

Roll.No.

25UCOGT1E01

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 2025

SEMESTER - I

25UCOGT1E01 - 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)

- Briefly explain the special characteristics of business statistics.
- (i) Calculate harmonic mean of numbers 10, 20, 25, 40, 50.
(ii) Calculate harmonic mean from the following frequency distribution:

X:	0-10	10-20	20-30	30-40	40-50
Y:	8	15	20	4	3

- Calculate the mean.

The following table gives the monthly income of 10 persons.

Income (Rs) 4,600, 5,560, 6,440, 4,530, 7,670, 6,850, 6,750, 7,910, 5,490, 6,800.

- Calculate Karl Pearson's rank correlation.

X:	6	8	12	15	18	20	24	28	31
Y:	10	12	15	15	18	25	22	26	28

- Calculate time series analysis

Fit a trend line to the following data by the free hand method:

Year	Production of steel (in million tons)	Year	Production of steel (in million tons)
2005	20	2010	25
2006	22	2011	23
2007	24	2012	26
2008	21	2013	25
2009	23		

- Write a short note on operation research and objectives.

- Calculate Regression analysis.

From the following data, obtain the two regression equations.

X	6	2	10	4	8
Y	9	11	5	8	7

Contd...

8. Represent the following data by a suitable diagram:

Year	1999	2000	2001	2002	2003	2004
Sale of steel (in thousand tonnes)	8	8.8	9.2	10.2	7.6	12.5

Section C

Answer any **THREE** questions (3 × 10 = 30 Marks)

9. Calculate the coefficient of correlation from the following data:

Adv. Exp. (Rs. Lakhs)	X:	10	12	15	23	20
Sales (Rs. Crores)	Y:	14	17	23	25	21

10. The following data gives the weights of 50 students given below, prepare a frequency table with class intervals as 40-49, 50-59, etc.

94 78 86 51 96 103 52 79 50 72 66 49
 77 90 84 76 42 64 69 70 68 69 104 80
 79 79 54 73 58 91 65 60 77 78 67 50
 84 76 110 53 74 40 60 42 82 41 61 75
 115 83

11. The weights of a number of packages are given as follows.

16.1, 15.9, 15.8, 16.3, 16.2, 16.0, 15.9, 16.0, 16.1, 16.0, 15.9, 16.1, 16.0, 16.0.
 Form a frequency table. find standard deviation and the variance.

12. Method of least square. fit a straight-line method of least square to the following data

Year	Sales
2018	120
2019	150
2020	170
2021	200
2022	230

13. Define Linear programming. Explain the important steps in linear programming.
