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Reg. No. | | | | | | | | |

I Semester M.B.A. (Day and Evening) Degree Examination, June/July - 2024

MANAGEMENT

Business Statistics

(CBCS Scheme 2019 Onwards)

Paper : 1.5

Time : 3 Hours **Maximum Marks : 70**

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. Distinguish between Parametric and Non-parametric test.
3. What is asymmetric distribution? Explain the types with examples.
4. Calculate Bowley's co-efficient of Skewness from the following data.

Age(yrs)	Below 20	20-25	25-30	30-35	35-40	40-45	45-50	50 and above
Number of employees	13	29	46	60	112	94	45	21

5. Below are given the figures of production(in thousand quintals) of a sugar factory:

year	2012	2013	2014	2015	2016	2017	2018
Production	80	90	92	83	94	99	92

Fit a straight line trend by the method of least squares and estimate the production figures for 2024.

6. A sample of 2500 students is chosen from a large group of students. The average height of the students is 162cm and standard deviation is 8cm. At 0.05 level of significance, can we reasonably assume that the average height of large group of students is 160cm?
7. Following data are available in respect of sales and advertisement expenditures.

Particulars	**Sales**	**Advertisement expenditure**
Mean	70,000	20,000
SD	13,000	2,500

Co-efficient of correlation is 0.8. Find the regression equations.

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SECTION - B

Answer **any Three** questions from the following each question carries **10** marks. **(3×10=30)**

8. Explain the various business forecasting techniques adopted by the organisation.

9. From the following data, calculate the ideal index number, time reversal and factor reversal test.

Commodity	2023		2024	
	Price(Rs.)	Expenditure on Quantity Consumed (Rs.)	Price(Rs.)	Expenditure on Quantity Consumed (Rs.)
A	8	200	65	1950
B	20	1400	30	1650
C	5	80	20	900
D	10	360	15	300
E	27	2160	10	600

10. The following data give the ages and blood pressure of 10 women.

Age:	56	42	36	47	49	42	60	72	63	55
Blood pressure:	147	125	118	128	145	140	155	160	149	150

(a) Find the correlation coefficient between age and blood pressure.

(b) Determine the least squares regression equation of blood pressure on age.

(c) Estimate the blood pressure of a woman whose age is 50 years.

11. The investment staff of MVM bank is considering four investment proposals for a client: shares, bonds, real estate and savings certificate. These investments will be held for one year. The past data regarding the four proposals are given below;

Shares: There is a 25 percent chance that shares will decline by 10 percent, a 30 percent chance that they will remain stable and a 45 percent chance that they will increase in value by 15 percent. Also the shares under consideration do not pay any dividends.

Bonds: These bonds stand a 40 percent chance of increase in value by 5 percent and 60 percent chance of remaining stable and they yield 12 percent.

Real Estate: This Proposal has a 20 percent chance of increasing 30 percent in value, a 25 percent chance of increasing 20 percent in value, a 40 percent chance of increasing 10 percent in value, a 10 percent chance of remaining stable and a 5 percent chance of losing 5 percent of its value.

***Savings Certificates*:** These certificates yield 8.5 percent with certainty.

Use a Decision tree to structure the alternatives avaliable to the investment staff, using the expected value criterion, choose the alternative with the highest expected value.

SECTION - C

12. Compulsory Case Study: **(1×15=15)**

A manufacturer of perfumes wishes to launch a new perfume in 4 different fragrances. Is there a significant difference in the sales figures of various fragrances from the data given below. Use 5% level of significance.

Cities	Lavender	Rose	Daisy	Lilly
A	81	101	96	71
B	83	111	91	76
C	89	106	101	83
D	86	116	106	89
E	76	91	81	66