Total No. of Questions – 10] [Total Pages : 4

(2062)

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M.B.A. Examination

MANAGEMENT SCIENCE-(I)

Paper–102

(Semester–I)

Time : Three Hours] [Maximum Marks : Regular : 60 / ICDEOL : 70

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/ continuation sheet will be issued.

Note : Attempt *five* questions in all, by selecting *one* question from each of the five unit. Each question carries equal marks.

UNIT–I

1. With the help of an example, clarify the major steps of statistical investigation. 12

2. (a) What purposes do the measures of central tendency and dispersion serve?

(b) Calculate mean, median, mean deviation, standard deviation and the coefficient of variation for the following data points :

24, 17, 22, 18, 19 (4+8=12)

UNIT–II

3. (a) Clarify the meaning and purpose of partial correlation and multiple correlation.

(b) By least-square method, fit the two regression lines to the following data :

X :	7	7	8	9	9
Y :	10	11	9	8	7

(5+7=12)

4. (a) Independently, four students A, B, C, and D try to solve a problem in statistics. Their chances of solving the problem are 2/5, 1/6, 1/4 and 3/5 respectively. What is the probability that the problem will (i) be solved? (ii) not be solved?

(b) List the properties of normal distribution. (6+6=12)

UNIT–III

5. (a) What is statistical estimation? What are the desirable properties of a good estimator?

(b) A student got interested to estimate the average time he spend for his study at home. He noted the time for 49 days, which gives a mean of 2.5 hours and a standard deviation of 0.4 hours. Construct a 95% confidence interval for the average transit time. 12

6. (a) What are Type I and Type II errors in hypothesis testing?

(b) A survey found that 485 students out of a sample of 800 university students read The Times of India. Does this information, at 5% level of significance, support the view that the majority of the students in this university are readers of The Times of India?

(6+6=12)

UNIT–IV

7. (a) In what aspects, non-parametric tests are different from parametric tests?

(b) Clarify the Chi-square test of independence, with the help of suitable example. (4+8=12)

8. The following data pertain to sales (in '000 INR) of three stores of a chain of retail stores over a five-day long promotional period.

Store 'X' :	12	13	17	14	15
Store 'Y' :	16	16	17	18	21
Store 'Z' :	19	20	22	23	25

Use the Kruskal-Wallis test to compare the equality of mean sales in the three stores, ($\chi^2 = 5.99$ for df = 2 and at 5% level of significance). 12

UNIT–V

9. How time series analysis may be of help to decision makers? Discuss. Distinguish among trend, seasonal variations, cyclical fluctuations and random variation in a time series. 12

10. Fit a straight line and represent it graphically by the method of moving average to the following data (sales in Rs. Crores) :

Year	:	2015	2016	2017	2018	2019	2020
Production	:	7	10	12	14	16	13

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