KAMARAJ COLLEGE (Autonomous)

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(Affiliated to Manonmaniam Sundaranar University, Tirunelveli)

THOOTHUKUDI – 628 003

(6 Pages) **Reg. No: ……**

Question Code No: 25O01409 **Course Code: 24PECA32**

PG Degree - End Semester Examinations, November 2025

Third Semester

M.C.A

Research Methodology

(For those who joined in July 2024 onwards)

Time : 3 Hours **Maximum : 75 Marks**

PART – A (10 × 1 = 10 Marks)

Answer ALL Questions

Choose the correct answer:

1. Which of the following best defines a research problem?
   (a) A final conclusion reached after experimentation
   (b) A vague idea about the topic
   (c) A specific issue, difficulty or gap that needs to be addressed through research
   (d) A method used to collect data

2. Why is a research design important in conducting research?
   (a) It helps to collect data randomly
   (b) It ensures that the research problem is not solved
   (c) It removes the need for data analysis
   (d) It provides a structured plan to carry out the research effectively
3. Which of the following is a type of probability sampling design?
   (a) Simple random sampling
   (b) Snowball sampling
   (c) Quota sampling
   (d) Judgment sampling
4. Why is scaling important in research measurement?
   (a) It reduces the sample size
   (b) It determines how variables are categorized and quantified for analysis
   (c) It ensures the population is infinite
   (d) It eliminates the need for hypothesis testing
5. What is the Chi-Square test primarily used for?
   (a) Estimating population parameters
   (b) Measuring correlation between variables
   (c) Comparing means of three or more groups
   (d) Testing the goodness of fit and independence in

categorical data

6. Why is One-Way ANOVA used in statistical analysis?
   (a) To compare the means of more than two groups based on a single factor
   (b) To test the relationship between two categorical variables
   (c) To test for randomness in sample selection
   (d) To measure the standard deviation of a population
7. Which of the following is a method used for collecting primary data?
   (a) Government publications
   (b) Observation method
   (c) Textbooks
   (d) Research articles
8. Why is interpretation important in research?
   (a) It helps in establishing relationships between variables and deriving meaningful conclusions
   (b) It increases the length of the report
   (c) It replaces the need for data collection
   (d) It ensures the data remains unchanged
9. Which of the following is a basic step in the development of an algorithm?
   (a) Writing a research report
   (b) Data interpretation

(c) Problem definition and step-wise solution planning

(d) Literature review

10. How does a computer assist researchers in modern research?

(a) By physically collecting data

(b) By enabling data analysis, simulation and report generation

(c) By automatically writing research papers

(d) By removing the need for hypothesis formulation

PART – B (5 X 5 = 25 Marks)

Answer ALL Questions choosing either (a) or (b).
Answer should not exceed 250 words.

11. (a) Discuss about the research design.

(OR)

(b) Explain in detail about criteria of good research.

12. (a) Discuss the characteristic of sample design.

(OR)

(b) What is source of error? and explain the sources of error in measurement.

13. (a) Give a brief note on Chi-square test.

(OR)

(b) What are the basic principles of One-way ANOVA.

14. (a) Discuss the interview method.

(OR)

(b) What is research report? and explain the significance of research report.

15. (a) Discuss about the algorithmic research problems.

(OR)

(b) Explain the design of experiments and comparison of algorithms.

PART – C (5 X 8 = 40 Marks)

Answer ALL Questions choosing either (a) or (b).
Answer should not exceed 600 words.

16. (a) Briefly describe the different steps involved in research process.

(OR)

(b) Describe about the basic principles of experimental design.

17. (a) Discuss the different types of sample design.

(OR)

(b) What is scaling? and briefly explain the importance of scaling technique.

18. (a) Describe the limitations of Chi-square test.

(OR)

(b) Give a brief note On Yate's correction and its applications.

19. (a) Discuss the primary and secondary data collections.

(OR)

(b) Describe about interpretation and its technique.

20. (a) Write the steps involved in developments of algorithm.

(OR)

(b) Describe in detail about computer's role in research.