Probability sampling methods include:**
    a) Convenience sampling
    b) Purposive sampling
    c) Simple random sampling
    d) Snowball sampling

    Answer: c) Simple random sampling

18. **Which type of sampling ensures equal chance for each unit in the population?**
    a) Stratified sampling
    b) Cluster sampling
    c) Simple random sampling
    d) Quota sampling

    Answer: c) Simple random sampling

19. **Which of the following is a non-probability sampling method?**
    a) Stratified sampling
    b) Simple random sampling
    c) Judgmental sampling
    d) Systematic sampling

    Answer: c) Judgmental sampling

20. **The main advantage of probability sampling is:**
    a) It is easier to implement
    b) It eliminates bias
    c) It does not require a sampling frame
    d) It is cheaper

    Answer: b) It eliminates bias

Sampling and Non-Sampling Errors

21. **Which of the following is a type of non-sampling error?**
    a) Measurement error
    b) Sampling error
    c) Coverage error
    d) Both a and c

    Answer: d) Both a and c

22. **Sampling error arises due to:**
    a) Improper data analysis
    b) Bias in selecting respondents
    c) Selecting only a subset of the population
    d) Faulty questionnaire design

    Answer: c) Selecting only a subset of the population

23. **Which of the following helps reduce sampling error?**
    a) Increasing sample size
    b) Reducing population size
    c) Using non-probability sampling
    d) Ignoring outliers

    Answer: a) Increasing sample size

24. **Non-sampling errors can be reduced by:**
    a) Proper questionnaire design
    b) Randomized data collection
    c) Training of data collectors
    d) All of the above

    Answer: d) All of the above

25. **The difference between a sample survey and a census survey is that:**
    a) A sample survey studies only a portion of the population
    b) A census survey studies the entire population
    c) Both a and b
    d) None of the above

    Answer: c) Both a and b

Principles of Experimental Design

26. **Randomization in an experiment helps to:**
    a) Ensure objectivity
    b) Minimize bias
    c) Improve reliability
    d) All of the above

    Answer: d) All of the above

27. **Which of the following is NOT an important aspect of experimental research?**
    a) Control group
    b) Manipulation of variables
    c) Exploratory methods
    d) Randomization

    Answer: c) Exploratory methods

28. **Which of the following is an example of a true experimental design?**
    a) pre-experimental design
    b) Quasi-experimental design
    c) Randomized control trial
    d) Case study

    Answer: c) Randomized control trial

Design of Sample Surveys

29. **Which of the following is a feature of a well-designed sample survey?**
    a) Representative sample
    b) Low non-response bias
    c) High reliability
    d) All of the above

    Answer: d) All of the above

30. **Which of the following is NOT an advantage of sample surveys?**
    a) Cost-effectiveness
    b) Time-saving
    c) Generalizability to the population
    d) Studying every unit in the population

    Answer: d) Studying every unit in the population

31. **Which sampling technique is most appropriate for large populations?**
    a) Simple random sampling
    b) Snowball sampling
    c) Purposive sampling
    d) Convenience sampling

    Answer: a) Simple random sampling

Final Questions on Research Design

32. **Which research design is best suited for hypothesis testing?**
    a) Exploratory research
    b) Descriptive research
    c) Experimental research
    d) Qualitative research

    Answer: c) Experimental research

33. **Which of the following best describes a good research design?**
    a) Rigid and inflexible
    b) Clear, efficient, and systematic
    c) Based only on qualitative methods
    d) Based only on quantitative methods

    Answer: b) Clear, efficient, and systematic

34. **Which of the following helps in reducing bias in research?**
    a) Randomization
    b) Controlling extraneous variables
    c) Using appropriate sample size
    d) All of the above

    Answer: d) All of the above

35. **A research design should be selected based on:**
    a) Availability of time
    b) Research objectives
    c) Researcher's convenience
    d) Only qualitative aspects

    Answer: b) Research objectives

36. **The final step in research design is usually:**
    a) Conducting a pilot study
    b) Finalizing data collection methods
    c) Analyzing collected data
    d) Preparing a research report

    Answer: d) Preparing a research report

**********MODULE - 3**********