

BINDURA UNIVERSITY OF SCIENCE EDUCATION
FACULTY OF SCIENCE EDUCATION
DEPARTMENT OF EDUCATIONAL FOUNDATIONS
DD004/ PC015 RESEARCH METHODS
DIPLOMA IN SCIENCE EDUCATION

Duration: 2 Hours

INSTRUCTIONS

Answer all questions in Section A.

Answer any two questions in Section B.

SECTION A (30 MARKS)

Choose the correct answer and write only the question number and letter in the examination answer booklet.

1. What is the name of the conceptual framework in which the research is carried out?
 - A. Research hypothesis
 - B. Synopsis of Research
 - C. Research paradigm
 - D. Research design
2. What is the main role of research in education?
 - A. To upsurge one's social status.
 - B. To increase one's job prospects.
 - C. Provides evidence to effect change in one's teaching, school and beyond.
 - D. None of the above.
3. Find the arithmetic mean of the set of data: 6,1,5,8, and 10.
 - A. 4
 - B. 5
 - C. 6
 - D. 7
4. How is random sampling helpful?
 - A. Reasonably accurate
 - B. An economical method of data collection
 - C. Free from personal biases
 - D. All the above

APR 2025

12. Which of the following options are the main tasks of research in modern society?
- A. how well are we doing?
 - B. why are we doing it?
 - C. what are we doing?
 - D. none of the above
11. Evaluation Research is concerned with _____
- A. Long-term research
 - B. Short-term research
 - C. Horizontal research
 - D. None of the above
10. What does the longitudinal research approach deal with?
- A. The null hypotheses get accepted even if it is false.
 - B. The null hypotheses get rejected even if it is true.
 - C. Both the null hypotheses as well as alternative hypotheses are rejected.
 - D. None of the above
9. What are the conditions in which Type-I error occurs?
- A. It is only the alternative hypotheses that can be tested.
 - B. It is only the null hypotheses that can be tested.
 - C. Both the alternative and the null hypotheses can be tested.
 - D. Both the alternative and the null hypotheses cannot be tested.
8. Which one among the following statements is true in the context of the testing of hypotheses?
- A. 13
 - B. 23
 - C. 25
 - D. 19
7. Find the median of phone calls received on 7 consecutive days 11, 13, 17, 13, 23, 25, 19.
- A. 11
 - B. 13
 - C. 17
 - D. 23
6. Find the mode of the number of phone calls received on 7 consecutive days 11, 13, 13, 17, 19, 23, 25.
- A. Developing a research design
 - B. Formulating a research question
 - C. Deciding about the data analysis procedure
 - D. Formulating a research hypothesis
5. Which of the following is required first in the research process?

18. What is the importance of citation and referencing?
- A. Introduction; Data Collection; Data Analysis; Conclusions and Recommendations
 - B. Executive Summary; Literature Review; Data Gathered; Conclusions; Bibliography.
 - C. Research Plan; Research Data; Analysis; References
 - D. Introduction; Literature Review; Research Methodology; Results; Discussions and Conclusions
17. What are the core elements of a research project?
- A. It has utility and relevance.
 - B. It is new and adds something to knowledge.
 - C. It is researchable.
 - D. All the above
16. A research problem is feasible only when.
- A. 6
 - B. 94
 - C. 91
 - D. 84
15. Calculate the range of the given sets of data 7,47,8,42,47,95,42,96,2.
- A. 11,12,10
 - B. 10,12,13
 - C. 11,12,13
 - D. 10,12,11
14. Find the mean, mode and median of the given sets of data: 5,8,12,17,12,14,6,8, 12, and 10.
- A. By research title
 - B. By research duration
 - C. By research objectives
 - D. By total expenditure on research
13. How does one judge the worth of any research?
- A. To learn new things.
 - B. To keep pace with the advancement in knowledge.
 - C. To systematically examine and critically analyze the investigations/sources with the objective.
 - D. All the above.

