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Reg. No. ☐☐☐☐☐☐☐☐☐

I Semester M.B.A. (Day) Degree Examination, July- 2022
MANAGEMENT
Statistics for Management
(CBCS Scheme 2014 -15 Repeaters)
Paper : 1.4

Time : 3 Hours   Maximum Marks : 70

SECTION - A

Answer any **Five** questions. Each question carries **Five** marks.   **(5×5=25)**

1. Calculate the missing frequency from the following distribution, it being given that median of distribution is 24.

Class	Frequency
0-10	5
10-20	25
20-30	?
30-40	18
40-50	7

2. Calculate

   i)   Three yearly

   ii) Five yearly, moving averages for the following data and comment on the results.

Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Y	242	250	252	249	253	255	251	257	260	265	262

3. What is meant by one tailed and two tailed tests? Illustrate and explain.

4. Calculate Karl Pearson's co-efficient of skewness from the following data

Size	1	2	3	4	5	6	7
Frequency	10	18	30	25	12	3	2

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5. A bag contains 5 white and 3 black balls; another bag contains 4 white and 5 black balls. From any one of these bags a single draw of two balls is made. Find the probability that one of them would be white and the other black ball.

6. The annual production of a commodity is given as follows :

Year	1990	1991	1992	1993	1994	1995	1996
Production	70	80	90	95	102	110	115

Fit a straight - line trend by the method of least squares.

7. Following table gives Payoffs for actions A1, A2 and A3 corresponding to states of nature S1 and S2 whose chances are 0.6 and 0.4 respectively.

States of Nature	Actions		
	A1	A2	A3
S1	16	20	18
S2	19	15	12

Find decisions under :

i. Maximum criterion.

ii. EMV criterion.

SECTION - B

Answer any **Three** of the following questions. Each question carries **Ten** marks.(3×10=30)

8. Obtain the equations of the two lines of regression for the data given below

X	1	2	3	4	5	6	7	8	9
Y	9	8	10	12	11	13	14	16	15

9. Calculate Spearman's rank correlation coefficient between advertisement cost and sales from the following data :

Advertisement Cost ('000 Rs.)	39	65	62	90	82	75	25	98	36	78
Sales (lakhs Rs.)	47	53	58	86	62	68	60	91	51	84

10. If 5% of the electric bulbs manufactured by a company are defective, use Poisson distribution to find the probability that in a sample of 100 bulbs

i) None is defective,

ii) 5 bulbs will be defective. (Given : e-5 = 0.007).

11. A study was carried out on the advertising methods of a brand of product the unit sales achieved by 5 stores were recorded as under :

	Store -A	Store -B	Store -C	Store -D	Store-E
Method - I	78	85	82	88	79
Method - II	93	87	85	85	85
Method - III	81	92	77	83	81
Method - IV	79	83	71	78	78

Calculate the F-ratio, using Anova and 5% level of significance establish whether

a) Four methods of advertisement produce different effects on the sales volume and

b) There is a significant difference between the same in the different stores.

SECTION - C

12. **Compulsory.** $(1 \times 15 = 15)$

For the following data prove that the Fisher's Ideal Index satisfies both the Time Reversal Test and the Factor Reversal Test and calculate its value.

Commodity	Base Year		Current year	
	Price	Quantity	Price	Quantity
A	6	50	10	56
B	2	100	2	120
C	4	60	6	60
D	10	30	12	24