

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. CS- END SEMESTER EXAMINATIONS - APRIL 2025

SEMESTER - II

**23UBCAT2002 - Business Statistics**

Total Duration : 2 Hrs.30 Mins.

Total Marks : 60

**Section B**

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

- Describe the different methods of collecting statistical data.
- Find the rank correlation coefficient for the following data:

<b>x</b>	92	89	83	91	77	68	85	52	82	37
<b>y</b>	86	89	87	86	86	77	71	63	53	51

- The sales of the commodity in tonne, varied from January 1979 to December 1979 as follows:

Fit the trend line by the method of semi-average.

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

- Construct a price index for the following by a (i) Simple aggregate (ii) Average of price relative method by using both arithmetic means and geometric mean.

Commodity	Price in 2014	Price in 2015
A	120	80
B	150	120
C	180	120
D	100	80
E	130	100
F	200	160

- Find the median of the following frequency distribution:

<b>Daily wages in Rs.</b>	5	10	15	20	25	30
<b>No. of persons</b>	7	12	37	25	22	11

- In order to find the coefficient of correlation between two variables x and y from 12 pairs of observation, the following calculations were made:

$$\sum x = 30, \sum y = 5, \sum x^2 = 670, \sum y^2 = 285, \sum xy = 334$$

On the subsequent verifications, it was found that the pair ( $x = 11, y = 4$ ) was copied wrongly, the correct value being ( $x = 10, y = 14$ ). Find the correct value of the correlation coefficient.

**Contd...**

7. Calculate the seasonal indices from the following data using the average method.

Year	1 <sup>st</sup> Quarter	2 <sup>nd</sup> Quarter	3 <sup>rd</sup> Quarter	4 <sup>th</sup> Quarter
1974	72	68	80	70
1975	76	70	82	74
1976	74	66	84	80
1977	76	74	84	78
1978	78	74	86	82

Would you like a solution for calculating seasonal indices using the average method?

8. From the Fixed Base Index Number given below, prepare Chain Base Index Number.

Year	1966	1967	1968	1969	1970	1971
Index	94	98	102	95	98	100

### Section C

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

9. Explain the different types of graphs and diagrams used in statistics for data visualization
10. The following table gives the frequency distribution of expenditure on education per family per month among middle-class families in two towns.

Expenditure (in Rs.)	Town A	Town B
3 - 6	28	34
6 - 9	292	284
9 - 12	389	401
12 - 15	212	202
15 - 18	59	48
18 - 21	18	21
21 - 24	2	5

- (i) Find the arithmetic means and standard deviations of the expenditure at both the towns.
- ii) Find out which of the two towns shows greater variability.

Contd...

11. Calculate the Karl Pearson Coefficient of Correlation from the following data using 20 as the working mean for the price and 70 as the working mean for demand.

Price	Demand
14	84
16	78
17	70
18	75
19	66
20	67
21	62
22	58
23	60

12. Fit a straight line to the following data by the least squares method after summing the given quarterly data due to yearly data.

Year	Export of Cotton Textiles (Million Rs.)			
	I Quarter	II Quarter	III Quarter	IV Quarter
1979	10	13	14	12
1980	12	14	15	13
1981	13	15	18	14
1982	15	19	21	18
1983	15	22	23	20
1984	20	21	25	20

Also, find out short-period fluctuations for the given years using the additive model.

13. Calculate the index number from the following data by
- (a) Laspeyres Method
  - (b) Paasche Method
  - (c) Bowley's Method
  - (d) Fisher's Ideal Method
  - (e) Marshall Edgeworth Method

Commodity	Base Year		Current Year	
	Kg	Rate (Rs.)	Kg	Rate (Rs.)
Coffee	10	5	15	6
Wheat	20	8	18	9
Tea	15	4	16	5
Sugar	18	9	20	10

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