23106222

QP CODE: 23106222

Reg No : .....

Name : .....

B.COM DEGREE (CBCS) IMPROVEMENT / REAPPEARANCE EXAMINATIONS, MARCH 2023

Fourth Semester

CORE COURSE - CO4CRT12 - QUANTITATIVE TECHNIQUES FOR BUSINESS-II

(Common for all B.Com Degree Programmes)

2017 Admission Onwards

5CCE2436

Time: 3 Hours Max. Marks : 80

Part A

*Answer any **ten** questions.*

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

1. Explain probable error.
2. What is rank correlation?
3. Calculate coefficient of correlation.

Rank 1	1	4	3	2
Rank 2	2	3	4	1

4. Define regression.
5. Why the line of regression analysis are called' line of best fit?
6. What do you mean by Weighted Index Number?
7. Explain Paasche's method of constructing index numbers.
8. What do you mean by Fixed Base Index Number?
9. What is meant by Time Series Analysis?
10. What is even period moving average?
11. Recall the sample space in tossing three unbiased coins.

12. From a pack of 52 cards, two cards are drawn at random one after another, with replacement. What is the probability that both cards are queen?

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

15. Given the following data, what would be the possible yield of rice per acre when rainfall is 29cm? Coefficient of correlation between rainfall and yield is 0.8.

	Rainfall	Yield
Mean	25	40
variance	9	36

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. What are the Mathematical Models of Time Series Analysis?

19. Shift the origin to 2015 from the following annual trend equation: Y=50+2x (Origin: 2018, x unit = 1 year)

20. Two unbiased dice are thrown. Find the probability that the sum of the faces is i) no less than 10; ii) equal to 10; iii) greater then 10; iv) less than 10

21. A bag contains 5 white and 8 Red balls. Two successive drawings of 3 balls are made such that: 1) The balls are replaced before the second trial 2) The balls are not replaced before te second trial. Find the probability that te first drawing will give 3 white and the second drawing willl give 3 red balls in each case.

(6×5=30)

Part C

*Answer any **two** questions.*

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

22. The following table gives the result of Pre-Degree examination held in 2016.

Age of candidates	16	17	18	19	20	21	22	23
Percentage of success	60	65	50	40	30	20	10	15

Calculate correlation co-efficient and estimate probable error.

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. Fit a straight line trend by the method of least squares to the following data relating to the number of foreign tourists visited Kumarakom Backwaters between 2010 and 2018. Also obtain trend values.

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018
No. of Tourists (in lakhs)	3000	5000	7000	6000	8000	9000	7000	8500	10000

Estimate the number of tourists expected to visit in 2020.

25. a) A bag contains 7 white and 9 black balls. Two balls are drawn in succession at random. What is the probability that one of them is white and the other black?

b) A bag contains 3 red, 4 white and 5 black balls. Three balls are taken from the bag. Find the probability that i) all are black ii) all are of different colour.

(2×15=30)