

C 21201

(Pages : 4)

Name.....

Reg. No.....

FOURTH SEMESTER (CUCBCSS—UG) DEGREE EXAMINATION, APRIL 2022

B.Com.

BCM 4C 04—QUANTITATIVE TECHNIQUES FOR BUSINESS

(2014—2016 Admissions)

Time : Three Hours

Maximum : 80 Marks

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

I. Choose the correct answer :

- 1 Analysis of co-variation of two or more variables is usually called :
 - (a) Skewness.
 - (b) Dispersion.
 - (c) Central tendency.
 - (d) Correlation.
- 2 X^2 value ranges _____.
 - (a) From zero to infinity.
 - (b) From - 1 to +1.
 - (c) From 0 to - 1.
 - (d) From 0 to +1.
- 3 When the variables are varying in the same direction, it is called _____.
 - (a) Linear correlation.
 - (b) Simple correlation.
 - (c) Negative correlation.
 - (d) Positive correlation.
- 4 An event whose occurrence is inevitable is called :
 - (a) Dependent event.
 - (b) Independent event.
 - (c) Uncertain event.
 - (d) Sure event.
- 5 Which is not a parametric test ?
 - (a) Z-test.
 - (b) T-test.
 - (c) F-test.
 - (d) Chi-square test.

Turn over

II. Fill in the Blanks :

- 6 _____ is a numerical value to express the extent of relationship exists between two or more variables.
- 7 _____ is a type of regression which uses one independent variable to explain and or predict the dependent variable.
- 8 _____ is a distribution obtained for a random variable on the basis of a mathematical model.
- 9 _____ is the probability distribution expressing the probability of one set of dichotomous alternatives.
- 10 _____ is an assumption made about a population parameter.

(10 × 1 = 10 marks)

Part B

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

- 11 What are quantitative techniques ?
- 12 List the limitations of quantitative techniques.
- 13 What is meant by perfect positive correlation ?
- 14 What are the features of regression coefficients ?
- 15 Which are the methods of describing a set ?
- 16 Distinguish between equally likely events and mutually exclusive events.
- 17 What are the properties of probability distributions ?
- 18 What are the assumptions of binomial distribution ?
- 19 What are the uses of standard error ?
- 20 Which are the assumptions of Z-test ?

(8 × 2 = 16 marks)

Part C

Answer any **six** questions from the following.

Each question carries 4 marks.

- 21 Which are the mathematical techniques used in business decision-making ?
- 22 Give the significance of correlation analysis.
- 23 Given :

$$N = 5 \quad \bar{X} = 20 \quad \bar{Y} = 10$$

$$\sum (X - 20)^2 = 100 \qquad \sum (Y - 10)^2 = 60$$

$$\sum (X - 20)(Y - 10) = 40.$$

Find two regression equations.

- 24 Two unbiased dice are thrown. Find the probability that : (a) Both the dice show the same number ; (b) One die shows 6 ; (c) First die shows 3 ; (d) Total of the numbers on the dice is 9 ; (e) Total of the numbers on the dice is greater than 8 ; and (f) A sum of 11.
- 25 The probability that Sachin Tendulkar scores a century in a cricket match is $\frac{1}{3}$. What is the probability that out of 5 matches, he may score century in :
- (1) Exactly 2 matches.
- (2) No match.
- 26 For a binomial distribution, Mean is 6 and Standard Deviation is $\sqrt{2}$. Find the parameters.
- 27 State the procedure for testing of hypothesis.
- 28 What are the uses of Z-test ?

(6 × 4 = 24 marks)

Part D

Answer any two questions from the following.

Each question carries 15 marks.

- 29 Calculate coefficient of correlation from following data :

X	...	0	5	15	14	10	12	10	8	16	15
Y	...	20	5	12	10	8	5	6-	15	12	18

- 30 Explain the various theorems of probability.

- 31 Two random sample were drawn from two normal populations and their values are :

A : 66 67 75 76 82 84 88 90 92

B : 64 66 74 78 82 85 87 92 93 95 97

Test whether population standard deviations are equal.

