QP CODE: 23123662

B.COM DEGREE (CBCS) REGULAR EXAMINATIONS, MAY 2023

Fourth Semester

Core Course - CO4CRT12 - QUANTITATIVE TECHNIQUES FOR BUSINESS-II

(Common for all B.Com Degree Programmes)

For Regular Candidates : 2021 Admission Only

For Private Candidates : 2017 Admission Onwards

B15E3FA3

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 linear correlation?

2. If the Co-variance between X and Y is 488 and variance of X and Y are 824 and 325 respectively. Find out co-efficient of correlation.

3. Calculate coefficient of correlation.

X	1	3	5
Y	10	6	4

4. What is linear regression?

5. Calculate the correlation co-efficient, If bxy is 1.364 and byx is 0.613.

6. Explain Order Reversal Test of Index Numbers.

7. Explain Fisher's ideal method of constructing index numbers.

8. Explain deflating.

9. Distinguish between Additive and Multiplicative Models of Time Series Analysis.

10. Explain briefly the semi-average method for determining the trend.

11. Briefly explain sure event with an example.

12. How many different signals can be made by 5 flags from 8 flags of different colours?

(10×2=20)

Part B

*Answer any **six** questions.*

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

13. What is Concurrent Deviation method? Explain its merits and demerits.

14. Define probable error? What are its utilities?

15. What are the functions of regression lines?

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 how analysis of time series is useful to businessmen and industrialists?

19. Given the following trend equation: $Y= 84.26+5.8x$ (Origin: 2010, x unit = 1 year) Shift the origin to: (a) 2017, (b) 2001.

20. Three unbiased coins are tossed. What is the probability of obtaining :-
a) all heads b) two heads c) one head d) atleast one head e) atleast two heads f) at the most one head.

21. A University has to select an examiner from the list of 50 persons, 20 of them women and 30 men, 10 of them knowing Hindi and 40 not, 15 of them being teachers and the

remaining 35 not. What is the probability of the university selecting a Hindi knowing woman teacher?

(6×5=30)

Part C

*Answer any **two** questions.*

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

22. Calculate rank correlation coefficient:

Candidates	A	B	C	D	E	F	G	H	I	J
Marks by I Judge	26	25	38	37	41	45	60	42	53	57
Marks by II Judge	52	25	30	35	48	77	38	43	68	64

23. The following table shows the number of motor registrations in a certain territory for a term of 5 years and the sale of motor tyres by a firm in that territory for the same period.

Year	Motor Registration	No. of tyres sold
1	600	1,250
2	630	1,100
3	720	1,300
4	750	1,350
5	800	1,500

Find the regression equation to estimate the sale of tyres when motor registration is known. Estimate sale of tyres when registration is 850.

24. Eliminate the trend from the following time series (assuming a linear trend). What is the monthly increase in sale?

Year	2012	2013	2014	2015	2016	2017	2018
No. of units of production	125	128	133	135	140	141	143

25. The results of an investigation by an expert on a fire accident are summarized below:
i) Probability (there could have been a short circuit) =0.8
ii) Probability (LPG cylinder explosion)=0.2
iii) Chance of fire accident is 30 % given a short circuit and 95 % given an LPG explosion. Based on these, what do you think is the most probable cause of fire?

(2×15=30)