TB254281A

Reg. No :.....

Name :.....

BACHELOR'S DEGREE (C.B.C.S) EXAMINATION, MARCH 2025

2018, 2019, 2020, 2021, 2022 ADMISSIONS SUPPLEMENTARY

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. Explain Correlation.
2. Describe Partial Correlation.
3. Describe Imperfect Correlation.
4. Discuss Total Regression.
5. Briefly explain is Simple Regression.
6. Explain quantity index number.
7. Explain the term splicing.
8. Explain deflating.
9. Discuss additive model.
10. Discuss the concept of time series.
11. Explain the concept of probability.
12. Interpret Axiomatic approach to probability.

Part B

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

13. From the following data compute **Karl Pearson's coefficient of correlation.**

Series A	24	26	28	30	32
Series B	-1	-2	-3	-4	-5

14. Explain the different types of Regression.
15. Find r, if byx= -0.2 and bxy = -0.7.
16. Explain why Index Numbers are called "Economic Barometers".
17. Using suitable formula, **construct price index** from the following data:

Commodity	Base Year		Current Year	
	Price	Quantity	Price	Quantity
A	8	6	10	5
B	7	4	8	4
C	6	5	5	6

18. Explain the utilities of time series analysis.
19. Calculate trend values by taking **5 yearly moving average** from the following data:

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Sales	55	52	49	53	51	55	60	71	63	64

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. Determine the number of ways in which a committee of 3 women and 4 men be selected from 8 women and 7 men.

Part C

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

22. In order to find the correlation coefficient between the two variables X and Y from 12 pairs of observation, the following data were obtained:

$\Sigma X = 30$, $\Sigma X^2 = 670$, $\Sigma Y = 5$, $\Sigma Y^2 = 285$, $\Sigma Y = 344$

Later on it was discovered that the pair (X=11, Y= 4) was copied wrongly, the correct values being (X=10, Y=14). After making the necessary corrections, find:

(i) The two Regression Coefficient

(ii) The two Regression Equation

(iii) The Correlation Coefficient.

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. A statement in Accounting is given to three students X, Y and Z, whose chances of completing it are ½, 1/3 and ¼. Calculate the probability that the problem will be solved.