19. The runs scored by a batsman in 5 ODIs are 31, 97, 112, 63, and 12. The standard deviation is.
- A. Giving credit to others for their work
 - B. To show how your work is related to previous work.
 - C. Help readers find further information.
 - D. All the above.

20. Find the variance of the given data sets 7, 47, 8, 42, 47, 95, 42, 96, 3.
- A. 24.79
 - B. 23.79
 - C. 25.79
 - D. 26.79

- A. 1028.78
- B. 1018.78
- C. 1029.78
- D. 1019.78

21. Find the standard deviation of the given data sets 7, 47, 8, 42, 47, 95, 42, 96, 3.

- A. 29.09
- B. 30.09
- C. 31.09
- D. 32.09

22. Which technique is generally followed when the population is finite?

- A. Systematic Sampling Technique
- B. Purposive Sampling Technique
- C. Area Sampling Technique
- D. None of the above

23. Observation is the direct method of collecting.
- A. Primary data
 - B. Secondary data
 - C. Published data.
 - D. Both A and B

24. The research studies that explore the effect of one variable on another are known as
- A. Causal
 - B. Applied
 - C. Conclusive
 - D. Exploratory

25. Which of these is not a step in the problem identification process?
- A. Discussion with subject experts
 - B. Review of existing literature
 - C. Theoretical foundation and model building
 - D. Educational management decision making

26. The Publication Manual of the American Psychological Association and the Chicago Manual of Style are:
- A. Well known works on research
 - B. Referencing style guides
 - C. Publishing journals
 - D. Educational textbooks
27. A formal document that presents the research objectives, design of achieving these objectives, and the expected outcomes/deliverables of the study is called?

- A. Research design
 - B. Research proposal
 - C. Research hypothesis
 - D. Research report
28. Which of the following is not a characteristic of good research questions?

- A. Questions you already know the answer to.
- B. Appropriately complex.
- C. Focused.
- D. Clear.

29. Which of the following is not a strategy to avoid plagiarism in your writing?
- A. Keeping a record of all sources you have used.
 - B. In-text citations
 - C. List of reference at the end of the project
 - D. Presenting ideas from other published papers as one's own.
30. Which of the following is an important consideration in selecting a research problem?
- A. Avoiding duplication
 - B. Ethical acceptability
 - C. Political acceptability
 - D. All the above

SECTION B (20 MARKS)

Choose any 2 questions.

1. Select the correct word to fill in the blanks.

replicable sequential after eternal hypothesis independent variable
structured dependent before relational internal secondary

- a. The assumption about the expected result of the research is called the _____.
 - (1)
 - b. Research always requires a _____ and _____ method of inquiry. (2)
 - c. One of the most important aspects of a research study is that it must be _____ is one follows similar conditions. (1)
 - d. The causal variable is called the _____. (1)
 - e. The _____ variable is also called the effect. (1)
 - f. The hypotheses that talk about the relation between 2 or more variables are called _____ hypothesis. (1)
 - g. Previously collected findings which have been authenticated and published are referred to as _____ data sources. (1)
 - h. Research design comes _____ the problem formulation stage. (1)
 - i. _____ validity refers to the generalisation of sample results to that of the population. (1)
2. Indicate whether each of the following statements is true (T) or False (F)
- a. Applied research is the kind of research where one needs to apply specific statistical procedures.
 - b. Every research study always begins with a hypothesis.
 - c. The hypotheses are always made in question form.
 - d. The hypothesis must be measurable and quantifiable.
 - e. Academic proposals require extensive literature review.
 - f. Research design is the same as the research method.
 - g. The research variable in a longitudinal research design is studied over fixed intervals in time.
 - h. There is no possibility of error in true experimental research.

- i. The group of individuals from whom one needs to collect data for the study is called the population.
- j. The execution details of the research question to be investigated are referred to as the research paradigm.
3. Answer the following questions.
 - a. Name four levels of measurement. (4)
 - b. What are measures of central tendency used for? (2)
 - c. Name and define any 2 measures of central tendency. (4).

END OF PAPER