



Date: 25-04-2025

Dept. No.

Max. : 100 Marks

Time: 09:00 AM - 12:00 PM

SECTION A

ANSWER ANY FOUR OF THE FOLLOWING

4 X 10=40 Marks

1. State and prove the addition theory of probability.
2. Explain the various limitations of Statistics.
3. Draw relevant scatter diagrams and explain the various types and degrees of Correlation.
4. State the properties of Binomial Distribution.
5. A bag contains 6 white, 4 red and 10 black balls. Two balls are drawn at random. Find the probability that they both will be black.
6. Consider the following distribution:

X : 0-10 10-20 20-30 30-40 40-50

Y : 12 18 20 25 23

Compute mean and median.

7. What are the various types of errors associated with hypothesis testing? Briefly explain each.
8. Find the area to the right of $z = 0.25$, given the table value for $z = 0.25$ is 0.0987. Draw the normal curve and shade the appropriate area.

SECTION – B

ANSWER ANY THREE OF THE FOLLOWING

3 X 20 =60 Marks

9. Give an account of the uses of Poisson distribution in practical situations.
10. Illustrate the procedure for testing a hypothesis.
11. Explain the functions of Statistics.
12. A psychologist wishes to test if preference of method of learning differs with gender. He asks a group of 146 individuals their preferred method of learning. Below is a table of the results. Perform a Chi-square test to see if a relationship exists. (Table value = 9.210)

	Male	Female	Total
Visual	23	17	40
Auditory	13	35	48
Kinaesthetic	30	28	58
Total	66	80	146

13. Calculate the correlation coefficient for the following data:

X: 21 31 25 40 47 38

Y: 70 55 60 78 66 80

14. Find linear regression equation $Y = a + bX$ for the following two sets of data:

X: 2 4 6 8

Y: 3 7 5 10
