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Name:

Reg. No.....

THIRD SEMESTER B.C.A. DEGREE EXAMINATION, NOVEMBER 2020

(CUCBCSS-UG)

CC17U BCA3 C05 - COMPUTER ORIENTED NUMERICAL & STATISTICAL METHODS

(Complementary Course)

(2017, 2018 Admissions – Supplementary/Improvement)

Time: Three Hours

Maximum: 80 Marks

Part A

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

1. Write the equation of Newton- Raphson method.
2. Define central difference operator.
3. Write the name of False Position method.
4. What is random variable?
5. Define Quartile Deviation.
6. What do you mean by Perfect Correlation?
7. Define probability mass function.
8. Calculate Range for the following data 29,23,44,53,45,18.
9. What is sample space?
10. What is Normal equation?

(10 x 1 = 10 Marks)

Part B

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

11. Define Bisection method.
12. Discuss Simpson's $\frac{1^{rd}}{3}$ rule.
13. Prove the relation between Δ and E.
14. Write the properties of Correlation Coefficient.
15. Calculate Mean for the following data.

X	4	6	9	11	19
f	8	16	15	10	12

16. Write the sample space, if the coin is tossed three times.
17. What is independent and dependent variable?
18. Define regression coefficient.

(8 x 2 = 16 Marks)

Part C

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

19. Find the value of $\sqrt{2}$ by using Newton Raphson method correct to 4 decimal places.

20. Calculate GM and HM of first 10 natural number.
21. Using Regula Falsi method compute the real root of $Xe^x=2$ correct 3 decimal places.
22. Explain the advantage and disadvantage of averages.
23. Distinguish between Correlation and Regression.
24. Calculate standard deviation for the following data.

Weight	47	49	50	51	53	55
No of students	4	10	20	11	3	5

25. Discuss about principle of least square.
26. Write down the properties of distribution function.
27. Given the following probability distribution

x	0	1	2	3	4	5	6
P(x)	C	3C	4C	5C	C/2	2C	5C

- a) Find C
- b) $P[X \leq 3]$

(6 x 4 =24 Marks)

Part D

Answer any *three* questions. Each question carries 10 marks.

28. Calculate $\int_2^{10} \frac{1}{1+x^2}$ with $h = 2$ up to 4 decimal places using

- a) Trapezoidal rule
- b) Simpson's $\left(\frac{1}{3}\right)^{rd}$ rule.

29. a) Fit a straight line of $Y=a + bX$ to the following data by the method of least square

X	6	7	7	8	8	10
Y	5	5	4	5	4	3

- b) Fit regression line of X on Y for the following data.

X	6	4	5	3	7	5
Y	7	4	1	4	2	8

30. Using Newton backward and forward formulae, find $y(34)$ and $y(12)$, if $y(10) =35.3$,
 $y(15) =32.4$, $y(20) =29.2$, $y(25) =26.1$, $y(30) =36.5$,and $y(35) =20.5$.

31. a) Explain the different measure of dispersion.

- b) Find the mean deviation about median for the following data and coefficient of Mean deviation about median

Class	10-20	20-30	30-40	40-50	50-60	60-70
f	94	89	74	34	42	29

32. a) Explain the method of studying correlation.

- b) Find the coefficient of correlation between X and Y

X	4	3	5	10	9	7	8	6	4
Y	2	5	3	4	10	1	2	6	9

(3 x 10 = 30 Marks)
