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MBA/IVS/M-402/13

2013

MASTER OF BUSINESS ADMINISTRATION

[Fourth Semester Examination]

**MARKETING RESEARCH AND
FORECASTING TECHNIQUES**

(Specialisation : *Marketing Management*)

PAPER—M-402

Full Marks : 100

Time : 3 hours

The figures in the right-hand margin indicate marks

*Candidates are required to give their answers in their
own words as far as practicable*

Illustrate the answers wherever necessary

**Write the answers to Questions of each Half in
separate books**

FIRST HALF

[*Marks : 50*]

(*Turn Over*)

1. Answer any *four* of the following : 5 × 4

- (a) Discuss the usefulness of marketing research in understanding customer and competitors.
- (b) What is depth interview ? State the disadvantages of depth interview.
- (c) What are various techniques that can be employed in questionnaire designing to make it more effective ?
- (d) A company has a total of 720 employees in five different categories which is given below :

Managers	72
Assistant Managers	96
Officers	132
Staff	180
Workers	240

How many from each category should be included in a stratified random sample of size 60 ?

(e) Distinguish between statistics and parameter with reference to sampling distribution.

(f) Prove that the sample mean based on a simple random sample with replacement is an unbiased estimator of Population mean.

2. Answer any *two* of the following : 10 × 2

(a) How is probability sampling different from non-probability sampling? Under what conditions should each of these methods be used? 4 + 6

(b) What is simple random sampling? Draw a random sample of size 15 (without replacement) and calculate the sample mean from the following data -

46	24	43	17	46	05	28	27	21	11	
33	26	24	14	38	34	21	25	48	35	
26	27	35	08	27	30	26	30	28	21	
20	13	23	36	18	38	20	24	31	24	12

you may use the random sampling numbers
given below : 2 + 8

5862 8342 7654 6335 7577 7951
3042 7809 7053 4653 5872 4311

(c) Define Attitude. In a study, Respondents were asked to express their attitude for an object using a 7 point scale : 1 = not at all important to 7 = very important. The variables are codes as $V_1, V_2 \dots V_8$. The data obtained are given in the following table :

V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8
7	3	6	4	5	2	1	3
1	2	1	2	3	1	1	1
6	2	5	4	1	5	6	5
4	3	4	6	2	2	3	4
1	2	2	3	6	2	4	2
6	3	5	4	3	5	2	6
5	4	4	5	4	2	1	1
6	2	5	2	5	1	1	2

(5)

V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8
3	5	2	5	2	4	7	2
2	4	2	6	5	5	2	1
6	3	5	3	2	1	1	2
2	3	4	4	3	2	1	2
7	2	3	7	2	3	2	3
4	6	5	3	4	1	5	4
1	3	1	2	5	1	3	6
6	5	2	4	7	2	4	2
5	4	3	3	6	3	7	2
7	1	4	2	1	4	2	2
2	3	5	2	1	5	1	1
3	2	6	1	2	1	2	1
1	1	3	1	2	2	3	3
5	4	2	2	3	3	2	2
2	3	2	3	3	3	3	3
4	2	1	2	1	1	2	3
6	5	3	1	1	2	1	2

(6)

V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8
3	3	4	6	2	4	1	2
4	2	3	2	3	5	2	1
5	3	2	1	2	2	3	3
7	1	2	5	3	2	1	4
3	4	5	1	2	6	7	5

Using the thrustone method examine the attitude of respondents toward the object and show the distances among the variables. 2 + 8

[*Internal Assessment* : 10 Marks]

SECOND HALF

[*Marks* : 50]

1. Answer any *four* of the following : 5×4

- (a) A restaurant is interested to know the average amount a customer spends for Lunch. A random sample of 100 customers is taken and the sample mean is found to be Rs.36 and $f=2$. Find out the estimate interval with a confidence level of 95 percent.

(7)

(b) If $r_{12} = .50$, $r_{13} = .60$ and $r_{23} = .70$
Find the value of $R_{2,13}$

(c) Find the coefficient of variation of the following frequency distribution of the daily incentives of 470 salespersons :

Daily incentive :	25	35	45	55
Number of salespersons :	60	130	150	130

(d) Forecast the sales (in units) if advertising is Rs.80,000 from the following data :

Sales territory :	1	2	3	4
Advertising('000 Rs.)	40	30	20	50
Sales (in units)	100	80	60	120

(e) Godrej has the following manpower data for their health care division for the past 6 years :

year :	2007	2008	2009	2010	2011	2012
Manpower	500	600	800	1000	1100	1300

Forecast the manpower requirement in 2013 using 4-period moving average.

(f) From the following sales information. You are asked to select the more consistent salesman :

<u>Year</u>	<u>Salesman A</u>	<u>Salesman B</u>
2009	10 units	15 units
2010	15 units	25 units
2011	30 units	40 units
2012	50 units	40 units

4. Answer any *two* of the following : 10×2

(a) From the following data, fit a multiple regression equation : 10

Sales territory	Sales (Lakh Rs.)	Advertising ('000 Rs.)	Personal Selling (No. of selling agents)
1	100	40	10
2	80	30	7
3	60	20	10
4	120	50	15

(b) A survey of farmers in a certain territory revealed that of the total 200 respondent farmers, one-half of them used fertilizers.

As many as 120 farmers rented the farms while the remaining owned them. Fifty farmers in each of the two categories, namely, farmers who owned farms and farmers who rented farms used fertilizers. Can it be said that the use of fertilizers is related to the ownership of farms ? (The critical value of χ^2 with 1 d.f of 5% level of significance is 3.841) 10

- (c) A firm has four types of machines *A*, *B*, *C* and *D*. It has put four of its workers on each of its machines for a specified period. After the expiry of this period, it has calculated the average output for each worker on each type of machine. These data are given below :

Average production by the type of machine

		A	B	C	D
Workers	1	25	26	23	28
	2	23	22	24	27
	3	27	30	26	32
	4	30	34	27	33

(10)

whether the mean productivities of workers are significantly different ? The table value of F for 3 and 9 degrees of freedom at $L = 5$ percent level of significance is 3.86. 10

[*Internal Assessment* : 10 Marks]
