

Unit - V

9. a) Find the rank correlation for the following data. (8)

X: 85 74 85 50 65 78 74 60 74 90

Y: 78 91 78 58 60 72 80 55 68 70

- b) Fit a second degree Parabola from the following data. (8)

x: 0 1 2 3 4

y: 1 1.8 3.3 4.5 6.3

OR

10. a) If θ is the acute angle between the two regression lines in the case of two variables x & y , then show that

$$\tan \theta = \frac{1-r^2}{r} \frac{\sigma_x \sigma_y}{\sigma_x^2 + \sigma_y^2}$$

r, σ_x & σ_y having their usual meaning. (8)

- b) In a partially destroyed laboratory record of an analysis of a correlation data, the following result only are eligible.

Var of $x = 9$

regression equations are

$$8x - 10y + 66 = 0$$

$$40x - 18y = 214$$

Find

- i) The mean values of x and y
 - ii) The coefficient of correlation between x and y .
 - iii) The standard deviation of y .
- (8)