TB214130W **Reg. No :.....**

Name :.....

B.Com. DEGREE (C.B.C.S.) EXAMINATION, MARCH 2023

(2021 Admissions Regular, 2020 Admissions Supplementary / Improvement, 2019 &2018 Admissions Supplementary)

SEMESTER IV - CORE COURSE (COMMERCE)

(For B.Com. Finance and Taxation & Capital Market)

CO4B13B18 - QUANTITATIVE TECHNIQUES FOR BUSINESS - II

Time : 3 Hours **Maximum Marks : 80**

Part A

I. Answer any Ten questions. Each question carries 2 marks **(10x2=20)**

1. Discuss the term Rank Correlation.
2. Explain Positive Correlation.
3. Describe the term Multiple Correlation.
4. Explain the characteristics of Regression Analysis.
5. Write the meaning of the term Regression Coefficients.
6. Discuss the term chain base index number.
7. Discuss the term value index number.
8. What is Time Reversal Test?
9. Explain non-linear trend.
10. Describe multiplicative model.
11. Explain Conditional Probability.
12. Explain classical probability.

Part B

II. Answer any Six questions. Each question carries 5 marks **(6x5=30)**

13. Calculate **Karl Pearson's coefficient of correlation** between price and demand from the following:

Price (Rs.)	5	6	7	8	9
Demand (Kg)	8	7	6	5	4

14. What are the different types of Regression?
15. If $\overline{Y}$= 15; $\overline{X}$ =3.5; byx= 2.5.
    Obtain the value of Y when X =5.
16. Distinguish between FBI and CBI.
17. Using suitable formula, construct price index from the following data:

Commodity	2017		2019	
	Price	Expenditure	Price	Expenditure
A	4	200	10	400
B	3	30	9	18
C	2	10	5	10

18. Discuss the method of Least Squares. Explain its merits and demerits.
19. Calculate trend values by taking **3 yearly moving average** from the following data:

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Sales	5	7	9	12	11	10	8	12	13	17

20. There are 8 men and 6 women. Compute the probability of selecting 6 of which: (i) exactly two are women, (ii) No woman, (iii) Atleast one woman, (iv) Atleast two women, (v) at the most three women.
21. A box contains 3 Black and 7 White balls. One ball is drawn at random and in its place, a ball of the other colour is put in the box. Now one ball is drawn at random from the box. Determine the probability that it is black.

Part C

III. Answer any Two questions. Each question carries 15 marks **(2x15=30)**

22. The following data shows the maximum temperature and minimum temperature on a certain day at important cities located at different part of India.

Max. Temp:	29	23	25	15	27	29	24	31	32	35
Min. Temp:	8	3	7	5	8	19	10	7	5	8

1. Fit a regression line of X on Y and Y on X.
2. Estimate the Maximum Temperature when the Minimum Temperature is 12.
3. Estimate the Minimum Temperature when the Maximum Temperature is 40.
4. Also calculate Karl Pearson's coefficient of correlation.

23. From the following data calculate **Fisher's Ideal Index** and prove whether it satisfies **Time Reversal and Factor Reversal Tests**.

Commodity	Base Year		Current Year	
	Price	Value	Price	Value
A	10	100	12	144
B	12	144	14	196
C	14	196	16	256
D	16	256	18	324
E	18	324	20	400

24. The following are the **annual profits** in lakhs of rupees of a Cotton Mill:

Year	2010	2011	2012	2013	2014	2015	2016
Profit	55	60	62	70	75	74	80

- Using the method of least squares, fit the straight line to the above data.
- Estimate the trend values for all the years.
- Compute short term oscillations.
- Also make an estimate of profit in 2019.

25. The odds against A getting a train are 5:4 and the odds in favour of B getting the same train are 3:7. Compute the probability if; (i) Both A and B will get the train, (ii)They will not catch the train if they try independently (iii) The train will be caught by atleast one.