

Total No. of Questions - 10]  
(2022)

[Total Pages : 4

**9162**

**M.B.A. Examination**

**MANAGEMENT SCIENCE-(I)**

Paper – 102

(Semester-I)

Time : Three Hours]

[Maximum Marks : 60

*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, selecting *one* question from each of the five unit. Each question carries equal marks.

**UNIT-I**

1. The mean of following frequency distribution is found to be 1.76.

Number of accidents	No. of days
0	48
1	?
2	?
3	27
4	9
5	7
Total	210

9162/1,000/777/945

266 [P.T.O.

- (a) Calculate missing frequencies of the distribution.
- (b) What can you say about the shape of the distribution ?
2. Given below is the daily wages paid to workers of two factories X and Y

Daily wages in Rs.	Factory X	Factory Y
20-30	15	25
30-40	30	40
40-50	44	60
50-60	60	36
60-70	60	20
70-80	24	15
80-90	7	5

Determine that :

- (a) Which factory pays higher wages to employees? And how much?
- (b) In which factory are wages more dispersed?
- (c) Which factory has to pay more wages in a month assuming that both work for 25 days in a month?

## UNIT-II

3. In 2007 Pronto Ltd. ascertained the amount spent on advertising and the corresponding sales revenue by seven marketing clients. Using following data, fit linear model showing the impact of advertising on sales.

Advertising (In Rs.)	2	5	4	6	3	7	8
Sales (In Rs. Lakhs)	30	52	50	82	80	95	101

4. The average monthly sales of 5000 firms are normally distributed. Its mean and standard deviation are Rs. 36,000 and Rs. 10,000, respectively. Find (i) the number of firms having sales over Rs. 40,000 (ii) the percentage of firms having sales between Rs. 38,500 and 41,000 (iii) the number of firms having sales between Rs. 30,000 and 40,000.

### UNIT-III

5. Answer following questions :

- (a) Define and differentiate point and interval estimation. How an interval estimate is better than a point estimate? Explain.
- (b) For a population of 6000, what should be the sampling size require to estimate population mean at 99 per cent confidence interval with sampling error of 3 and standard deviation of 20.
6. (a) Two salesmen A and B are working in a certain district. From a Sample Survey conducted by the head office, the following results were obtained. State whether there is any significant difference in the average sales between the two salesmen :

	Salesman A	Salesman B
Number of sales	10	18
Average sale in lakh rupees	190	205
Standard deviation in lakh rupees	20	25

### UNIT-IV

7. (a) What do you mean by Non-parametric tests?

- (b) A company has introduced a new drug B to cure common cold. It is being compared against an existing drug A. The relevant data are shown below :

	Helped	Harmed	No Effect	Total
Drug A	44	10	26	80
Drug B	52	10	18	80
Total	96	20	44	160

Is the new drug more effective in curing cold (use 0.05 level of Significance)?

8. (a) Four groups of employees having were randomly assigned business targets with four different strategies, and their achievement test scores were recorded. Is there a difference in achievement test scores for the four strategies?

	Group I	Group II	Group III	Group IV
Strategy I	65	75	59	94
Strategy II	87	69	78	89
Strategy III	73	83	67	80
Strategy IV	79	81	62	88

- (b) Uses of Spearman's rank correlation test.

### UNIT-V

9. Highlight need of time series analysis for business decision making. How does trend analysis help managers in taking business decisions? Explain.
10. How does managers used cyclical and Seasonal variations under business situations? Explain by taking an appropriate example.