Roll No ....

MCADD-203

M.C.A (Integrated), II Semester

Examination, June 2022

Statistics

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any five questions.

ii) All questions carry equal marks.

1. a) What is Statistics? Write a detailed note on the utility of statistics in trade and industry.

    b) What considerations would you bear in mind while constructing a frequency distribution?

2. a) The marks obtained by 10 students in an examination were as follows:

    70, 65, 68, 70, 75, 73, 80, 70, 83, 86.

    Find mode and mean deviation about mean.

    b) Find the standard deviation from the following data:

x :	10	11	12	13	14	15	16
y :	2	7	11	15	10	4	1

3. a) For the distribution the mean is 10, variance is 16, $\gamma_1 = +1$ and $\beta_2 = 4$. Find the first four moments about origin.

    b) With usual notation, prove that

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

4. a) From the following data compute standard deviation and coefficient of variation:

Marks	0-10	10-20	20-30	30-40	40-50
No.of students	6	10	20	9	5

b) Distinguish between skewness and kurtosis. State their various measures.

5. a) Define the Binomial distribution with parameters n and p. The mean and variance of binomial variable X with parameters n and p are 16 and 8. Obtain n, p and q.

b) Explain Poisson distribution. Fit a Poisson distribution in the following data. Which gives the number of dodders in a sample of clove seeds?

No. of dodders : 0   1   2   3   4   5   6   7   8

Observed

Frequency: 56 156 132 92 37 22 4 0 1

Given $e^{(-1.972)} = 1.392$.

6. a) Define lines of regression. Explain why there are two such lines.

b) Write a short note on theory of attributes. Also explain coefficient of association.

7. a) Define probability and explain the importance of the theory in statistics.

b) A bag contains 4 red and 6 white balls. Two draws are made without replacement. What is the probability that both the balls are
   i) red
   ii) white
   iii) of the same color
   iv) of different colors.

8. a) The incidence of occupational disease in an industry is such that the workmen have a 25% chance of suffering from it. What is the probability that out of six workmen 4 or more will constant the disease?

b) Find mean and variance of Poisson distribution.

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