Date:

Q.2

Find linear system equation

$$\begin{bmatrix} 1 & 2 & 3 & 4 \\ -4 & -3 & -2 & -1 \\ 5 & -6 & 1 & 1 \\ -8 & 0 & 0 & 1 \end{bmatrix}$$

Solution:-

$$x_1 + 2x_2 + 3x_3 = 4$$
$$-4x_1 - 3x_2 - 2x_2 = -1$$
$$5x_1 - 6x_2 + x_3 = 1$$
$$-8x_1 + 0x_2 + 0x_3 = 1$$

Find the value of k.

$$\begin{bmatrix} k & 1 & 1 \end{bmatrix} \begin{bmatrix} 1 & 1 & 0 \\ 1 & 0 & 2 \\ 0 & 2 & -3 \end{bmatrix} \begin{bmatrix} k \\ 1 \\ 1 \end{bmatrix} = 0$$

$$\begin{bmatrix} k+1+0 & k+0+2 & 0+2-3 \end{bmatrix} \begin{bmatrix} k \\ 1 \\ 1 \end{bmatrix} = 0$$

$$\begin{bmatrix} k+1 & k+2 & -1 \end{bmatrix} \begin{bmatrix} k \\ 1 \\ 1 \end{bmatrix} = 0$$

$$k^2 + k + k + 2 - 1 = 0$$

$$k(k+1) + 1(k+1) = 0$$