

**INDIAN INSTITUTE OF MATERIALS MANAGEMENT**  
**Post-Graduate Diploma in Materials Management**  
**Graduate Diploma in Materials Management**

**PAPER – 13 (New) – June 2006 onwards**  
**RESEARCH METHODOLOGY**

DATE: 13.12.2007

TIME: 10.00 am to 1.00 pm

Max. Marks: 100

Duration: 03 hrs.

**INSTRUCTIONS:-**

1. From Part 'A', answer four questions (compulsory). Each sub-question carries 01 mark.  
Total Marks – 32
2. From 'B', answer any 3 out of 5 questions. Each question carries 16 marks.  
Total Marks – 48.
3. Part 'C', is a case study with sub-questions (Compulsory). Total Marks– 20.

Note: Use of statistical table allowed

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Part-A: Four questions (Q1 to Q4) all questions compulsory. Each question carries 8 marks

**Q.1.** Select the right answer from the mix of probable answers: 1 \* 8=8 marks

- i) What is the basic objective of Research Methodology?
  - (a) To provide accurate
  - (b) To provide relevant
  - (c) To provide timely information
  - (d) All the above.
- ii) If a research is designed to obtain a preliminary investigation, it is known as:
  - (a) Conclusive research
  - (b) Applied research
  - (c) Exploratory research
  - (d) None of the above
- iii) What are the two major characteristics of the scientific method:
  - (a) Validity
  - (b) Reliability
  - (c) Empiricism
  - (d) Both a & b
- iv) The survey researcher is concerned with
  - (a) Sampling
  - (b) Questionnaire design
  - (c) Questionnaire administration
  - (d) All the above
- v) A questionnaire generally contains:
  - (a) Structured questions
  - (b) Unstructured questions
  - (c) Combination of both
  - (d) All of the above

- vi) If a customer is asked to rank his preferences for various brands, it denotes:
  - (a) Nominal scale
  - (b) Ordinal scale
  - (c) Ratio scale
  - (d) None of the above
  
- vii) The area between  $\pm 2 \sigma$  is approximately:
  - (a) 50 %
  - (b) 68%
  - (c) 34%
  - (d) 95%
  
- viii) Type 1 error occurs when:
  - (a) Hypothesis is true and we accept the hypothesis
  - (b) When the hypothesis is false and we accept the hypothesis
  - (c) When the hypothesis is true and we reject the hypothesis
  - (d) None of the above

**Q.2.** Fill in the blanks with proper option: 1 \* 8=8 marks

- i) Applied research is any research used to answer a ...question **specific / any.**
- ii) Research is the systematic approach towards ...investigation.

**Any / purposeful**

- iii) Operations research deals with problems of ....

**Optimization / maximization only.**

In an interval scale zero

**is fixed arbitrarily / has a fixed origin.**

v)  $Z = \frac{\bar{X} - \mu}{\text{S.E}}$  where S.E.= ?

**S.E.=  $\frac{\sigma}{\sqrt{n}}$  or  $\frac{\sigma}{\sqrt{n-1}}$**

- vi) .....is mandatory for research proposal.

**Problem statement / Executive summary**

- vii) To study the frequency of purchase of a product , the researcher provides the customer with ..... **an identity card / a barcode card**

- viii) Which design is used to measure the effect of two or more independent variables at various levels? .....**Factorial design / Statistical design**

**Q.3.** Match Col "A" and Col "B" 1\*8 =8 Marks

Col "A"

Col "B"

- |  |                           |
|--|---------------------------|
| 1) An assumption or a statement                            | A) Conclusive research    |
| 2) Research involves a formal research process             | B) Interval scale         |
| 3) Ranking of preferences for various grades               | C) Data is of metric type |
| 4) Multiple-regression is used for                         | D) Hypothesis             |
| 5) result with performance                                 | E) Exploratory research   |
| 6) Discriminant analysis is used where                     | F) Ordinal scale          |
| 7) Research designed to obtain a preliminary investigation | G) metric data            |
| 8) Temperature scales are an example of                    | H) Conclusion             |

- Q.4.** Indicate if the followings are True (T) or False(F) 1\* 8 = 8 Marks
- i) For making right decisions, management needs timely decision making information.
  - ii) Primary data is collected first and then we go for the secondary data
  - iii) Quantitative research is for primary investigation.
  - iv) Bivariate analysis involves two or more variables.
  - v) We can use binomial distribution easily for solving probability problems for very large value of n.
  - vi) " $\alpha$ " is type-1 error.
  - vii) Research plan is standard.
  - viii) Marketing research is an example of applied research.

**PART – B      3 \* 16 = 48 MARKS**

**ANSWER ANY THREE FROM THE FOLLOWINGS:**

- Q.5** (a) Describe briefly the various steps of business research process.  
(b) Distinguish between the primary data & secondary data.
- Q.6** (a) What are the features of a good research study?  
(b) Describe briefly the three types of research designs.
- Q.7.** Samples of Six observations taken from a normal distribution were 6.5, 8.6, 7.4, 5.7, 8.3 and 7.2. Is it reasonable to assume  $\mu = 7$ ? (Test at 5 % level of significance)
- Q.8.** A machine is set to fill in coffee powder in tins, with an average of 200 gms, and a standard deviation of 4 gms.  
Find the probability that the coffee tin selected at random shall contain  
(a) at least 200 gms.  
(b) Between 200 and 204 gms.
- Q.9.** Write short notes on any four of the following: 4 \* 4 = 16 marks
- (a) Qualitative research
  - (b) Attitude measurement
  - (c) ANOVA
  - (d) Properties of normal distribution
  - (e) Method of least squares
  - (f) Design of questionnaire.

- Q.10.                                  Case Study – Compulsory                                  Total Marks: 5 x 4 = 20**

Godrej introduced a new brand of vegetable juice V-6 in 1996. Initially there was a good response from the consumers, because Godrej was the first entrant in vegetable juice market where the competition was almost negligible. The company could reach the sales target of Rs 6 crores during the year 1997-98. By the end of 1998, the company experienced a decreasing trend in the sales of this product. Godrej undertook a marketing research. The research indicated that the consumers needed to be reminded to purchase V-6. And a new advertising campaign was developed, to retain the interest of the consumers. It was found that there were

many beverages competing with V-6 that were responsible for reducing its sales as their prices were low as compared to V-6 prices. The consumers were asked to express their opinions on V-6 brand. They were repeatedly asked a question, "What do you really want in V-6.?"

The research identified four reasons- they liked the overall healthiness of V-6; relatively healthier to other types of foods; contains beta carotene which prevents disease ; and above all it contained the goodness of vegetables.

The company aired a test T.V. commercial with the help of research results. A T.V. commercial indicated that the four factors shown in the advertisement confused the consumers. So further research was conducted and an ad message was changed. The message focused on the health benefits of V-6. the changed ad campaign resulted in increased sales of V-6.

Questions to be answered:

1. How did marketing research help in increasing the sales of V-6?
2. Do you feel that frequency of advertisement affected the sales?
3. Was the media of advertisement selected O.K?
4. Do you feel the company's pricing policy was responsible for their decrease of sales?
5. As a researcher, what factors would you consider in designing new advertising campaign?

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