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| **Unit V**  **Unit Name: Descriptive Statistics**  **Tutorial 1 : Correlation And Regression** |
| 1. Calculate the correlation coefficient from the following data  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | X | 100 | 200 | 300 | 400 | 500 | | Y | 30 | 40 | 50 | 60 | 70 |   [**Ans:** r = 1]   1. The following table gives the number of blinds per lakh of population in different age groups. Find the correlation between age and blindness  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Age (in yrs.) | 0–10 | 10–20 | 20–30 | 30–40 | 40–50 | 50–60 | 60–70 | 70–80 | | No. of blinds | 55 | 67 | 100 | 111 | 150 | 200 | 300 | 500 |   [**Ans:** r = 0.8982]   1. Two judges gave the following rank to a series of eight one act plays in drama competition. Examine the relationship between their judgments.  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Judge A | 8 | 7 | 6 | 3 | 2 | 1 | 5 | 4 | | Judge B | 7 | 5 | 4 | 1 | 3 | 2 | 6 | 8 |   [**Ans:** r = 0.62]   1. Calculate the rank correlation coefficient from the following data.  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Height | 60 | 62 | 64 | 66 | 68 | 70 | 72 | 74 | | Weight | 92 | 83 | 101 | 110 | 128 | 119 | 137 | 146 |   [**Ans :** R= 0.93**]**   1. Obtain the rank correlation coefficient from the following data.  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | X | 10 | 12 | 18 | 18 | 15 | 40 | | Y | 12 | 18 | 25 | 25 | 50 | 25 |   [**Ans :** R= 0.5429**]**   1. Find Karl Pearson’s coefficient of correlation and the two lines of regression for the following Also estimate Y if X = 80  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | X | 62 | 64 | 65 | 69 | 70 | 71 | 72 | 74 | | Y | 126 | 125 | 139 | 145 | 165 | 152 | 180 | 208 |   [**Ans:** y = - 258.373 + 6.046 x and y = 225.307]   1. Find the most likely price in Mumbai corresponding to the price of Rs. 70.00 at Calcutta from the following:  |  |  |  |  | | --- | --- | --- | --- | | Calcutta(X) | | Mumbai(Y) | | | Mean |  | |  | | S.D. |  | |  |   Correlation coefficient between the prices of commodities in the two cities is 0.8.   1. If the lines of regression of sample are x + 6y = 6 and 3x + 2y = 10.   Find i) mean of x & y and  ii) correlation coefficient between x and y  iii) estimate y when x = 12   1. For an army personnel of strength 25, the regression of weight of kidneys (Y) on weight of heart (X), both measured in ounce, is Y- 0.399X - 6.934 = 0 and the regression of weight of heart on weight of kidney is X - 1.212Y+2.461 = 0. Find the correlation coefficient between X & Y and their mean values. Can you find out the S.D. of X and Y as well? |