



INDIAN INSTITUTE OF MATERIALS MANAGEMENT

Post Graduate Diploma in Materials Management

Dec 2011

Graduate Diploma in Materials Management

PAPER No. 13

Research Methodology

Date : 18.12.2011
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 8 marks. (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

Select correct answer from the following:-

1. a) Normal distribution curve is:
 - i) Skewed
 - ii) Asymmetric
 - iii) Symmetric

- b) Area under the Normal Curve for $Z \geq 2$ is:-
 - i) 0.4772
 - ii) 0.0228
 - iii) 0.4945

- c) Standard deviation of sampling distribution of a statistic is called:
 - i) Standard Error
 - ii) Sampling Error
 - iii) Random Error

- d) Temperature scale is:
 - i) Ratio scale
 - ii) Interval scale
 - iii) Ordinal scale.

- e) Geometric mean of 2, 3, and 36 is:
 - i) 12
 - ii) 3
 - iii) 6

- f) Standard deviation is commonly denoted by:
 - i) Alpha
 - ii) Beta
 - iii) sigma

- g) ANOVA stands for:
 - i) Analysis of variation
 - ii) Analysis of variables
 - iii) Analysis of variance

h) In Linear Discriminant Analysis dependent variable is:

- i) Continuous variable
- ii) Categorical variable
- iii) Product of two variables

2. Expand the following abbreviations:

1. TQM 2. SAS. 3. MIS. 4. T A T 5. Manova. 6. CRM. 7. SPSS. 8 DSS

3. Match the following:

	Column A		Column B
a	Factor Analysis	C	Measure of consistency
b	Coefficient of variation	B	Sample size > 30
c	Likert scale	D	At different points of time
d	Z-test is used	F	Larger sample is used
e	For more precision	A	At a single point of time
f	Cross sectional design	E	Reduction of variables
g	Longitudinal design	H	Measure of temperature
h	Interval scale	G	Measure of attitude

4. Find the true or false of the following:

- a) An Exploratory Research is designed to clarify relationship between two aspects of a phenomenon.
- b) Likert scale is a summated rating scale.
- c) Assignment of codes to objects is always an ordinal scale.
- d) Chi-square test is a parametric test.
- e) Coefficient of Standard Deviation is mean over standard Deviation.
- f) There is no difference between a Structured Questionnaire and a Schedule.

- g) Type I error is the risk of Producer.
- h) Decision Tree Analysis helps to break complex problems into Manageable parts.

PART B (Answer any three Questions)

- 5 a. What are the main factors to be considered to specify sample size for a Estimate?
- b. A researcher wishes to have a 95 percent confidence interval-estimate of expenditure on an item per month in a company within plus minus rupees forty only. In some preliminary work the standard deviation of expenditures is known to be Rs. 200. What is the minimum size of the sample he should study for a good estimate?

6. Write short notes on any two:

- a) ANOVA
- b) Cluster Sampling
- c) Hypothesis testing
- d) Systematic Random sampling

7. Distinguish between (attempt any two):

- a) Probability sampling & Non-Probability Sampling
 - b) Stratified sampling & cluster sampling
 - c) Poisson and Normal distribution
 - d) Research Methods & Research Methodology
8. a. The results of production of an item, in a factory, by three different But similar groups of workers are given below:

Shifts			
Groups	S 1	S 2	S 3
G 1	9	12	8
G 2	8	14	9
G 3	10	13	7

Test the hypothesis, at 5 percent level of significance, that there is no Significant difference in production in different shifts.(Given that the value of F for n=2,6 from table is 5.14)

- b. Explain what you mean by extraneous variables with a simple example.

9. a Drug company manufactures capsules of a medicinal salt. The mean Content of the salt in capsules is claimed to be 500 mg. A sample test of 64 capsules gives the mean content as 489 mg with standard deviation of 24 mg. Test the claim of the company at 5 percent level of significance.

PART C (COMPULSORY) CASE-STUDY

10. The President of the association of Private hospitals, in a city Mrs. Arunditi Verma, called a meeting of its members to discuss the following :

The opinion of the General Public towards the services of Private Hospitals in the city is becoming low Most of the members disagreed but some members strongly were of the firm Opinion that it was indeed low and lesser number of patients was Visiting Private Hospitals So there was a divided opinion. It was considered that the General Public rated the private Hospitals on the following main characteristics:

1. Expenses on treatment.
2. Proficiency of Doctors and Para-medical staff.
- 3 .Efficiency of treatment
- 4 After care of the patients
5. Attitude of the staff
6. Facilities to visitors.

It was thought that it would be useful to conduct some research to find out the attitude of the general public on the basis of above characteristics (1-6).

The President, Mrs. Verma was authorized to appoint an efficient Researcher to conduct the required research. A sum of rupees Fifty thousand was approved for the project.

Q. If you are to conduct the research then:

1. How will you proceed to do the research?
2. Which one of the two scales (1) Likert Scale (2) Semantic differential Scale will you use, why and to how many subjects?
3. If the rating, on the basis of the above research, comes out to be low, what will be your suggestions to modify the opinion?.
4. Draw a simple and brief outline model of the scale to be used by you.
