17U341 (Pages: 2) Name: ……..

Reg. No…...…….

THIRD SEMESTER B.C.A. DEGREE EXAMINATION, NOVEMBER 2018

(CUCBCSS-UG)

CC17U BCA3 C05 - COMPUTER ORIENTED NUMERICAL AND STATISTICAL METHODS

(Computer Application - Complementary Course)

(2017 Admissions: Regular)

Time: Three Hours Maximum: 80 Marks

Part A

Answer ***all*** questions. Each question carries 1 mark.

1. Find the AM of first ten odd natural numbers.
2. What is shift operator?
3. What is mode?
4. Write Newton's forward difference formula.
5. Write down the sample space for tossing a coin.
6. Explain Lorenz curve.
7. What do you mean by discrete random variables?
8. Mean deviation is equal to ……..
9. What is the relation between standard deviation and variance?
10. Method of false position is also known as ……..

(10 x 1 = 10 Marks)

Part B

Answer all questions. Each question carries 2 marks.

11. What is a random variable?
12. What do you mean by numerical instability?
13. Prove that $\Delta = E-1$.
14. Write down the relationship between mean, median and mode.
15. Show that AM $\geq$ GM.
16. Define probability density function.
17. What is first and second forward difference operators?
18. What is an event?

(8 x 2 = 16 Marks)

Part C

Answer any ***six*** questions. Each question carries 4 marks.

19. Explain probability distribution function with suitable examples.
20. Write a short note on errors in arithmetic.

21. Solve $2x^3 - 2.5x - 5$ for the root in [1,2] by Newton Raphson method.

22. Construct the backward difference table for the following values

i	0	1	2	3	4	5
x_i	0	1	2	3	4	5
f_i	1	2	4	8	16	32

23. Find the harmonic mean of first five natural numbers.

24. Evaluate the integral $\int_0^4 xe^x dx$ using Simpson's 1/3 rule.

25. Write a short note on the following a) Sample point b) Sample space.

26. Compute f(0.3) data using Lagrange's interpolation formula from the following table.

x	0	1	3	4	7
f	1	3	49	129	813

27. Find the median from the table given below.

Class	0-5	5-10	10-15	15-20
Frequency	2	3	4	5

(6 x 4 = 24 Marks)

Part D

Answer any three of the following. Each carries 10 marks.

28. Explain bisection method with suitable example.

29. Use the trapezoidal rule with $n = 8$ to estimate: $\int_1^5 \sqrt{1+x^2}\, dx$

30. Calculate the standard deviation for the following sample data: 2, 4, 8, 6, 10, and 12.

31. Fit a straight line to the x and y values

x_i	1	2	3	4
y_i	1	4	9	16

32. Calculate the correlation coefficient between X and Y from the following data.

x	1	3	4	4
y	2	5	5	8

(3 x 10 = 30 Marks)

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