



Consider the lines given by

$$L_1: x + 3y - 5 = 0$$

$$L_2: 3x - ky - 1 = 0$$

$$L_3: 5x + 2y - 12 = 0$$

Solution:

(A) L_1, L_2, L_3 are concurrent, if

$$\begin{vmatrix} a_1 & b_1 & c_1 \\ a_2 & b_2 & c_2 \\ a_3 & b_3 & c_3 \end{vmatrix} = 0$$

$$L_1: x + 3y - 5 = 0$$

$$L_2: 3x - ky - 1 = 0$$

$$L_3: 5x + 2y - 12 = 0$$

$$\begin{vmatrix} 1 & 3 & -5 \\ 3 & -k & -1 \\ 5 & 2 & -12 \end{vmatrix} = 0$$

$$\Rightarrow (12k + 2) - 3(-36 + 5) - 5(6 + 5k) = 0$$

COLUMN I	COLUMN II
(A) L_1, L_2, L_3 are concurrent, if	(p) $k = -9$
(B) One of L_1, L_2, L_3 is parallel to at least one of the other two, if	(q) $k = -\frac{6}{5}$
(C) L_1, L_2, L_3 form a triangle, if	(r) $k = \frac{5}{6}$
(D) L_1, L_2, L_3 do not form a triangle, if	(s) $k = 5$