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 NOVEMBER-2022
SEMESTER - IV
20UBCCT4012 - Statistics II

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

Section A

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

1. State the principle of least square method.
2. Find rank correlation for the following data:

Marks in A/C (x)	84	56	89	58	59	67	74	78
Marks in Maths (y)	38	69	56	58	63	78	87	77

3. Given the bivariate data:

X	2	6	4	3	2	2	8	4
Y	7	2	1	1	2	3	2	6

   Fit the regression line of Y on X and hence predict Y, if X = 20.

4. Applying the semi average method determine the trend from the data given below:

Years	1990	91	92	93	94	95	96	97
Production (000, units)	8	6	10	12	11	15	14	16

5. Calculate the Index Number for the year 2012 using the following methods:
   a) Laspeyre's Method b) Paasche's Method

Commodity	**2011**		**2012**	
	Price	**Quantity**	**Price**	**Quantity**
A	8	10	10	9
B	10	12	15	12
C	12	8	18	7
D	15	6	16	8

6. Calculate the Weighted AM price relative index number for the following data:

Commodity	**A**	**B**	**C**	**D**
Base Year Price	20	12	8	4
Current Year Price	32	18	10	8
weight	10	20	30	40

7. A sample of 900 items has mean 3.4 and Standard Deviation 2.61. Can the sample be regarded as drawn from a population with mean 3.25 @ 5% level of significance?
   (Table Value of z at 5% level is 1.96)

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8. A company has been producing steel tubes of mean inner diameter of 2.00 cm. A sample of 10 tubes gives an inner diameter of 2.01 cm and a standard deviation of 0.0632 cm. Is the difference in the value of mean significant?
(Table Value of t for 9df at 5% level = 2.262)

Section B

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

9. Fit a straight line by least square method to the data given below and estimate trend for 2010.

Year :	2000	2001	2002	2003	2004	2005	2006
Production :	77	88	94	85	91	98	90

10. Calculate the Pearson's co-efficient of correlation from the following data using 44 and 26 respectively as the assumed value of x and y.

X	43	44	46	40	44	42	45	42	38	40	42	57
Y	29	31	19	18	19	27	27	29	41	30	26	10

11. Assuming that trend is absent, determine if there is any seasonality in the data given below:

Quarters				
Year	**1**st	**2**nd	**3**rd	**4**th
2005	72	68	80	70
2006	76	70	82	74
2007	74	66	84	80
2008	76	74	84	78
2009	78	74	86	82

What are the various indices for various quarters?

12. From the following data, compute Fisher Ideal Index Number's and also prove that it is satisfies both Time Reversal Test and Factor Reversal Test.

Year	**2011**		**2012**	
Commodity	**Price**	**Qty.**	**Price**	**Qty.**
A	4	8	5	8
B	5	10	6	12
C	3	6	4	7
D	8	5	10	4

13. A College conducts both Day and Evening Classes intended to be identical. A sample of Day and evening Students yields examinations results as

	Day Classes	**Evening Classes**
Mean	72.4	73.9
S.D	14.8	17.9
Sample Size	100	200

Are the two means statistically equal at 10% level? (Table value of z @ 10% Level = 1.645)

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