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D3BCA2302 **Reg. No.....**

Name: .....

THIRD SEMESTER UG DEGREE EXAMINATION, NOVEMBER 2024
(Regular/Improvement/Supplementary)
BCA
GBCA3C05T: COMPUTER ORIENTED NUMERICAL AND STATISTICAL METHODS

Time: 2 Hours **Maximum Marks: 60**

SECTION A: Answer the following questions. Each carries *two* marks.
(Ceiling 20 marks)

1. Give the iterative formula for Regula Falsi method.
2. Write 2 digit mantissa standard form of the number 1.324×10^{-3}.
3. What is the value of n if we are finding value of $\int_0^8 3x^2+2\ dx$ using Trapezoidal method with h=2?
4. Define QD. Find QD for the following data.23, 25, 10, 45, 85, 16, 24, 10, 9, 29, 8, and 15.
5. Define variance. The mean of a series is 10 and its CV is 40%. Compute the variance of the series.
6. Find the correlation coefficient if $\sum XY = 203$, $\sum X^2 = 400$, $\sum Y^2 = 190$.
7. The rank of 6 persons before and after attending course are as follows:

Persons	A	B	C	D	E	F
Rank before	3	5	4	2	1	6
Rank after	4	6	5	2	1	3

Compute Spearman's Rank Correlation Coefficient.

8. The coefficient of correlation between X and Y is 0.87, $\sigma_x = 3$,$\sigma_y = 3.06$ find b_{xy} .
9. What is a sample point?
10. In tossing three coins at a time, what is the probability of getting at most one head?
11. Define discrete sample space. Give an example.
12. Two unbiased dice are tossed. What is the probability that the sum of points scored on the two dice is 7?

SECTION B: Answer the following questions. Each carries *five* marks
(Ceiling 30 Marks)

13. Using bisection method find a root of $x^3-x-4=0$ in $[1, 2]$.
14. Define median and mode and discuss their relative merits and demerits.
15. Calculate mode for the following data

Class	0-9	10-19	20-29	30-39	40-49	50-59
f	5	10	17	33	22	13

(PTO)

16. Given the following information on scores x of two batsmen A and B during a certain season.

	A	B
No. of Tests	20	30
$\sum x$	450	552
$\sum x^2$	10180	11340

Compare A and B for average and variability of scores.

17. For the data given below obtain the correlation coefficient between the average price and demand of a particular commodity in a region.

Average price ('000Rs.)	11	19	15	13	17
Demand (Kgs.)	30	18	24	29	24

18. State addition theorem of probability for two events and three events. Modify the theorem if events are mutually exclusive.
19. A bag contains 7 white and 9 black balls. 3 balls are drawn together. Find the probability that:

(i) All are black. (ii) All are white.
(iii) 1 white and 2 black. (iv) 2 white and 1 black.

SECTION C: Answer any *one* question. The question carries *ten* marks.

20. Using Lagrange interpolation formula, find the polynomial which fit with the data:

x	0	2	3	4
f(x)	3	11	21	20

21. The following are the data on the average height of the plants and weight of yield per plot recorded from 10 plots of rice crop.

Height (cm.)	28	26	32	31	37	29	36	34	39	40
Yield (kg.)	75	74	82	81	90	80	88	85	92	95

(1 x 10 = 20 Marks)