[Solution – 24] - To calculate the Pearson correlation coefficient (often denoted as *rr*r) between the marks obtained by 10 students in Accountancy and Statistics, we need to follow these steps:

### **Given Data**

Let's denote:

* *XX*X: Marks obtained in Accountancy
* *YY*Y: Marks obtained in Statistics

The data provided:

Student 1 2 3 4 5 6 7 8 9 10

X (Accountancy) 45 30 40 30 50 30 75 65 60 80

Y (Statistics) 70 65 75 60 80 40 90 70 80 50

### **Calculation of Pearson's Correlation Coefficient**

To determine the correlation between the marks obtained by 10 students in Accountancy and Statistics, we follow these steps:

1. **Calculate the Mean:**
   * Accountancy (X): Mean (Xˉ) = 56.5
   * Statistics (Y): Mean (Yˉ) = 69
2. **Calculate Deviations from the Mean:**
   * dX (Accountancy): [-11.5, -26.5, -16.5, -26.5, -6.5, -26.5, 18.5, 8.5, 3.5, 23.5]
   * dY (Statistics): [1, -4, 6, -9, 11, -29, 21, 1, 11, -19]
3. **Calculate the Product of Deviations:**
   * dXY : [-11.5, -106, -99, 238.5, -71.5, 771.5, 388.5, 8.5, 38.5, -448.5]
4. **Sum of dXY :**
   * ∑dXY = 819
5. **Calculate Standard Deviations:**
   * Accountancy (sX ) ≈ 18.22
   * Statistics (sY ) ≈ 5.89
6. **Calculate Pearson's Correlation Coefficient (*rr*r):**
   * r ≈ 0.76