21U310 (Pages: 2) Name: .....

Reg.No: .....

THIRD SEMESTER B.C.A. DEGREE EXAMINATION, NOVEMBER 2022

(CBCSS - UG)

(Regular/Supplementary/Improvement)

CC19U BCA3 C05 - COMPUTER ORIENTED NUMERICAL AND STATISTICAL METHODS

(Computer Application - Complementary Course)

(2019 Admission onwards)

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 $\mu = \frac{E^{\frac{1}{2}} + E^{\frac{-1}{2}}}{2}$
3. If f(0)= 3 and f(4)= 19 then f(1) by Lagrange's formula is.....
4. Define trapezoidal rule for integration.
5. Distinguish between discrete and contiuous variables.
6. Define partition values
7. Define range and coefficient of range. Also mention its merits.
8. Define Lorenz curve.
9. What is the principle of least squares?
10. What is Correlation?
11. Define random experiment with an example.
12. What are the axioms of pdf?

(Ceiling: 20 Marks)

Part B (Short essay questions - Paragraph)

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

13. Find a positive root of the equation $xe^x = 1$, which lies beteen 0 and 1 using bisection method.
14. Using regula-falsi method, find a real root of the equation $4x = e^x$
15. Using Newton's forward formula find the value of $f(15)$ if

X	10	20	30	40	50
y	46	66	81	93	101

16. Find an approximate value of $\int_0^1 x^2 dx$ by Simpson's 1/3 rule with n=10

17. Show that GM of a set of positive observation lies between AM and HM.

18. From the following information, obtain the correlation coefficient.

$N = 12 \quad \sum x = 30 \quad \sum y = 5 \quad \sum x^2 = 670 \quad \sum y^2 = 285 \quad \sum xy = 334$

19. What are the properties to be satisfied by a function F(x) if it is to be a distribution of a random variable?

(Ceiling: 30 Marks)

Part C (Essay questions)

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

20. The following data represents the number of Asthma sufferers whose first attack came at various ages. Calculate the mean, median and mode age of the first attack.

Age	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65
No. of Cases	298	113	64	61	70	81	77	64	53	40	35	24	20

21. Given the two equations for the regresion lines:

$8x - 10y + 66 = 0$

$40x - 18y - 214 = 0$

(a) Identify the regression lines of Y on X and X on Y.

(b) Obtain the regression coefficients and the correlation coefficient.

(c) Find the mean of X and the mean of Y.

(d) Given the standard deviation of X=4, find the standard deviation of Y.

(1 × 10 = 10 Marks)

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