21102856

QP CODE: 21102856

Reg No : .....

Name : .....

B.Com DEGREE (CBCS) REGULAR/SUPPLEMENTARY EXAMINATIONS, OCTOBER 2021

Fourth Semester

Core Course - CO4CRT12 - QUANTITATIVE TECHNIQUES FOR BUSINESS-II

(Common for B.Com Model II Computer Applications ,B.Com Model II Finance & Taxation ,B.Com Model II Marketing ,B.Com Model II Travel & Tourism ,B.Com Model III Office Management & Secretarial Practice ,B.Com Model III Taxation ,B.Com Model III Computer Applications ,B.Com Model III Travel & Tourism ,B.Com Model I Computer Applications ,B.Com Model I Co-operation ,B.Com Model I Marketing ,B.Com Model I Finance & Taxation ,B.Com Model I Travel & Tourism ,B.Com Model II Logistics Management)

For Regular Candidates: 2019 Admission only

For Private Candidates : 2017 Admission Onwards

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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***

SECTION I

Part A

Answer any ***ten*** *questions.*

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

1. Define correlation.
2. What is coefficient of non-Determination?
3. Calculate coefficient of correlation.
   Rank 1 1 4 3 2 5 6
   Rank 2 3 5 6 1 2 4
4. Write a note on regression lines?
5. Calculate the correlation co-efficient, If bxy is 1.364 and byx is 0.613.
6. What do you mean by Quantity Index Number?
7. A box contains8 tickets bearing the following numbers: (1,2,3,4,5,6,8 and 10) One ticket is drawn at random and kept aside. Then a second ticket is drawn. Find the probability that both the tickets show even numbers.
8. Describe Fixed Base Index Number.
9. What purpose is served by analysis of Time Series?

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

11. Describe impossible event with an example.

12. The following table gives the group index numbers and the corresponding group weights with reference to cost of living for a given year. Construct the overall cost of living for the year.

Group	Index Number	Weight
Food	360	60
Clothing	295	5
Fuel & Lighting	287	7
House Rent	110	8
Miscellaneous	315	20

(10×2=20)

Part B

*Answer any **six** questions.*

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

13. In order to find the correlation co-efficient between two variables X and Y from 12 of observations, the following calculations were made.

$\sum X = 30$, $\sum Y = 5$, $\sum X^2 = 670$, $\sum Y^2 = 285$, $\sum XY = 334$.

On subsequent verification it was found that the pair (X=11, Y=4) was copied wrongly , the correct value being (X=10, Y=14). Find the correct value of correlation co-efficient.

14. Prove that coefficient of correlation is independent of change of scale and origin.

15. Distinguish between correlation and regression.

16. From the following data, calculate price index under Simple Aggregative Method and Simple Average of Relatives Method:

Commodities	Price in 2017	Price in 2018
Rice	12	14
Wheat	14	18
Oil	40	55
Pulses	25	35

17. An enquiry into the budget of certain middle class families in a town gave the following information.

Heads of Expenditure	Food	Rent	Clothing	Fuel	Sundries
Price in 2012	100	20	70	20	40
Quantity in 2012	30	15	20	10	25
Price in 2016	90	20	60	15	55
Quantity in 2016	25	20	30	15	10

Compute weighted arithmetic mean of price relatives taking P0Q1 as weights of the items

18. Explain the merits and demerits of semi-average method.

19. Apply the method of semi-averages for determining the trend.

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018
Production (in tonnes)	10	12	15	20	18	25	24	28	34

20. The odds that A speaks the truth is 3:2 and the odds that B speaks the truth is 5:3. In what percentage of cases are they likely to contradict each other on an identical point?

21. Suppose that the probability of a women entering a shop buys rice is 0.90 and the probability that she buys sugar is 0.70. Assuming that she is free to choose the items for purchase, what is the probability that she will buy both sugar and rice.

(6×5=30)

Part C

*Answer any **two** questions.*

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

22. From the following data determine the co-efficient of concurrent deviation.

Price	7	9	10	8	7	6	5	6	7	6	9	40
Supply	50	60	55	70	80	120	110	60	40	70	65	40

23. a) A bag contains 6 white. 4 red and 10 black balls. Two balls are drawn at random. Find the probability that they will both be black. b) a bag contains 8 white and 4 red balls. Five balls are drawn at random. What is the probability that 2 of them are red and 3 white?

24. Below are given the annual production of X Ltd.

Year	2010	2011	2012	2013	2014	2015	2016
Production (in tonnes)	70	75	90	91	95	98	100

(i) Fit a straight line by the method of least squares tabulate the trend values.

(ii) Estimate the production for the year 2017.

(iii) Eliminate the trend using Additive Model. What components of the time series are left over?

(iv) Convert annual trend equation to monthly trend equation.

25. 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?

(2×15=30)