TB244121V

Reg. No :.....

Name :.....

BACHELOR'S DEGREE (C.B.C.S) EXAMINATION, MARCH 2024

2022 ADMISSIONS REGULAR

SEMESTER IV - CORE COURSE (COMMERCE)

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. Describe Partial Correlation.
2. Explain Perfect Correlation.
3. Briefly explain Scatter Diagram.
4. Write the meaning of the term Regression Coefficients.
5. Describe Non-Linear Regression.
6. Describe the term Consumer Price Index Number.
7. Explain Time Reversal Test.
8. Explain price index number.
9. Explain the term Line of Best Fit.
10. Explain secular trend.
11. Classify independent and dependent events.
12. Explain the concept of probability.

Part B

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

13. In a fancy dress competition,two judges awarded the following ranks to eight participants. Calculate **Spearman's coefficient of rank correlation**:

Judge A	8	7	6	3	2	1	5	4
Judge B	7	5	4	1	3	2	6	8

14. Explain the utilities of Regression Analysis.
15. Find the expected price in Mumbai, when the price in Delhi is Rs. 70.

Average price in Delhi	Rs. 65
Average price in Mumbai	Rs. 67
SD of price in Delhi	2.5
SD of price in Mumbai	3.5
Correlation coefficient	0.8

16. Explain the features of Index Numbers.
17. Calculate **Fisher's Ideal Index Number** from the data given below:

Commodity	Price 2017	Quantity 2017	Price 2019	Quantity 2019
A	8	10	20	30
B	12	15	10	10

C	6	8	16	20
D	4	6	8	10

18. Explain the utilities of time series analysis.

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. A committee is to be constituted by selecting two persons at random from a group of 3 students from Economics and 4 students from Commerce. Calculate the probability if the committee will consist of: (i) Two students from Economics, (ii) Two students from Commerce, (iii) One from Economics and One from Commerce.

21. The probability that India wins a cricket match against England is given to be 1/3. If India and England play three test matches, Find the probability that: (i) India will lose all the three matches, (ii) India will win atleast one match.

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	2010		2019	
	Price	Expenditure	Price	Expenditure
A	8	96	10	90
B	10	60	11	66
C	5	100	5	100
D	3	30	2	24
E	2	8	2	20

24. Fit a straight line trend by the **method of least squares** using the following data and **estimate the trend values**. Also estimate the sales for the year **2019**.

Year	2011	2012	2013	2014	2015	2016	2017
Sales	12	10	14	11	13	15	16

25. A bag contains 5 Pearls and 8 Diamonds. Two successive drawings of 3 stones are made such that; (i) the stones are replaced before the second trial and (ii) the stones are not replaced before the second trial. Find the probability that the first drawing will give 3 Pearls and the second drawing will give 3 Diamonds in each case.