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-2023
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 the components of Time series.
2. Explain the types of sampling methods.
3. A sample of 200 persons with a particular disease was selected. Out of these, 100 were given a drug and the others were not given any drug. The results are as follows:

	Number of Persons		**Total**
	Drug	**No Drug**	
Cured	65	55	120
Not cured	35	45	80
Total	100	100	200

   Test whether the drug is effective or not.

4. Four machines A,B,C and D are used to produce a certain kind of cotton fabrics. Samples of size 4 with each unit as 100 square metres are selected from the outputs or the machines at random, and the number of flaws in each 100 square metres are counted, with the following result.

A	**B**	**C**	**D**
8	6	14	20
9	8	12	22
11	10	18	25
12	4	9	23

   Show that there is a significant difference in the performance of the four machines.

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5. Interpret Laspeyre's Index number, Paasche's price index number and Marshall-Edgeworth Index to the following data :

Commodity	**1980**		**1981**	
	Price	**Quantity**	**Price**	**Quantity**
A	20	15	30	10
B	30	18	40	15
C	10	20	45	10
D	15	25	25	5

6. Classify the errors in Testing Hypothesis.

7. Of the 1,000 workers in a factory exposed to an epidemic, 700 in all were attacked, 400 had been inoculated and of these, 200 were attacked. On the basis of this information, describe whether inoculation and attack are independent.

8. A Completely randomised design experiment with 10 plots and 3 treatments gave the following results:

Plot	1	2	3	4	5	6	7	8	9	10
Treatment	A	B	C	A	C	C	A	B	A	B
yield	5	4	3	7	5	1	3	4	1	7

Justify the results for treatment effects.

Section C

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

9. Sketch a straight line trend by the method of least squares to the following data and find the trend values:

Year	2011	2012	2013	2014	2015	2016
Sales of air conditioners (in lakhs)	10	13	16	21	24	30

10. Using the following data, compute Fisher's Ideal Index and show how it satisfies Factor Reversal Test and Time Reversal Test?

Commodity	**Price in rupees per unit**		**Number of units**	
	Base year	**Current year**	**Base year**	**Current year**
A	6	10	50	56
B	2	2	100	120
C	4	6	60	60
D	10	12	50	24
E	8	12	40	36

11. Examine the procedure of Hypothesis Testing.

12. The following table gives the number of aircraft accidents that occurred during the various days of the week. Test whether the accidents are uniformly distributed over the week.

Days	Mon	Tues	Wed	Thurs	Fri	Sat
No. of accidents	14	18	12	11	15	14

13. A company appoints four salesmen A,B,C and D and observe their sales in three seasons - summer, winter and monsoon.The figures(in lakhs) are given in the following table:

Season	**Salesman**				**Total**
Summer	36	36	21	35	128
Winter	28	29	31	32	120
Monsoon	26	28	29	29	112
Total	90	93	81	96	360

Evaluate an analysis of variance.

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