



**INDIAN INSTITUTE OF MATERIALS MANAGEMENT**  
**Post Graduate Diploma in Materials Management**  
**Graduate Diploma in Materials Management**  
**PAPER No. 13**  
**RESEARCH METHODOLOGY**

**Dec 2016**

Date : 19.12.2016  
Time : 10.00 a.m to 1.00 pm

Max. Marks :100  
Duration : 3 Hrs.

**Instructions :**

1. Part A: Four Questions (Q 1 to Q 4). All questions are compulsory. Each Question carries 1 mark. **(Total marks 32).**
2. Part B: From Part B answer any three out of 5 questions. Each question carries 16 marks. **(Total marks 48).**
3. Part C: (Compulsory). Case study. **( Total marks 20)**

**PART- A**

32 marks

Attempt all questions. Each Question carries 1 mark.

**Q1. Fill in the Blanks**

**( 1 \* 8 = 8 Marks)**

- a) Area Under Normal Distribution Curve for  $Z \leq 1$  is \_\_\_\_\_.
- b) Hypothesis is a \_\_\_\_\_ generalization.
- c) SPSS Stands for \_\_\_\_\_.
- d) Standard Deviation in normally denoted by \_\_\_\_\_.
- e) If mean is 18 and Standard Deviation is 2.5, then coefficient of variation is \_\_\_\_\_.
- f) T-test is used when sample size is \_\_\_\_\_.
- g) MANOVA stands for \_\_\_\_\_.
- h) Z test is based on \_\_\_\_\_ curve.

**Q2. Match the Following**

**( 1 \* 8 = 8 Marks)**

|   | Column A                 | Column B                                |
|---|--------------------------|---|
| A | Mode                     | 1. Can be both ascending and descending |
| B | Primary Data             | 2. Dispersion                           |
| C | Pictorial Representation | 3. At different point of time           |
| D | Ogives                   | 4. Confidence interval                  |
| E | Coefficient of variation | 5. Data Collected for first time        |
| F | Estimation               | 6. Association                          |
| G | Correlation Analysis     | 7. Value with highest frequency         |
| H | Longitudinal Study       | 8. Pie Charts                           |

**Q3. Find True or false of the following**

**( 1 \* 8 = 8 Marks)**

- a) Temperature Scale is an interval scale.
- b) A trend is a short term direction of business.
- c) The objective of applied research is to generate new knowledge.
- d) Experiments are used to establish causal relationships.
- e) Sign test is a parametric test.
- f) Regression Analysis can predict the value of one variable from the other.
- g) Conjoint Analysis is used to determine the validity of the data.
- h) Chi square test is a non parametric test.

**Q4. Expand the following abbreviations**

**( 1 \* 8 = 8 Marks)**

- a) SAS
- b) TAT
- c) TQM
- d) ANOVA
- e) SD
- f) UCL
- g) H<sub>A</sub>
- h) OLAP

**PART - B**

**( Answer Any Three Questions)**

**16 x 3 = 48 marks**

**Q 5.** The advertising expenditure and Return on investment for the last five periods is known. Draw a correlation between the two. Find coefficient of correlation.

| Advertising Expenditure (in Lacs) | ROI    |
|-----------------------------------|--------|
| 12.5                              | 10.20% |
| 14.6                              | 9.80%  |
| 9.8                               | 7.70%  |
| 6.7                               | 9.00%  |
| 11.3                              | 12.50% |
| 10                                | 11.40% |
| 15.5                              | 13.00% |

**Q. 6 : Explain In Short :**

- (a) Testing of Hypothesis
- (c) Area Sampling

- (b) Methods of Primary data Collection
- (d) Criteria of Good research

**Q.7.** The amount of a certain trace element in blood is known to vary with a standard deviation of 14.1 ppm (parts per million) for male blood donors and 9.5 ppm for female donors. Random samples of 75 male and 50 female donors yield concentration means of 28 and 33 ppm, respectively. What is the likelihood that the population means of concentrations of the element are the same for men and women?

**Q.8.** Discuss in details contents of a good research report.

**Q.9. Distinguish Between (any two)**

- a) Cluster Sampling and Stratified Sampling.
- b) Z Test and T Test
- c) Structured questionnaire and unstructured questionnaire

**PART- C ( Compulsory )**

**20 marks**

**CASE STUDY**

Q10. A company is preparing to venture into development of mobile application for online sale of designer wear for women in metro cities in India. The company is wanting to conduct a research to understand the buying behavior of Urban middle class working women in metro cities in India. As a researcher you are required to do the following

- a. Prepare a sample design that shall include Sample size determination and Sampling method
- b. Prepare a questionnaire for data collection.
- c. Write three most important hypothesis that must be tested in this research
- d. Suggest statistical tools to test these hypothesis

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