D1BMC2203   (PAGES 2)   Reg.No...........................

                                                             Name: ....

FIRST SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2022
COMPUTER SCIENCE & MATHEMATICS (DOUBLE MAIN)
GDMA1B02T: BASIC STATISTICS & PROBABILITY

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

SECTION A: Answer the following questions. Each carries 2 marks.
(Ceiling 20 Marks)

1. Give any two abuses of statistics.

2. Define qualitative and quantitative data.

3. Distinguish between population and sample.

4. Find the median of 31, 16 , 15 , 21 , 9 , 30 , 17 , 28 , 23.

5. State the empirical relation connecting mean, median and mode.

6. Define dispersion.

7. If co-efficient of variation of a distribution is 50 and its variance is 400 what will be the value of mean.

8. What is kurtosis?

9. Distinguish between positive and negative correlation.

10. Write down the two regression equation.

11. Define sample space.

12. If $P(A)=0.6$, $P(A\cup B)=0.8$. Find $P(B)$ when A and B are independent.

SECTION B: Answer the following questions. Each carries 5 marks.
(Ceiling 30 Marks)

13. Distinguish between ordinal scale and nominal scale with an example.

14. Define primary data. What are the various methods of collecting primary data?

15. Explain frequency curve and frequency polygon.

16. Calculate quartile deviation from the following data.

Class :	0-10	10-20	20-30	30-40	40-50	50-60	60-70
Frequency:	6	5	8	15	7	6	3

17. The first four raw moments of a distribution are 1, 4,10 and 46 respectively. Compute the beta constants. Comment upon the nature of the distribution.

                                                             (PTO)

18. Using principles of least squares explain the fitting of the curve of the form $y = ae^{bx}$

19. For any three events A, B and C. Prove that

$$P(A \cup B/C) = P(A/C) + P(B/C) - P(A \cap B/C)$$

SECTION C: Answer any 1 question. Each carries 10 marks.

20. a) Show that correlation coefficient r_{xy} lies between -1 and +1.

    b) Karl Pearson's coefficient of correlation between two variables X and Y is 0.28 their covariance is 7.6. If the variance of X is 9 find the standard deviation of Y series.

21. a) State and prove Bayes theorem.

    b) An insurance company insured 1400 car drivers, 3600 bus drivers and 5000 truck drivers. The probability of an accident is 0.06 for car drivers, 0.02 for bus drivers and 0.1 for truck drivers. One of the insured persons meets with an accident. What is the probability that he is a bus driver?

(1 × 10 = 10 Marks)