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I Semester M.B.A. (Day and Eve) Degree Examination, June/July - 2023**MANAGEMENT****Business Statistics****(CBCS Scheme 2019-2020)****Paper : 1.5****Time : 3 Hours****Maximum Marks : 70****Instructions to Candidates :****Calculator and Statistical tables are allowed.****SECTION - A****Answer any Five questions from the following. Each question carries 5 marks.****(5×5=25)**

1. Explain the importance of statistics in managerial decision making process.
2. Explain Type I and Type II error in statistics.
3. Calculate Karl Pearson's and Bowley's coefficient of skewness for the marks obtained by students of 2 institutions.

Measure	Institution - A	Institution - B
Mean	65	68
Median	60	63
S.D	11	14
Upper quartile	90	104
Lower quartile	30	32

4. Fit a trend line by the method of least squares for the following data. Find out the number of homes with solar heaters in April and May.

Month : Sept Oct Nov Dec Jan Feb March**No. of Homes :** 15 15 26 27 33 41 51

5. A box contains 50 coins numbered from 1 to 50. One coin is drawn at random. Find the probability that the number on the coin drawn will be a multiple of (a) 3 or 9 and (b) 5 or 8.

[P.T.O.]



6. The management of the State Bank of India wants to test effectiveness of an advertising company that is intending to enhance the awareness of the bank's service features Before and After advertising campaign scores are given in the following table.

Consumer :	1	2	3	4	5	6	7	8	9
Before ad. campaign :	82	81	89	74	68	80	77	66	77
After ad. campaign :	87	84	76	78	81	79	81	80	82

Use Wilcoxon test, test the hypothesis that there is no difference in consumer awareness of bank services offered during advertising campaign.

7. In an intelligence test administered to 500 students, the average score was 42 and standard deviation was 24. Find
- The number of students who got a score between 30 and 40.
 - The number of students who got a score above 60.

SECTION - B

Answer any Three questions. Each question carries 10 marks. (3×10=30)

8. What is business forecasting? Explain the various techniques of forecasting.
9. Find the data given below prove that Fisher's index satisfies the factor reverse and time reversal test.

Average wholesale prices

Commodities	2018	2019	2020	2021
X	15	20	24	18
Y	20	25	26	30
Z	15	30	35	26

10. From the data given below, you are required to :

- Calculate the correlation coefficient
- Find the standard error.
- Construct the two regression lines

Annual income

(00,000 Rs) : 8 12 10 24 14 13 38 11 16

Percent allocation

for investment : 36 25 34 15 28 30 19 21 22



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11. A company 'X' has 2 options to sell its products. He can set up a showroom in the city or can sell from his factory outlet setting up a showroom will cost Rs. 5,00,000 with a 60% probability of success. If the showroom succeeds, he can get a net profit of Rs. 10,00,000 per year. If it fails, he can close the showroom or rent it out for an annual rent of Rs. 2,40,000. The probability of getting rent is 80%.

If it sells from the factory outlet, it has to incur Rs. 50,000 as renovation charges. The successful chances of selling the product is 40% with a net profit of Rs. 4,00,000 per year. Draw a decision tree and advice the company.

SECTION - C

Case Study (Compulsory) :

(1×15=15)

12. Four judges of a soft skills assessment test gave the following marks to five candidates. Using 5% level test whether there is a significant difference in

The performance of the five candidates.

Judges	Candidates				
	A	B	C	D	E
1	11	12	15	13	12
2	14	16	13	15	18
3	12	13	17	19	16
4	14	15	13	16	20
