

[This question paper contains 2 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 9233

J

Unique Paper Code : 2513040015

Name of the Paper : Research Methodology

Name of the Course : **B.Sc. (H) Instrumentation**

Semester : VI

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. Use of scientific calculator is allowed.
3. Question No. 1 is compulsory. All questions carry equal marks. Attempt any 5 questions in all.

1. (a) Differentiate between Quantitative and Qualitative research. (3)
(b) What is descriptive research? (3)
(c) Mention the characteristics of a good hypothesis. (3)
(d) Define chi-square test. (3)
(e) What are the consequences of plagiarism in academic and professional research? (3)
(f) Why is proper citation important in academic writing? (3)
2. (a) Describe the different steps involved in a research process. (6)
(b) What is a research problem? List the criteria for the selection of a research problem. (6)
(c) Differentiate between Fundamental and Applied research. (6)
3. (a) What are the various means of conducting literature survey? Explain any two methods. (6)

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- (b) What is the significance of a hypothesis in research? Describe the various types of hypothesis. (6)
- (c) Describe any three commonly used metrics to evaluate the quality and impact of academic journals. (6)
4. (a) What is a Monograph? Discuss its key features in detail. (6)
- (b) What is a Questionnaire? Explain the process of construction of a questionnaire. (6)
- (c) Calculate the Mean, Median and Mode of the following distribution. (6)

Class interval	35-39	30-34	25-29	20-24	15-19	10-14
Frequency	4	5	15	10	8	5

5. (a) Describe, in brief, the layout of a research report, covering all relevant points. (6)
- (b) Write the procedure for plagiarism analysis. (6)
- (c) Explain any three unethical practices in research. (6)
6. (a) What is Intellectual Property Rights? Describe its various types. (6)
- (b) Describe any two styles of writing references in a research report. (6)
- (c) What is a patent? What are the steps involved in filing a patent? (6)
7. (a) What are the various data collection techniques? Distinguish between Primary Data and Secondary Data. (6)
- (b) Define standard deviation and variance. Calculate standard deviation and variance for the given set of data: 52, 50, 56, 68, 65, 57, and 70. (6)
- (c) Describe Bibliography and its importance in context of research report. (6)