QP CODE: 24020802

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Reg No : .....

Name : .....

B.COM DEGREE (CBCS) REGULAR EXAMINATIONS, APRIL 2024

Fourth Semester

Core Course - CO4CRT12 - QUANTITATIVE TECHNIQUES FOR BUSINESS-II

(Common for all B.Com Degree Programmes)

2017 Admission Onwards

4624063A

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. Explain probable error.
2. Calculate coefficient of correlation.

Marks by Judge 1	45	34	39
Marks by Judge2	44	38	41

3. What is concurrent deviation method?
4. Define regression.
5. If byx is 0.84 and standard deviation of of X and Y is 10 and 12. Find r.
6. Explain Order Reversal Test of Index Numbers.
7. Explain Paasche's method of constructing index numbers.
8. What do you mean by Base Shifting?
9. Define Time Series.
10. What do you mean by line of best fit?
11. Define random experiment.
12. Three cards are drawn from a pack of 52. What is the probability that all three will be kings

(10×2=20)

Part B

*Answer any **six** questions.*

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

13. From the following pairs of observations, study the correlation through a scatter diagram and comment.

X	7	6	5	4	3	2	1
Y	8	9	6	7	4	5	2

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

15. What are the properties of regression coefficients?

16. From the following data, construct an Index Number of prices under Simple Aggregative Method and Average Relative Method for the year 2018 using 2017 as base year.

Commodities	Price in 2017	Price in 2018
Rice	10	14
Wheat	7	12
Coconut Oil	52	66
Sugar	24	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. Fit a trend line to the following data by using freehand curve method.

Year	2011	2012	2013	2014	2015	2016	2017	2018
Profit (in lakhs)	24	28	32	26	36	30	36	32

20. A bag contains 6 white and 9 black balls. Two drawings of 4 balls are made such that
a)The balls are replaced before the second trial.
b)The balls are not replaced before the second trial.
Find the probability that the first drawing will give 4 white and the second 4 black balls in each case.

21. 5 men in a company ogf 20 are graduates. If three men are picked out of 20 at random, what is the probability that they are all graduates?What is the probability of picking atleast one graduate?

(6×5=30)

Part C

*Answer any **two** questions.*

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

22. Compute the correlation Co-efficient between height of father and son from the following data:

Height of father in cms.	165	166	167	167	168	169	170	172
Height of son in cms.	167	168	165	168	172	172	169	171

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. Sales of ABC Ltd. are given below:

Year	2013	2014	2015	2016	2017
Sales (in lakhs)	55	66	88	56	85

(i) Fit a straight line trend to the given data assuming 2015 as the year of origin.
(ii) Estimate the sales for 2018.
(iii) How would you shift the year of origin to 2013?
(iv) Convert annual trend equation in to monthly trend equation.

25. An insurance company insured 2000 scooter drivers, 4000 car drivers and 6000 truck drivers. The probability of accident is 0.01, 0.03 and 0.15 respectively. One of the insured person meets with an accident. What is the probability that he is a scooter driver?

(2×15=30)