

**25. Consider the system of linear equations :**

$$x_1 + 2x_2 + x_3 = 3$$

$$2x_1 + 3x_2 + x_3 = 3$$

$$3x_1 + 5x_2 + 2x_3 = 1$$

**The system has**

**(2010)**

- 1) exactly 3 solutions
- 2) a unique solution
- 3) no solution
- 4) infinite number of solutions

**Ans.**

$$(3) D = \begin{vmatrix} 1 & 2 & 1 \\ 2 & 3 & 1 \\ 3 & 5 & 2 \end{vmatrix} = 0; \quad D_1 = \begin{vmatrix} 3 & 2 & 1 \\ 3 & 3 & 1 \\ 1 & 5 & 2 \end{vmatrix} \neq 0$$

$\Rightarrow$  Given system, does not have any solution.

$\Rightarrow$  No solution.