

9099**8**

High	School	Bachelors	Masters	Ph. D.	Total
Female	60	54	46	41	201
Male	40	44	53	57	194
Total	100	98	99	98	395

(9,9)

(1000)

[This question paper contains 8 printed pages.]

Your Roll No.....**Sr. No. of Question Paper : 9099****K**

Unique Paper Code : 2373010014

Name of the Paper : Research Methodology

Name of the Course : DSE

Semester : VII (NEP-UGCF)

Duration : 3 Hours

Maximum Marks : 90

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt **five** questions in all. Question no. 1 is compulsory.
3. **All** questions carry equal marks.
4. Use of non-programmable scientific calculator is allowed.

P.T.O.

1. (a) Fill in the blanks :

- (i) Research ethics ensures the _____ and credibility of research findings.
- (ii) Research that is based on numeric and measurable data is called _____ Research.
- (iii) When the data source is gathered and compiled with others is called _____.
- (iv) The method in which a researcher manipulates variables to assess cause-effect relationships is called _____.
- (v) The interval scale consists of variables that exists along a common scale at _____ Interval.
- (vi) The statistical test used to compare means between two independent groups is called _____ . (0.5×6)

Drug A	10	12	13	11	14		
Drug B	8	9	12	14	15	10	9

Is there any significant difference in the efficiency of two drugs? (Given that the tabulated value at 5% level of significance is 2.228). (9,9)

- 6. (a) Explain the significance of a research report and discuss the precautions to be taken for writing good research report.
- (b) A random sample of 399 people is surveyed and each person is asked to report the highest education level.. Is there a relationship between the gender of an individual and the level of education obtained. (Given that the tabulated value at 5% level of significance is 7.815)

Is there any evidence of difference in sales in the two towns? Formulate appropriate null and alternate hypothesis, test and interpret using 5% level of significance given tabulated value is 2.228. (9,9)

5. (a) Examine the role of analysis of variance in research. Discuss the procedure involved in analysis of variance; tabulate the ANOVA table in two-way classification. State the basic assumptions of the analysis of variance.

(b) Two types of drugs were used on 5 and 7 patients for reducing their weights. Drug A was imported and Drug B indigenous. The decrease in the weight after using the drugs for 6 months was as follows

(b) How do you define a research problem? Give three examples to illustrate your answer.

(c) Define attribute and variable with suitable examples.

(d) Explain the meaning and significance of the concept of "Standard Error" in sampling analysis. Also explain sampling frame and sampling error.

(e) What is a literature review? Explain the effective literature studies approach for a research problem.

(f) How do you formulate a research hypothesis? What is the purpose of the formulation of hypothesis? (3×5)

2. (a) How does a research problem relate to the research topic and literature review? From the viewpoint of causal relationship what are the types of variables? How does hypothesis testing enable a researcher to draw inferences about dependent and independent variables?
- (b) What do you mean by research methodology? Differentiate between research methods and research methodology. (9,9)
3. (a) Explain different types of probability and non-probability sampling. How do you determine sample size statistically?
- (b) Differentiate between census and sample. Describe in brief different kinds of sampling techniques mentioning the advantages and disadvantages of each. (9,9)

4. (a) Describe the steps of testing of hypothesis that a researcher must adopt in conduct of research. A manufacturer considers his production process to be working properly if the mean length of the rods manufactured is 8.5 cm. The standard deviation of the rods always runs about 0.26 cm. Suppose a sample of 64 rods is taken which gives a mean length of rods equal to 8.6 cm. Formulate the null and alternative hypothesis for this problem.
- (b) Sample of sales in similar shops in two towns are taken for a new product with the following results:

Town	Mean Sales	Variance	Size of sample
A	57	5.3	5
B	61	4.8	7