

N.V.K.S.D. COLLEGE OF EDUCATION
(AUTONOMOUS)

M.Ed. Degree Second Semester Examination, July 2025
(For the candidates admitted during the academic year 2024-2025)

**Tool Course: EDUCATIONAL RESEARCH METHODOLOGY
AND STATISTICS**

Course code: - MED2TC002

Time: 3 Hours

Maximum Marks: 70

SECTION A (10 x 1 = 10 marks)

Answer ALL the questions by selecting the appropriate answers.

1. A primary tool for qualitative data collection is
a) Statistical analysis software b) Experiments
c) In-depth interviews d) Survey questionnaires
2. The research technique that involves the systematic viewing and recording of behaviours or phenomena in a natural or controlled setting is
a) Projective technique b) Observation
c) Interview d) Sociometry
3. The type of measurement scale that classifies data into distinct categories without any order or ranking is
a) Ordinal scale b) Nominal scale
c) Interval scale d) Ratio scale
4. The method of establishing reliability that involves administering the same test to the same group of individuals on two separate occasions and correlating the scores is
a) Test-retest reliability b) Inter-rater reliability
c) Internal consistency reliability d) Parallel forms reliability

5. The measure of central tendency least affected by extreme outliers in a skewed distribution is

- a) Standard Deviation
- b) Median
- c) Arithmetic Mean
- d) Mode

6. The measure of position that divides a dataset into 100 equal parts, allowing for the precise ranking of individual scores relative to the entire distribution is

- a) Quartile
- b) Decile
- c) Percentile
- d) Z-score

7. The correlation coefficient used to measure the strength and direction of a linear relationship between two continuous variables is

- a) Kendall's Tau
- b) Pearson Product-Moment Correlation Coefficient
- c) Spearman's Rho
- d) Chi-square

8. The primary purpose of a simple linear regression equation in research is

- a) To compare the means of two or more independent groups
- b) To measure the strength and direction of a linear association between two variables
- c) To determine the cause-and-effect relationship between two categorical variables
- d) To predict the value of a dependent variable based on the value of a single independent variable

9. The factor generally leads to a reduction in sampling error is

- a) Increasing the sample size
- b) Using a non-probability sampling method
- c) Decreasing the sample size
- d) Increasing the variability within the population

10. In Statistics, 'degrees of freedom 'primarily refer to

- a) The number of distinct categories in a categorical variable
- b) The number of independent pieces of information

available to estimate a parameter

- c) The range of values within which a population parameter is expected to fall
- d) The number of variables in a dataset

SECTION B (5x 2 = 10 marks)

Answer all the FIVE questions in about 100 words each.

- 11. What is the primary purpose of a personality inventory in educational research?
- 12. In research, what is the fundamental concept that 'validity' aims to ensure regarding a measurement or study?
- 13. What does the 'Quartile Deviation' indicate about the spread of data?
- 14. Under what situations is rank correlation generally preferred over product-moment correlation?
- 15. What is the primary reason researchers often study a sample rather than an entire population?

SECTION C (6x 5 = 30 marks)

Answer any SIX questions in about 200 words each.

- 16. Discuss the main strengths and criticisms associated with the use of projective techniques in research and describe two distinct examples commonly used in research.
- 17. Outline the steps involved in the construction of a research tool.
- 18. Discuss the various approaches to establish internal consistency reliability
- 19. Discuss how does statistical analysis help identify trends, assess the effectiveness of interventions and ensure accountability in educational systems.

20. Explain why is the normal distribution considered highly significant in statistics and research, and provide at least two distinct examples.
21. Compare and contrast the Percentile Rank and Stanine Score as measures of position with their advantages and disadvantages.
22. Describe the appropriate correlation techniques to measure the strength of the relationship between two variables.
23. Differentiate between qualitative and quantitative data with examples.

SECTION D (2 x 10 = 20 marks)

Answer BOTH the questions in about 500 words each.

24. (a) Elaborate on how the research question, study design, type of data required, and characteristics of the target population influence the choice of specific research instruments. Provide examples to illustrate your points.
(Or)
(b) Discuss the criteria for selecting appropriate research tools. Explain any three tools of research in detail.
25. a) Explain the normal distribution curve. Discuss the concepts of skewness and kurtosis with suitable diagrams.
(Or)
(b) Calculate Pearson's correlation coefficient between the following scores in English (X) and Mathematics (Y):

Student	A	B	C	D	E
X	40	50	60	70	80
Y	45	55	65	75	85