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-2022
SEMESTER - IV
17UBCCT4A12 - Statistics - II

Total Duration : 3 Hrs. **Total Marks : 60**

Section A

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

1. Write a note on second degree parabola.
2. Differentiate between Correlation and Regression.
3. Describe the importance of rank correlation.
4. Fit a trend line to the following data by the graphical method:

Year	Production of Steel (in million tonnes)	Year	Production of Steel (in million tonnes)
2009	20	2014	25
2010	22	2015	23
2011	24	2016	26
2012	21	2017	25
2013	23		

5. Briefly explain the components of time series.
6. Compute Paasche and Laspeyre's Index numbers from the following data:

Commodities	Base Year		Current Year	
	Quantity	Price	Quantity	Price
A	40	4	35	3
B	15	3	20	4
C	20	6	15	5
D	30	5	25	2

7. Write a note on factor reversal test with a suitable example.
8. Demonstrate with an illustration for the test of differences between means under large sample.

Section B

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

9. Explain the least square principle.

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10. Calculate the Karl Pearson's Coefficient of Correlation from the following data:

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

11. Construct index numbers of price from the following data by applying (i) Laspeyre's Method; (ii) Paasche Method; (iii) Bowley Method; (iv) Fisher's Ideal Method.

Commodities	**Base Year**		**Current Year**	
	Quantity	**Price**	**Quantity**	**Price**
A	2	8	4	6
B	5	10	6	5
C	4	14	5	10
D	2	19	2	13

12. Compute 4-yearly moving average values for the following data:

Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Value	24	28	34	42	52	64	98	94	112	132	154	178

13. As head of a department of a consumer's research organization, you have the responsibility for testing and comparing lifetimes of four brands of electric bulbs. Suppose you test the lifetime of three electric bulbs of each of the four brands. The data is shown below, each entry representing the lifetime of an electric bulb, measured in hundreds of hours:

Brand			
A	**B**	**C**	**D**
20	25	24	23
19	23	20	20
21	21	22	20

Can we infer that the mean lifetimes of the four brands of electric bulbs are equal?

NOTE: F-Table Value for (3, 8) d.f. and 5% level of significance is 4.07.

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