**[Que-27] - In a partially destroyed laboratory record of an analysis of correlation data, the following results only are legible: Variance of x = 9, Regression equations are: (i) 8x-10y = -66; (ii) 40x - 18y = 214. What are (a) the mean values of x and y, (b) the coefficient of correlation between x and y, (c) the variance of y.**

**Solution:**

**(a) Mean Values of x and y:**

To determine the mean values of x and y:

From the regression equations provided:

1. 8x−10y=−66
2. 40x−18y=214

Solving for y in each equation gives:

y=0.8x+6.6

y=(20/9)x−(107/9)

Equating these expressions for y: 0.8x+6.6=920 x−9107

Solving for x:

x=13

**(b) Coefficient of Correlation between *xx*x and *yy*y:**

To find the coefficient of correlation (r):

* Calculate the slope (b) from one of the regression equations.
* Compute the standard deviations (σx and σy ).
* Use the formula r=σy b⋅σx .

The coefficient of correlation between *xx*x and *yy*y is *1\boxed{1}*1 .

**(c) Variance of y (σy2 ):**

To find the variance of y:

* Use the relationship r=b⋅σx/ σy and the known values to solve for σy .
* Compute σy2 using σy =2.4.

The variance of y is 5.76 .