Assignment 1

1. Find the correlation coefficient and the equations of regression lines from the following data

x	1	2	3	4	5
y	2	5	3	8	7

2. The following marks have been obtained by a class of students in statistics. Compute the Coefficient of correlation for the above data. Find the lines of regression.

Paper I	80	45	55	56	58	60	65	68	70	75	85
Paper II	81	56	50	48	60	62	64	65	70	74	90

3. If two regression coefficients are 0.8 and 0.2, what would be the value of coefficient of correlation?

4. In a partially destroyed laboratory record of an analysis of correlation data, the following results only are legible :

   Variance of $x = 9$

   Regression equations : $8x - 10y + 66 = 0$, $40x - 18y - 214 = 0$.

   What were (a) the mean values of x and y, (b) the standard deviation of y, and (c) the coefficient of correlation between x and y.

5. The following regression equations and variances are obtained from a correlation table :

   $20x - 9y - 107 = 0$, $4x - 5y + 33 = 0$, variance of $x = 9$. Find (i) the mean values of x and y, (ii) the standard deviation of y.

6. Two random variables have the least square regression lines with equations $3x + 2y = 26$ and $6x + y = 31$. Find mean values and correlation coefficient between x and y.

7. From the following information relating to the stock exchange quotations for two shares A and B, determine by using Pearson's coefficient of correlation how shares A and B are correlated in their prices?

Price share (A)	160	164	172	182	166	170	178
Price Share (B)	292	280	260	234	266	254	230

8. The pressure and volume of a gas are related by the equation $PV^{\gamma} = c$. Fit this curve to the following data

P	0.5	1.0	1.5	2.0	2.5	3.0
V	1.62	1.00	0.75	0.62	0.52	0.46

   Also find the volume when pressure is 3.5.