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D1BMC2203 (S2) **Reg. No.....**

Name: .....

FIRST SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2024

(Improvement/Supplementary)

COMPUTER SCIENCE & MATHEMATICS (DOUBLE MAIN)

GDMA1B02T: BASIC STATISTICS & PROBABILITY

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

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

1. Distinguish between Census and Sampling.
2. The two regression lines are $3x - 4y + 8 = 0$ and $4x - 3y = 1$. Find the means of X and Y.
3. What is the principle of least squares?
4. Write down the normal equations for fitting a curve of the form $y = ax^b$.
5. What is a scatter diagram?
6. What is relative measure of dispersion? Give one example.
7. Calculate Mean Deviation about median for the data 100, 56, 80, 59, 78, 45, 99, 82, 59 and 72.
8. Draw the diagram and mark the position of the three averages in a skewed distribution.
9. Give the significance of the values of $r = 1$, $r = -1$ and $r = 0$.
10. What do you mean by regression?
11. Define primary data.
12. What do you mean by a statistical population? Give one example.

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

13. Calculate the first four moments about the origin for the set of numbers 2, 4, 6 and 8.
14. What is the method of least squares? How will you use it to fit a second degree parabola?

(PTO)

15. Calculate the rank correlation coefficient for the following data:
    (X, Y): (5, 8), (10, 3), (6, 2), (3, 9), (19, 12), (5, 3), (6, 17), (12, 18), (8, 22), (2, 12), (10, 17), (19,20).
16. If the mean of X is 65, mean of Y is 67, S.D of X is 7.5, S.D of Y is 3.5 and r = +0.8, find X corresponding to y = 75 and y corresponding to x = 70.
17. Give an account on Bar diagrams and Pie diagrams.
18. Draw the ogives for the following frequency distribution and locate the median graphically:

Class	0-10	10-20	20-30	30-40	40-50	50-60
f	3	6	15	9	5	2

19. What is a Histogram? How will you construct it?

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

20. Calculate the A.M, median and mode for the following data:

Class:	0-19	20-39	40-59	60-79	80-99	100-119
Frequency:	12	26	39	51	43	29

21. (i) State and prove the addition theorems on probability.
    (ii) A problem in statistics is given to three students A, B and C, whose chances of solving it are $\frac{1}{2}$, $\frac{3}{4}$ and $\frac{1}{4}$ respectively. What is the probability that the problem will be solved if they try independently?

(1 x 10 = 10 Marks)