

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.B.A - END SEMESTER EXAMINATIONS - APRIL 2025

SEMESTER - IV

**20UBACT4009 - Business Statistics - II**

Total Duration : 2 Hrs.30 Mins.

Total Marks : 60

### Section B

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

1. Explain about the procedure for testing the significance of the difference between the observed and expected frequencies.
2. Calculate the seasonal indices from the following data using the average from the following data using the average method:

Year	1 quarter	2 quarter	3 quarter	4 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

3. Solve the Weighted Aggregate method of the index number from the following data:

Commodity	Base Year (price/unit)	Current Year (price/unit)	Weight
Rice	30	40	10
Wheat	20	30	5
Pulses	40	50	6
Oil	35	40	5
Milk	40	50	10

4. Explain about the sampling errors.

**Contd...**

5. Prepare ANOVA table for the following /hectare yield for three varieties of wheat, each grown in four plots:  
Per hectare yield (in hundred Kgs)

Plots of land	Variety of wheat		
	A1	A2	A3
1	6	5	5
2	7	5	4
3	3	3	3
4	8	7	4

Also work out F-ratio and test whether there is significant difference among the average yields in the 3 varieties of wheat.

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

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

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

7. Calculate the cost-of-living index number from the following data:

Commodity	Base Year (price)	Current Year (price)	Weight
Food	30	47	4
Fuel	8	12	2
Clothes	14	18	3
Rent	22	15	2
Miscellaneous	25	30	1

8. Differentiate the types of errors in testing hypothesis.

### Section C

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

9. The theory predicts that the proportion of beans in 4 given groups should be 9:3:3:1. In an examination with 1600 beans, the number in the four groups were 882, 313, 287 and 118. Does the experimental result support the theory?

Contd...

10. In a certain factory production can be accomplished by four different workers on 5 different types of machines\_ A sample study, in context of a two-way design without repeated values, being made with two-fold objectives of examining whether the four workers differ from with respect to mean productivity and whether the mean productivity is the same for the 5 different machines. The researcher involved in this study reports while analyzing the data as under:
- (i) Sum of squares for variance between machines =35.2
  - (ii) Sum of squares for variance between work man=53.8
  - (iii) Sum of square for total variance =174.2 Prepare ANOVA table for the given information and draw the inference about variances at 5% level of significance (Table value F = 2.53).
11. Fit a straight line to the following data by the least squares method after summing the given quarterly data due to yearly data.

Export of Cotton Texiles (Million Rs.)

Year	1 quarter	2 quarter	3 quarter	4 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 additive mode.

12. Using the following data compute Fisher's Ideal Price and Quantity Index numbers for the current year

Commodity	Base Year		Current Year	
	Price (Rs./Kg.)	Quantity (Kg.)	Price (Rs./Kg.)	Quantity (Kg.)
A	8	6	12	4
B	10	8	12	8
C	14	4	18	4
D	4	6	2	10
E	10	10	14	8

13. Compare the different types of sampling methods.

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