**D 102985** **(Pages : 3)** **Name.....**

**Reg. No.....**

**FOURTH SEMESTER (CBCSS—UG) DEGREE EXAMINATION**
**APRIL 2024**

B.Com./B.B.A./B.H.A./B.T.H.M.

BCM 4C 04—QUANTITATIVE TECHNIQUES FOR BUSINESS

(2019 Admission onwards)

Time : Two Hours and a Half Maximum : 80 Marks

*Answers should be written in English only.*

**Part A**

*Answer* **all** *questions.*

1. Define Quantitative Techniques.
2. What is linear and non-linear regression ?
3. What is Co-efficient of Determination ?
4. Define a SET.
5. What is the probability that a card drawn from a pack of 52 cards is a card of King ?
6. What is a mutually exclusive event ?
7. What is conditional probability ?
8. What is a line of best fit ?
9. A class consists of 4 girls and 3 boys is to be arranged for a photograph in a single row. In how many ways can they be seated if all the girls sit together ?
10. Write down any *three* merits and demerits of Spearman's rank correlation co-efficient.
11. What is linear programming ?
12. What are the characteristics of a Poisson Distribution ?
13. Write down any *two* properties of Binomial Distribution.
14. What do you mean by perfect correlation ?
15. What is decision-making ?

(15 × 2 = 30, maximum ceiling 25 marks)

**Turn over**

## Part B

*Answer* **all** *questions.*

16. Explain the underlying assumptions of Karl Pearson's Co-efficient of Correlation.

17. Discuss the applications of Quantitative Techniques.

18. Represent the followings by means of a Ven Diagram : $A \cup B$, $A \cap B$ and $A^C$.

19. Differentiate Correlation and Regression.

20. A candidate is selected for interview for three posts. For the first post there are three candidates, for the second there are four and for the third there are two. What are chances of his getting at least one post.

21. Explain the conditions under which binomial distribution is used.

22. What are the different types of decisions ?

23. Calculate Karl Pearson's correlation coefficient between X and Y from the following data :

$N = 11, \sum X = 117, \sum X^2 = 1313, \sum Y = 260, \sum Y^2 = 6580, \sum XY = 2827.$

(8 × 5 = 40, Maximum ceiling 35 marks)

## Part C

*Answer any* **two** *questions.*

24. The following mistakes per page were noted in a book.

| | | | | | | |
|---|---|---|---|---|---|---|
| No. of mistakes per page | : | 0 | 1 | 2 | 3 | 4 | Total |
| No. of times the mistake occurred | : | 211 | 90 | 19 | 5 | 0 | 325 |

Fit a Poisson Distribution.

25. Solve graphically the following linear programming problem :

Minimize $Z = 3X_1 + 5X_2$

subject to $-3X_1 + 4X_2 \geq 12$

$2X_1 - X_2 \geq -2$

$2X_1 + 3X_2 \geq 12$

$X_1 \leq 4, X_2 \geq 2$

$X_1, X_2 \geq 0.$

26. Calculate Karl Pearson's Correlation Co-efficient between marks in Accountancy and Statistics :

| | | | | | | |
|---|---|---|---|---|---|---|
| Marks in Accountancy | : | 48 | 35 | 17 | 23 | 47 |
| Marks in Statistics | : | 45 | 20 | 40 | 25 | 45 |

27. Explain the application of Quantitative Technics in Business and Industries.

(2 × 10 = 20 marks)

**D 102985-A** **(Pages : 4)** **Name.....**

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B.Com./B.B.A./B.H.A./B.T.H.M.

BCM 4C 04—QUANTITATIVE TECHNIQUES FOR BUSINESS

(2019 Admission onwards)

(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. ———— is an operation research technique which resembles a real life situation.

   (A) Decision theory. (B) Simulation.

   (C) Game theory. (D) Queuing theory.

2. Correlation analysis is a ———— analysis.

   (A) Univariate analysis. (B) Bivariate analysis.

   (C) Multivariate analysis. (D) Both b and c.

3. ———— attempts to determine the degree of relationship between variables.

   (A) Correlation analysis. (B) Regression analysis.

   (C) Probability. (D) None of the above.

4. If all the dots of a scatter diagram lie on a straight line falling from the upper left-hand corner to the lower right hand corner, the correlation is said to be ————.

   (A) Zero correlation. (B) Perfect positive correlation.

   (C) Perfect negative correlation. (D) High degree of negative correlation.

5. Karl Pearson's coefficient of correlation is denoted by the symbol ————.

   (A) R. (B) r.

   (C) k. (D) None of the above.

6. If $r = 0.9$, coefficient of determination is ————.

   (A) 9%. (B) 90%.

   (C) 81%. (D) None of these.

7. Product moment correlation was developed by ————.

   (A) Karl Pearson. (B) Charles Edward Spearman.

   (C) Kelly. (D) None of these.

8. The coefficient of correlation between two variables, X and Y, will have negative sign when ————————.

(A) X is increasing, Y is decreasing. (B) X is decreasing, Y is increasing.

(C) Any one of the above. (D) None of these.

9. When two or more independent variables are used to explain/ predict the dependent variable, then it is called ———————— regression.

(A) Linear. (B) Multiple.

(C) Scatter diagram. (D) None of these.

10. The arithmetic mean of $b_{xy}$ and $b_{yx}$ is ————————.

(A) Equal to one. (B) Greater than r.

(C) Less than r. (D) Greater than or equal to r.

11. The square root of coefficient of determination is ————————.

(A) Coefficient of correlation. (B) Coefficient of regression.

(C) Coefficient of variation. (D) None of these.

12. When P(AUB) = P(A) + P(B), then A and B are ————————.

(A) Dependent. (B) Independent.

(C) Mutually exclusive. (D) None of these.

13. If two sets have no common element, they are called ————————.

(A) Subset. (B) Super set.

(C) Disjoint set. (D) Equal set.

14. Probability of an event lies between ————————.

(A) + 1 and –1. (B) 0 and 1.

(C) 0 and –1. (D) 0 and infinite.

15. When probability is revised on the basis of all the available information; it is called ————————.

(A) Priori probability. (B) Posterior probability.

(C) Continuous. (D) None of these.

**Turn over**

16. The height of persons in a country is a ———— random variable.

(A) Discrete. (B) Continuous.

(C) Discrete as well as continuous. (D) Neither discrete nor continuous.

17. 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.

18. ———— distribution gives a normal bell shaped curve.

(A) Norman. (B) Poisson.

(C) Binomial. (D) None of these.

19. Normal distribution is ————.

(A) Continuous. (B) Unimodal.

(C) Symmetrical. (D) All of these.

20. The area under the standard normal curve beyond the line $z = \pm 1.96$ is ————.

(A) 5%. (B) 10%.

(C) 90%. (D) 95%.