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First Semester MBA Degree Examination, June/July 2016
Quantitative Methods – I

Time: 3 hrs.

Max. Marks: 100

Note: 1. Answer any three full questions from Q.No.1 to Q.No.6.
2. Question No. 7 & 8 are compulsory.

- 1 a. Differentiate management problem with research problem. (03 Marks)
 b. Define χ^2 (chi-square) test. Mention the steps involved in chi-square test. (07 Marks)
 c. State and explain the contents of report writing in detail. (10 Marks)

- 2 a. Define the term skewness. (03 Marks)
 b. State the procedure of hypothesis testing. (07 Marks)
 c. Calculate Karl Pearson's coefficient of correlation between expenditure on advertising and sales from the data given below:

Advertisement expenditure (₹ 000')	39	78	65	62	90	82	75	25	98	36
Sales (₹ lacs)	47	84	53	58	86	62	68	60	91	51

Comment the result.

(10 Marks)

- 3 a. What is sampling and non-sampling errors? (03 Marks)
 b. Determine the missing frequency if the class interval 15–20, the mean being 19 units. (07 Marks)

X	5–10	10–15	15–20	20–25	25–30
F.	2	2	?	4	4

- c. Consider the following data, obtain the two regression equations:

X	6	2	10	4	8
Y	9	11	5	8	7

Also, estimate Y when X is equal to 20.

(10 Marks)

- 4 a. Find the standard deviation by the deviation method for the following data: (05 Marks)

Class interval	0–10	10–20	20–30	30–40	40–50	50–60	60–70
Frequency	6	14	10	8	1	3	8

- b. In a sample of 500 people from the Karnataka village, 280 persons are found to be ragi eaters and the rest are rice eaters. Can we assume that both the food articles are equally popular? (Table value $Z = 2.58$) (05 Marks)

- c. Two random samples were drawn from the normal population and their values are:

X_1	66	67	75	76	82	84	88	90	92	-	-
X_2	64	66	74	78	82	85	87	92	93	95	97

Test whether the two samples have the same variance @ 5% level of significance. ($F = 3.11$ @ 5% level for $V_1 = 8$ and $V_2 = 10$)

(10 Marks)

- 5 a. Explain the steps involved in a research design. (05 Marks)
 b. Briefly explain the literature review and its importance. (05 Marks)
 c. Calculate quartiles from the following data: (10 Marks)

Class interval	0–10	10–20	20–30	30–40	40–50
Frequency	3	8	20	12	7

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
 2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

- 6 a. Explain Type I and Type II errors. (05 Marks)
 b. What is ANOVA? Mention its assumptions. (05 Marks)
 c. Given below is the frequency distribution of the marks obtained by 90 students. Compute mean, median and mode. (10 Marks)

Marks	No. of students	Marks	No. of students
20 – 30	2	60 – 70	18
30 – 40	12	70 – 80	10
40 – 50	15	80 – 90	9
50 – 60	20	90 – 100	4

- 7 a. In Z-test, the table value is 1.96 and computed value is 2.0. State the result of hypothesis. (05 Marks)
 b. The impact of advertisement on sales is to be analyzed, suggest the tools used and why. (05 Marks)
 c. The sales of TATA-Nano car for the last 5 years is available and is it possible to forecast the future sales and how. (05 Marks)
 d. Petrol price is hiked by 6 pm. On the same day by 9 pm news the opinion of public on hike has to be telecasted in Chandana TV. Suggest the process of research design. (05 Marks)
- 8 a. Explain various methods of data collection. (10 Marks)
 b. Design a Questionnaire to the research problem “Impact of mobile phone usage on Academic Environment”. (10 Marks)

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