

D 111924

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Name.....

Reg. No.....

**THIRD SEMESTER (CBCSS—UG) DEGREE EXAMINATION
NOVEMBER 2024**

B.C.A.

BCA 3C 05—COMPUTER ORIENTED NUMERICAL AND STATISTICAL METHODS

(2019—2023 Admissions)

Time : Two Hours

Maximum : 60 Marks

Section A (Short Answer Type)*All questions can be answered.**Each question carries 2 marks.**(Ceiling 20 marks)*

1. State Simpson's $(1/3)^{\text{rd}}$ rule.
2. Write Newton Raphson formula.
3. Define Geometric Mean.
4. What is curve fitting ?
5. Find the difference between to three significant figures ?
6. Define Regression.
7. Calculate mode 5, 10, 15, 20, 25, 30, 35, 40
8. What is positive correlation ?
9. What do you mean by absolute errors ?
10. Given the p.m.f of a random variable. Find the value of k .
11. Define random variable with an example.
12. For $A = \{5, 6, 7, 8, 9\}$ and $B = \{3, 6, 8\}$ find $A \cup B$ and $A \cap B$.

Turn over

Section B (Paragraph / Problem Type)*All questions can be answered.**Each question carries 5 marks.**(Ceiling 30 marks)*

13. From the following values of x and y , find the regression equation of y on x :

X	:	2	3	4	5	6
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Y	:	3	5	4	8	9
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14. Find quartile deviation for the following data :

Marks	:	10	15	20	25	30
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No. of Students	:	5	20	47	38	10
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15. Calculate Pearson's co-efficient of correlation for the following data :

X	:	5	6	8	11	9
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Y	:	10	8	7	5	6
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16. Compute S.D for the following data :

Marks	:	10	20	30	40	50	60
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No. of students	:	4	7	15	8	7	2
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17. Use Newton-Raphson method to find a root of the equation

18. A random variable X has the following probability function.

$$\begin{aligned}
 f(x) &= k && \text{for } x = 0 \\
 &= 2k && \text{for } x = 1 \\
 &= 3k && \text{for } x = 2 \\
 &= 0 && \text{otherwise}
 \end{aligned}$$

Determine the value of k . Write down the distribution function of X .

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 ; and (v) a spade king.

Section C (Essay Type)

*Answer any **one** of the following questions.*

The question carries 10 marks.

20. Find rank correlation for the following data :

X	:	50	60	70	65	80	85	90	92	65
Y	:	60	70	75	63	80	82	63	86	90

21. Find the approximate value of using (i) Trapezoidal rule ; and (ii) Simpson's $(1/3)^{\text{rd}}$ rule.

(1 × 10 = 10 marks)