

SHRIMATHI DEVKUNVAR NANALAL BHATT VAISHNAV COLLEGE FOR WOMEN
(AUTONOMOUS)

(Affiliated to the University of Madras and Re-accredited with 'A+' Grade by NAAC)
Chromepet, Chennai — 600 044.

B.Com. END SEMESTER EXAMINATIONS NOVEMBER -2023

SEMESTER - I

20UCOAT1001 - Business Statistics and Operations Research-I

Total Duration : 2 Hrs 30 Mins.

Total Marks : 60

Section B

Answer any **SIX** questions ($6 \times 5 = 30$ Marks)

1. Explain the of classification of statistical data.
2. From the following data compute the standard deviation:

X	10	12	14	16	18	20	22
Y	3	5	9	16	8	7	2

3. Compute the coefficient of correlation between x and y from the following table:

X	10	14	15	28	35	48
Y	74	61	50	54	43	26

4. Using three year moving averages, determine the trend and short term fluctuations:

Year	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
Production ('000 tons)	21	22	23	25	24	22	25	26	27	26

5. A paper mill produces two grades of papers namely X and Y. Owing to raw material restrictions, it cannot produce more than 400 tons of grade X and 300 tons of grade Y in a week. These are 160 productions hours in a week. It requires 0.2 and 0.4 hours to produce a ton of products X and Y, respectively with corresponding profits of Rs.200 and Rs.500 per ton. Formulate the above as LPP to maximize profit.
6. Prepare a Pie-diagram of the following data relating to areas under different food-crops:

Food crops	Rice	Wheat	Barley	Jowar	Bajra	Maize	Others
Area in (lakhs of acres)	8	8	4	2	2	5	11

7. The mean and SD of 20 items is found to be 10 and 2 respectively. At the time of checking it was found that one item 8 was incorrect. Compute the mean and SD if the wrong item is replaced by 12. Give the answer correct to 2 place of decimal.

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8. The following are the rank obtained by 10 students in Statistics and Mathematics:

Statistics	1	2	3	4	5	6	7	8	9	10
Mathematics	1	4	2	5	3	9	7	10	6	8

Examine the knowledge of students in the two subjects related.

Section C

Answer any **THREE** questions ($3 \times 10 = 30$ Marks)

9. Compute the quartile deviation and its coefficient for the following frequency distribution.

Marks above	0	10	20	30	40	50	60	70
No. of students	150	142	130	120	72	30	12	4

10. Describe briefly about characteristics of Statistics.
11. Find the coefficient of correlation between x and y from the following data:

x	10	14	15	28	35	48
y	74	61	50	54	43	26

12. Find the seasonal indices using average method for the data given below:

Year	I Quarter	II Quarter	III Quarter	IV Quarter
1980	35	70	90	100
1981	38	68	80	125
1982	41	75	85	120
1983	50	80	95	140

13. A company manufactures 2 types of printed circuits. The requirements of transistors, resistors and capacitors for each type of printed circuits along with other data are given below.

	Circuit		Stock available
	A	B	
Transistor	15	10	180
Resistor	10	20	200
Capacitor	15	20	210
Profit	Rs.5	Rs.8	

Determine the circuits of each type should the company produce from the stock to earn maximum profit.
