

D 92913

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Name.....

Reg. No.....

THIRD SEMESTER (CBCSS-UG) DEGREE EXAMINATION, NOVEMBER 2020

B.C.A.

BCA 3C 05—COMPUTER ORIENTED NUMERICAL AND STATISTICAL METHODS

Time : Two Hours

Maximum : 60 Marks

Section A

*Answer at least **eight** questions.*

Each question carries 3 marks.

All questions can be attended.

Overall Ceiling 24.

1. Define Median.
2. Explain Random Variable with example.
3. Why Arithmetic Mean is considered to be the best measure of central tendency ?
4. Define Correlation.
5. Two numbers are given as 2.5 and 48.289, both of which being correct to the significant figures given. Find their product.
6. Explain the term Random Experiment in probability.
7. Write the formula for finding Karl Pearson's Coefficient of Correlation.
8. What are the uses of Mean Deviation ?
9. Calculate Standard deviation 41, 43, 44, 45, 47, 49, 50, 55, 56, 60.
10. Define Conditional Probability.
11. The marks obtained by seven students are 5,10,15,20,25,30,45. Find the Harmonic Mean.
12. Explain Probability density function of a discrete random variable.

(8 × 3 = 24 marks)

Section B

*Answer at least **five** questions.*

Each question carries 5 marks.

All questions can be attended.

Overall Ceiling 25.

13. Explain Lorenz Curve.
14. Explain Method of False Position.

Turn over

15. Find Geometric Mean from the following data :

| | | | | | |
|-------|---|---|---|----|----|
| Size | : | 5 | 8 | 10 | 12 |
| Freq. | : | 2 | 3 | 4 | 1 |

16. Find a real root of the equation $x = e^x$, using the Newton-Raphson method.

17. Obtain the quartile measure of dispersion and its coefficient for the data given below :

| | | | | | | | | | |
|----------------|---|------|-------|-------|-------|-------|-------|-------|-------|
| Age | : | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 |
| No. of Persons | : | 15 | 30 | 53 | 75 | 100 | 110 | 115 | 125 |

18. Using Simpson's $(1/3)^{\text{rd}}$ Rule. Evaluate $\int_1^5 dx/x$ given $h = 1$.

19. A card is drawn from a pack of cards. What is the probability that it is ?

- | | |
|-------------------|-------------------------|
| (i) Black card. | (ii) A king. |
| (iii) A queen. | (iv) A spade. |
| (v) A spade king. | (vi) A king or a queen. |

(5 × 5 = 25 marks)

Section C (Essay Questions)

*Answer any one question.
The question carries 11 marks.*

20. Obtain the rank correlation coefficient for the following data :

| | | | | | | | | | | | |
|---|---|----|----|----|----|----|----|----|----|----|----|
| X | : | 68 | 64 | 75 | 50 | 64 | 80 | 75 | 40 | 55 | 64 |
| Y | : | 62 | 58 | 68 | 45 | 81 | 60 | 68 | 48 | 50 | 70 |

21. Find the approximate value of $\int_0^1 dx/(1+x)$ using (i) Trapezoidal Rule ; (ii) Simpson's $(1/3)^{\text{rd}}$ Rule.

(1 × 11 = 11 marks)