(2 × 15 = 30 marks)

C 21201-A

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(Multiple Choice Questions for SDE Candidates)

Time : 15 Minutes**Total No. of Questions : 20****Maximum : 20 Marks****INSTRUCTIONS TO THE CANDIDATE**

1. This Question Paper carries Multiple Choice Questions from 1 to 20.
2. The candidate should check that the question paper supplied to him/her contains all the 20 questions in serial order.
3. Each question is provided with choices (A), (B), (C) and (D) having one correct answer. Choose the correct answer and enter it in the main answer-book.
4. The MCQ question paper will be supplied after the completion of the descriptive examination.

BCM 4C 04—QUANTITATIVE TECHNIQUES FOR BUSINESS

(Multiple Choice Questions for SDE Candidates)

1. Queuing theory is also called _____.
(A) Linear programming technique. (B) Waiting line theory.
(C) Game theory. (D) None of these.
2. Karl Pearson's coefficient of correlation is denoted by the symbol _____.
(A) R. (B) r .
(C) k . (D) None of the above.
3. If plotted points in a scatter diagram lie on a straight line vertical to the Y-axis, then $r =$ _____.
(A) +1. (B) 0.
(C) -1. (D) None of these.
4. If m is the coefficient of correlation, then the value of m^2 is known as _____.
(A) Co-efficient of alienation. (B) Co-efficient of determination.
(C) Co-efficient of non-determination. (D) None of these.
5. When two events cannot occur together is called _____.
(A) Equally likely. (B) Mutually exclusive.
(C) Random events. (D) None of these.
6. Two events are said to be independent if _____.
(A) There is no common point in between them.
(B) Both the events have only one point.
(C) Each outcome has equal chance of occurrence.
(D) One does not affect the occurrence of the other.
7. Probability distribution is also called theoretical distribution :
(A) Yes. (B) No.
(C) Probability. (D) None of these.

8. If the random variable of a probability distribution assumes any value in a given interval, then it is called _____.
- (A) Discrete probability distribution.
(B) Continuous probability distribution.
(C) Probability distribution.
(D) None of these.
9. The height of normal curve is at its maximum at the _____.
- (A) Mode. (B) Median.
(C) Mean. (D) None of these.
10. Normal distribution is _____.
- (A) Continuous. (B) Unimodal.
(C) Symmetrical. (D) All of these.
11. The area under the standard normal curve beyond the line $z = \pm 1.96$ is _____.
- (A) 5%. (B) 10%.
(C) 90%. (D) 95%.
12. Mean Deviation (M.D) for normal distribution is equal to _____.
- (A) $5/4$ S.D. (B) $3/2$ S.D.
(C) $4/5$ S.D. (D) $2/3$ S.D.
13. Type I error is denoted by the symbol _____.
- (A) Alpha. (B) Beta.
(C) Gamma. (D) None of these.
14. _____ refers to the number of independent observations which is obtained by subtracting the number of constraints from the total number of observations.
- (A) Level of significance. (B) Degree of freedom.
(C) Sample size. (D) None of these.
15. By test of significance, we mean _____.
- (A) A significant procedure in statistics.
(B) A method of making a significant statement.
(C) A rule of accepting or rejecting hypothesis.
(D) A significant estimation problem.

Turn over

16. When sample is small, _____ test is applied.
- (A) t -test. (B) z -test.
(C) l -test. (D) None of these.
17. When the expected frequencies and observed frequencies are completely coincide, Chi-square value will be _____.
- (A) +1. (B) - 1.
(C) 0. (D) None of these.
18. Chi-square test was first used by _____.
- (A) Simeon Denis Poisson. (B) R.A.Fischer.
(C) Karl Pearson. (D) Frank Wicoxon.
19. In a 4×4 contingency table, degree of freedom is _____.
- (A) 4. (B) 16.
(C) 3. (D) 9.
20. Non-parametric test is _____.
- (A) Distribution free statistical test.
(B) Not concerned with parameter.
(C) Does not make assumption about the form of distribution.
(D) All the above.