

**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 APRIL-2022

SEMESTER - I

16UCOAT10R1 - Business Statistics and Operations Research-I

Total Duration : 3 Hrs.

Total Marks : 60

Section A

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

1. Explain different parts of a table. In detail.
2. Compute the coefficient of concurrent deviations from the following data:

Year	1990	1991	1992	1993	1994	1995	1996	1997
Price	25	28	30	23	35	38	39	42
Demand	35	34	35	30	29	28	26	23

3. Prepare a three year moving average from the following data.

Year	1995	1996	1997	1998	1999	2000	2001
Value	50	46	42	49	52	40	54

4. Solve the following LPP by the graphical method:

$$\text{Max } Z = 22x_1 + 18x_2$$

$$\text{Subject to } x_1 + 240x_2 \leq 5760$$

$$x_1 + x_2 \leq 20$$

$$x_1, x_2 \geq 0$$

5. The mean salary for a group of 40 female workers is Rs.5200 per month and that for a group of 60 male workers is Rs.6800 per month. What is the combined mean salary?

6. Compute the coefficient of correlation between x and y from the given data:

X	5	10	5	11	12	4	3	2	7	1
Y	1	6	2	8	5	1	4	6	5	2

7. The sales of a commodity in tonnes varied from January 1979 to December 1979 as follow:

280	300	280	280	270	240
230	230	220	200	210	200

Fit a trend line by the method of Semi-average.

8. The weekly salaries of a group of employees are given in the following table. Find the Standard deviation and Coefficient of Variation of the Salaries.

Salary	75	80	85	90	95	100
No of persons	3	7	18	12	6	4

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Section B

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

9. Compute Mean, Median, and Mode for the following data:

CI	10-20	20-30	30-40	40-50	50-60	60-70	70-80
F	5	12	25	20	24	10	4

10. Determine the coefficient of Rank Correlation between the heights of father and son from the given data.

Height of the father (in inches)	64	65	66	67	68	69	70
Height of the Son (in inches)	66	67	65	68	70	68	72

11. The following data Relate to the age of employees and the number of days they were reported sick in a month.

AGE	30	32	35	40	48	50	52	55	57
SICK DAYS	1	0	2	5	2	4	6	5	7

Find the regression of sick days on age.

12. Evaluate seasonal indices by simple average method.

Quarter	Quarterly Output('000 tonnes)			
	2000	2001	2002	2003
I	31	42	49	47
II	39	44	53	51
III	45	57	65	62
IV	36	45	55	50

13. Solve the following LPP by the Simplex method

$$\text{Max } Z = 45x_1 + 80x_2$$

$$\text{Subject to } 5x_1 + 20x_2 \leq 400$$

$$10x_1 + 15x_2 \leq 450$$

$$x_1, x_2 \geq 0$$
