INDIAN INSTITUTE OF MATERIALS MANAGEMENT

Post Graduate Diploma in Logistics &SCM

Post Graduate Diploma in Materials Management - 2 years

PAPER No. 17 (enrolment code- PMM, PSM,CMM, CSM)

Dec 2025

Research Methodology

Date: 21.12.2025 **Max. Marks: 70**
Time: 2.00 p.m to 5.00 p.m **Duration: 3 Hrs.**

Instructions:
1. From Part A, contains 4 main questions (with 5 sub-questions) each question carries 1 mark Total of 20 marks
2. From part B answer any 5 questions out of 8 questions. Each question carries 10 marks – A total of 50 marks

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PART – A(compulsory) [20 marks]

(Attempt all questions. Each sub-question carries 1 mark.)

Q. 1) Expand the following terms: **[5 marks]**

a) MRQH b) SD c) NIH d) IRS e) CATI

Q. 2) Select appropriate option

a) ------- is the chief motivation in selecting a research problem
(i) Lack of knowledge *(ii) Public interest*
(iii) Financial resources *(iv) Personal interest*

b) The most important advantage of sampling method of data collection is ----------
(i) Increased accuracy *(ii) Only method of data collection*
(iii) Saves time *(iv) Easy to handle the data*

c) What is the name of the conceptual framework in which research is carried out?
(i) Research Hypothesis *(ii) Synopsis of Research*
(iii) Research Paradigm *(iv) Research Design*

d) An advantage of a survey questionnaire is ---------
(i) Wide coverage *(ii) Lack of personal contact*
(iii) Limited response *(iv) Lack of uniformity*

e) The effects of which variable should be minimized, quantified, and/or controlled?
(i) Dependent variable *(ii) Extraneous variable*
(iii) Chance variable *(iv) Independent variable*

Q. 3) State 'True' or 'False' **[5 marks]**

a) The first step in formulating a research problem is identifying the variables.
b) The data that is coded at the time of data processing is known as post coded data
c) Basic research aims to solve practical problems.
d) Open-ended questions are more useful in exploratory research
b) Census Reports are examples of Primary Data

Q. 4) Match the following **[5 marks]**

Column A		**Column B**	
1	Empirical Research	A	Research ideas
2	Conference Proceedings	B	Integrity
3	Literature Review	C	Knowledge through observation
4	Rank Correlation	D	Charles Spearman
5	Ethics in Research	E	Primary source

PART B [50 marks]

(Attempt any 5. Each question carries 10 marks)

Q. 5) **(2 x 5 = 10 marks)**

a) Different researchers use different approaches depending on the nature of the research problems. However, all these approaches can be broadly classified into three types with some further sub-classifications. Briefly discuss the different approaches and illustrate your answer with a neat diagram.

b) Identifying a research problem is the first step to be taken before proceeding with research process. Explain what factors you would take into account for identifying your research problem.

Q. 6) **(2 x 5 = 10 marks)**

a) Explain the various components that constitute a research design and the important concepts which are useful in framing the components of research design. .

b) Distinguish between sampling and non-sampling errors that occur in the research process. Illustrate your answer with suitable examples of such errors.

Q. 7) **(2 x 5 = 10 marks)**

a) A good measurement tool should accurately indicate what the researcher intends to measure and it should also be easy and efficient to use. What should be the basic criteria for a good measurement tool?

b) Every type of research needs collection of data which should be sufficient, useful, and relevant. As a researcher, what factors would you consider for selecting your data collection method?

Q. 8) **(2 x 5 = 10 marks)**

a) What are the different types of questions which can be used in designing a survey questionnaire? Briefly comment on each type indicating the situations where such type can be used, with an example in each case.

b) Find the coefficient of correlation between advertising expenditure (in 1000 Rs.) and actual sales (in 1000 Rs.) given below:

Advertising Expenditure	3	7	4	2	1	4	1	2
Sales	11	16	9	4	7	6	3	8

Q. 9) **(2 x 5 = 10 marks)**

a) Explain, with suitable examples, about Type I and Type II errors which may occur during hypothesis testing. If you minimize Type I error, Type II error may increase and vice-versa. Do you agree? What can you do to limit both types of errors?

b) Is it likely that a sample of size 300 whose mean is 12, is a random sample from a large population with mean 12.8 and S.D. 5.2? Use 1% level of significance, Z = 2.58.

Q. 10) **(2 x 5 = 10 marks)**

a) Parametric tests are statistical measures used in the analysis to solve a research problem. In this context explain about z-test and t-test and their applications.

b) Explain the concept of non-parametric tests and the areas where these tests can be applied. Name the different types of non-parametric tests,

Q. 11) **(2 x 5 = 10 marks)**

a) What is a research proposal? Explain the information to be included in the research proposal.

b) What do you understand by “Rank Correlation?” Where is it used? Explain with an example.

Q. 12) Write Short Notes on **(Any Two)** **(2 x 5 = 10 marks)**

a) Regression Analysis
b) Characteristics of good research
c) Types of Research Reports
d) Research design for descriptive studies