24U310S (Pages: 2) Name: .....

Reg.No: .....

THIRD SEMESTER B.C.A. DEGREE EXAMINATION, NOVEMBER 2025

(CBCSS - UG)

CC19UBCA3C05 - COMPUTER ORIENTED NUMERICAL AND STATISTICAL METHODS

(Computer Application - Complementary Course)

(2019 to 2023 Admissions - Supplementary/Improvement)

Time : 2.00 Hours Maximum : 60 Marks

Credit : 3

Part A (Short answer questions)

Answer ***all*** questions. Each question carries 2 marks.

1. Convert 58 to binary number system.
2. Prove $\Delta = E - 1$
3. Write Newton's forward and backward difference formula.
4. Distinguish between population and sample with suitable examples.
5. State the properties of arithmetic mean.
6. List out the merits of median.
7. Define range. Also mention any two merits and demerits of range.
8. Define Coefficient of Variation. Give any one of its uses.
9. Why is study of correlation important?
10. Why are there two regression lines?
11. Define compliment of event with an example.
12. Give two examples of random variables.

(Ceiling: 20 Marks)

Part B (Short essay questions - Paragraph)

Answer ***all*** questions. Each question carries 5 marks.

13. Explain bisection method.
14. Using regula-falsi method, find a real root of the equation $f(x) = x^3 + x - 1 = 0$, near x=1.
15. Evaluate the integral $\int_0^1 \frac{dx}{1+x}$ using Simpson's 1/3 rule with n=4. Also compare it with its original value.
16. Evaluate $\int_0^1 \frac{dx}{1+x^2}$ usring Trapezoidal rule with h=0.2.

17. Find the median and the 20^{th}percentile for the following

Class	0-5	5-10	10-15	15-20	20-25	25-30
Frequnecy	7	18	25	30	20	22

18. Fit a straight line $y = a + bx$ to the following data

x	1	2	3	4	6	8
y	2.4	3	3.6	4	5	6

19. Calculate the coefficient of correlation for the following data

x	6	2	10	4	8
y	9	11	5	8	7

(Ceiling: 30 Marks)

Part C (Essay questions)

Answer any ***one*** question. The question carries 10 marks.

20. Explain Newton Raphson method with a suitable example.

21. Certian corresponding values of x and $log_{10}x$ are (300, 2.4771), (304, 2.4829), (305, 2.4843) and (307, 2.4871). Find $log_{10}301$ using Lagrange's interpolation formula.

(1 × 10 = 10 Marks)

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