QP CODE: 25019496

Reg No : .....

Name : .....

B.COM DEGREE (CBCS)) REGULAR/ IMPROVEMENT/ REAPPEARANCE / MERCY CHANCE EXAMINATIONS, FEBRUARY 2025

Fourth Semester

Core Course - CO4CRT12 - QUANTITATIVE TECHNIQUES FOR BUSINESS-II

(Common for all B.Com Degree Programmes)

2017 Admission Onwards

C8E51A85

Time: 3 Hours

Max. Marks : 80

Instructions to Private candidates only: This question paper contains two sections. Answer SECTION I questions in the answer-book provided. SECTION II, Internal examination questions must be answered in the question paper itself. Follow the detailed instructions given under SECTION II

Part A

*Answer any **ten** questions.*

*Each question carries **2** marks.*

1. What is coefficient of Determination?
2. What is concurrent deviation method?
3. Write a note on probable error.
4. Write a note on curve of regression.
5. What are regression coefficients?
6. What is Time Reversal Test of Index Numbers?
7. From the following data, construct an index number for the year 2019 with 2018 as base under Paasche's Method

Items	2017		2018	
	Price	Quantity	Price	Quantity
A	8	4	10	5
B	5	4	6	4
C	8	5	9	4
D	10	5	12	6

8. What do you mean by Splicing of Index Numbers?

9. Write a note on Additive Model of Time Series Analysis.

10. Briefly explain the moving average method for determining the trend.

11. Restate in own words equally likely events.

12. A bag contains 5 white balls and 7 red balls. One ball is drawn at random from the bag. What is the probability that the ball drawn is red? What are the odds in favour of the event and against the event?

(10×2=20)

Part B

*Answer any **six** questions.*

*Each question carries **5** marks.*

13. What are the utilities of correlation analysis?

14. What are the mathematical properties of correlation coefficient?

15. From the following estimate the yield of crops when rainfall is 22 cms:

	Yield in kgs	Rainfall in cms
Mean	508.4	26.7
Standard deviation	36.8	4.6

Coefficient of correlation between yield and rainfall is 0.52.

16. From the following data, construct index numbers under Simple Aggregate Expenditure method and Average of Relative Method.

Commodities	Price in 2017	Price in 2018
A	60	80
B	30	45
C	18	22
D	120	150
E	65	65

17. From the following data, compute Laspeyre's, Paasche's and Fisher's Index Numbers, taking 2012 as the base year.

Articles	2012		2018	
	Price	Quantity	Price	Quantity
A	10	4	15	3
B	30	12	50	10
C	40	18	55	14
D	25	12	45	6

18. Indicate the importance of Time Series Analysis in business.

19. The parabolic trend equation for the sales of a company is given as Y=15.6 - 0.4x+0.9x2 (Origin: 1995, x unit = 1 year, y unit = yearly sales). Shift the origin to 2000.

20. A bag contains 7 red, 12 white and 4 green balls. Three balls are drawn. What is the probability that a) 3 balls are all white ; and b)3 balls are one of each colour.

21. The Havels Ltd. has 40 female employees and 60 male employees. If two employees are selected at random, what is the probability that: i) both will be male; ii) both will be female; iii)there will be one of each gender.

(6×5=30)

Part C

*Answer any **two** questions.*

*Each question carries **15** marks.*

22. The candidates in a beauty contest are ranked by three judges in the following order.

First Judge	1	6	5	10	3	2	4	9	7	8
Second Judge	3	5	8	4	7	10	2	1	6	9
Third Judge	6	4	9	8	1	2	3	10	5	7

Use the rank correlation co-efficient to discuss which pair of judges have nearest approach to common tastes in beauty.

23. A panel of judges A and B graded seven debators and independently awarded the following marks:

Debator	Marks by A	Marks by B
1	40	32
2	34	39
3	28	26
4	30	30
5	44	38
6	38	34
7	31	28

An eighth debator was awarded 36 marks by Judge A while Judge B was not present. If judge B were also present , how many marks would you expect him to award to the 8^{th} debator assuming that the same degree of relationship exists in their judgement?

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

Year	2012	2013	2014	2015	2016	2017	2018
Profit (in lakhs)	60	72	75	65	80	85	95

(i) Using the method of least squares, fit a straight line to the given data

(ii) Estimate the trend values for all years

(iii) Compute short-term oscillations

(iv) Make an estimate of profit in 2019

(v) Plot the actual values and trend values on a graph

25. There are 2 containers, one containing 5 green and 4 black balls, and the other containing 6 green and 5 black balls. One bag is selected and one ball is drawn. If it is green, what is the probability that the bag selected is the first?

(2×15=30)