Roll.No. | **25UBHCT1003**

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. Honours - END SEMESTER EXAMINATIONS - NOVEMBER 2025
SEMESTER - I
25UBHCT1003 - Business Statistics

Total Duration : 2 Hrs. 30 Mins. Total Marks : 60

Section B

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

1. Define Hypothesis and explain the procedure for formulation of hypothesis?
2. A random sample of 200 tins of coconut oil gave an average weight of 4.95 kgs with a standard deviation of 0.21 kg. Do we accept the hypothesis of net weight 5 kgs per tin at 1% level. (Z@1% level = 2.58)
3. A researcher wants to investigate whether smoking status is associated with the presence of lung disease among adults. A random sample of 200 individuals was taken, and the results are shown below:

	Lung Disease Present	**Lung Disease Absent**	**Total**
Smokers	40	60	100
Non-Smokers	20	80	100
Total	60	140	200

   Investigate whether smoking status is associated with the presence of lung disease among adults (chi-square at 5% level= 3.841)
4. The sales of a commodity in tonnes varied from January to December of 2023 as follows:
   280, 300, 280, 280, 270, 240, 230, 230, 220, 300, 210 & 200
   Fit a trend line by the method of semi-average.
5. Calculate the coefficient correlation between x and y from the following data

X	1	3	5	8	9	10
Y	3	4	8	10	12	11

6. Explain the procedure for Two-Way ANOVA.

Contd...

7. Two salesmen A and B are working in a certain district. From a Sample survey conducted by the Head office, the following results are obtained.

	Salesman A	**Salesman B**
Number of sales	20	18
Average sales (Rs.)	170	205
Standard deviation (Rs.)	20	25

Test whether there is any significant difference in the average sales between the two salesmen. (t@1% level with dof (36) = 2.58)

8. Calculate 3-years moving average and find the trend values

Year	2012	2013	2014	2015	2016	2017	2018
Production (In tonnes)	22	25	30	32	35	40	42

Section C

I - Answer any **TWO** questions $(2 \times 10 = 20$ Marks)

9. Explain Simple random sampling, Stratified sampling and Systematic sampling.

10. Find Regression line x on y and identify the most likely value of x when y = 20

X	20	22	12	8	17	30
Y	11	15	28	14	23	10

11. There are 3 main brands of a certain product. A set of 120 sample values is examined and found to be allocated among 4 groups (A, B, C & D) and 3 brands (I, II & III) as shown here under

Brand	**Group**			
	A	B	C	D
I	0	4	8	15
II	5	8	13	6
III	18	19	11	13

Is there any significant difference in Brand preference at 5% level of significance using one-way ANOVA.

12. Calculate 4-years moving average and find the trend values

Year	2015	2016	2017	2018	2019	2020	2021	2022
Sales (Rs. In lakhs)	13	14	18	20	22	27	30	31

Contd...

II - Compulsory question $(1 \times 10 = 10$ Marks)

13. A random sample of 10 boys has the following IQ's: 70, 120, 110, 101, 88, 83, 95, 98, 107 & 100. Do these data support the assumption of a population mean IQ of 100? (t@5% level with dof (9) = 2.262)

******