FOURTH SEMESTER (CUCBCSS—UG) DEGREE EXAMINATION APRIL 2023

B.Com.

BCM 4C 04—QUANTITATIVE TECHNIQUES FOR BUSINESS

(2017—2018 Admissions)

Time : Three Hours

Maximum : 80 Marks

Part A

Answer all **ten** questions.
Each question carries 1 mark.

I. Choose the Correct Answer :

1 The statistical technique of estimating under certain assumptions, the missing figures which may fall within the range of given figures :

   (a) Interpolation.

   (b) Statistical quality control.

   (c) Probability.

   (d) Hypothesis testing.

2 If a decrease in the value of one variable is accompanied by an increase in the value of other variable, it is called :

   (a) Negative correlation.

   (b) Positive correlation.

   (c) Perfect correlation.

   (d) Linear correlation

3 A set of events is said to be ———, if the occurrence of any one of them does not, in any way, affect the Occurrence of any other in the set :

   (a) Independent.

   (b) Equally likely.

   (c) Mutually exclusive.

   (d) Exhaustive.

4 If two events are independent, then the probability of occurring both will be :

   (a) $P(A) \times P(B)$.

   (b) $P(A) + P(B)$.

   (c) $P(A) + P(B) - P(A \cap B)$.

   (d) $P(A) - P(B) + P(A \cap B)$.

5 The standard deviation of the sampling distribution of a statistic :

   (a) Variance.

   (b) Standard Error.

   (c) Range.

   (d) Mean Deviation.

Turn over

Fill in the Blanks :

6 ———— measure the fluctuations in various Phenomena like price-production etc over a period of time.

7 ———— indicates the direction of correlation and tells us how closely the two variables under study are related.

8 Two events are said to be ————, if the occurrence or non-occurrence of one event in any trial affects the probability of the other subsequent trials.

9 The Standard Deviation of Poisson distribution is ————.

10 The distribution of all possible values which can be assumed by some statistic, computed from samples of the same size randomly drawn from the same population is called ————.

(10 × 1 = 10 mark

Part B

*Answer any **eight** questions from the following.*
Each question carries 2 marks.

11 What are the Functions of Quantitative Techniques ?

12 What are the uses of quantitative techniques for business and Industry ?

13 What is negative correlation ?

14 Distinguish between Multiple correlation and Partial correlation, by an example

15 What is Relative Frequency Theory of probability ?

16 Which are the theorems of probability ?

17 Which are the conditions under which binomial distribution can be used ?

18 What is Inverse Probability ?

19 What is meant by Testing a Hypothesis ?

20 Distinguish between Null Hypothesis and Alternative Hypothesis.

(8 × 2 = 16 m

Part C

Answer any six questions from the following.
Each question carries 4 marks.

Which are the programming techniques ?

1. Calculate the Karl Pearson's co-efficient of correlation from the information given below-
   • Covariance between two variables X and Y = – 15, Co-efficient of variation of X = 25 %, • Mean of X = 20, Variance of Y = 16.

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

4. You note that your officer is happy on 60 % of your calls, so you assign a probability of his being happy on your visit as 0.6 or 6/10. You have noticed also that if he is happy, he accedes to your request with a probability of 0.4 *or* 4/10 whereas if he is not happy, he acedes to the request with a probability of 0.1 or D or $\frac{1}{10}$. You call one day, and he accedes to your request, What is the probability of his being happy ?

25. Given that $\sum X = 120$, $\sum Y = 432$, $\sum XY = 4992$, $\sum X2 = 1392$, $\sum Y2 = 18252$, N = 12

    Find : (1) The two regression equations ; and (2) The regression co-efficients ; (3) Co-efficient of correlation.

26. A coin is tossed six times. What is the probability of obtaining ? (a) 4 heads; (b) 5 heads, (c) 6 heads ; and (d) Getting 4 or more heads.

27. If the mean of a Poisson distribution's 4, find (1) S.D. ; (2) m_3 ; (3) m_3.

28. What is the Procedure for Testing of Hypothesis ?

    (6 × 4 = 24 marks)

Part D

Answer any two questions from the following.
Each question carries 15 marks.

29. Find correlation between age of husband and age of wife :

Age of Husband (X) :	46	54	56	56	58	60	62
Age of Wife (Y) :	36	40	44	54	42	58	54

Turn over

30. Eight coins were tossed together for 256 times. Fit a Binomial Distribution of getting heads. A
find mean and standard deviation.

31. A sample of 60 items has S.D of 5 and another sample of 80 items has S.D of 4.5. Can you asso
that the two samples belong to the same population ?

(2 × 15 = 30 mark