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MATRIC NO; 19/eng07/015
Course; Pet Engr.

$$T_1 + T_2 - 2T_3 + T_4 + 3T_5 - T_6 = 4$$
$$2T_1 - T_2 + T_3 + 2T_4 + T_5 - 3T_6 = 20$$
$$T_1 + 3T_2 - 3T_3 - T_4 + 2T_5 + T_6 = -15$$
$$-5T_1 + 2T_2 - T_3 - T_4 + 2T_5 + T_6 = -3$$
$$-3T_1 - T_2 + 2T_3 + 3T_4 + T_5 + 3T_6 = 16$$
$$4T_1 + 3T_2 + T_3 - 6T_4 - 3T_5 - 2T_6 = -27$$

$$\begin{bmatrix} 1 & 1 & -2 & 1 & 3 & -1 \\ 2 & -1 & 1 & 2 & 1 & -3 \\ 1 & 3 & -3 & -1 & 2 & 1 \\ -5 & 2 & -1 & -1 & 2 & 1 \\ -3 & -1 & 2 & 3 & 1 & 3 \\ 4 & 3 & 1 & -6 & -3 & -2 \end{bmatrix} \begin{bmatrix} T_1 \\ T_2 \\ T_3 \\ T_4 \\ T_5 \\ T_6 \end{bmatrix} = \begin{bmatrix} 4 \\ 20 \\ -15 \\ -3 \\ 16 \\ -27 \end{bmatrix}$$

$$\begin{bmatrix} 1 & 1 & -2 & 1 & -3 & -1 \\ 2-\frac{2}{1}\times1 & -1-\frac{2}{1}\times1 & 1-\frac{2}{1}\times-2 & 2-\frac{2}{1}\times1 & 1-\frac{2}{1}\times3 & -3-\frac{2}{1}\times-1 \\ 1-\frac{1}{1}\times1 & 3-\frac{1}{1}\times1 & -3-\frac{1}{1}\times-2 & -1-\frac{1}{1}\times1 & 2-\frac{1}{1}\times3 & 1-\frac{1}{1}\times-1 \\ 5-\frac{5}{1}\times1 & 2-\frac{5}{1}\times1 & -1-\frac{5}{1}\times-2 & -1-\frac{5}{1}\times1 & 2-\frac{5}{1}\times3 & 1-\frac{5}{1}\times-1 \\ -3-\frac{3}{1}\times1 & -1-\frac{3}{1}\times1 & 2-\frac{3}{1}\times-2 & 3-\frac{3}{1}\times1 & 1-\frac{3}{1}\times3 & 3-\frac{3}{1}\times-1 \\ 4-\frac{4}{1}\times1 & 3-\frac{4}{1}\times1 & 1-\frac{4}{1}\times-2 & -6-\frac{4}{1}\times1 & -3-\frac{4}{1}\times3 & -2-\frac{4}{1}\times-1 \end{bmatrix} \begin{bmatrix} T_1 \\ T_2 \\ T_3 \\ T_4 \\ T_5 \\ T_6 \end{bmatrix} \begin{bmatrix} 4 \\ 20-\frac{2}{1}\times4 \\ -15-\frac{1}{1}\times1 \\ -3-\frac{5}{1}\times4 \\ 16-\frac{3}{1}\times4 \\ -27-\frac{4}{1}\times4 \end{bmatrix}$$

$$\begin{bmatrix} 1 & 1 & -2 & 1 & 3 & 1 \\ 0 & -3 & 5 & 0 & -5 & -1 \\ 0 & 2 & -1 & -2 & -1 & 2 \\ 0 & -3 & -9 & -6 & -13 & 6 \\ 0 & 2 & -3 & 6 & 10 & 0 \\ 0 & -1 & 9 & -10 & -15 & 2 \end{bmatrix} \cdot \begin{bmatrix} T_1 \\ T_2 \\ T_3 \\ T_4 \\ T_5 \\ T_6 \end{bmatrix} = \begin{bmatrix} 4 \\ 12 \\ -19 \\ -23 \\ 29 \\ -43 \end{bmatrix}$$

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$$\begin{bmatrix} 1 & 1 & -2 & 1 & 3 & -1 \\ 0 & -3 & 5 & 0 & -5 & -1 \\ 0 & 0 & 2.33 & -2 & -4.33 & 1.33 \\ 0 & 0 & 4 & -6 & -8 & 6 \\ 0 & 0 & -0.67 & 6 & 6.67 & -0.62 \\ 0 & 0 & 7.83 & -10 & -13.33 & 2.92 \end{bmatrix} \begin{bmatrix} T_1 \\ T_2 \\ T_3 \\ T_4 \\ T_5 \\ T_6 \end{bmatrix} = \begin{bmatrix} 4 \\ 12 \\ -11 \\ -35 \\ 36 \\ -47 \end{bmatrix}$$

$$\begin{bmatrix} 1 & 1 & -2 & 1 & 3 & 1 \\ 0 & -3 & 5 & 0 & -5 & -1 \\ 0 & 0 & 2.33 & -2 & -4.33 & 1.33 \\ 0 & 0 & 0 & -2.57 & -6.57 & 4.71 \\ 0 & 0 & 0 & 5.43 & 5.43 & -6.29 \\ 0 & 0 & 0 & -3.71 & 0.29 & \pm 1.85 \end{bmatrix} \begin{bmatrix} T_1 \\ T_2 \\ T_3 \\ T_4 \\ T_5 \\ T_6 \end{bmatrix} = \begin{bmatrix} 4 \\ 12 \\ -11 \\ -16.14 \\ 32.86 \\ -12.43 \end{bmatrix}$$

$$\begin{bmatrix} 1 & 1 & -2 & 1 & 3 & \cdot 1 \\ 0 & -3 & 5 & 0 & -5 & -1 \\ 0 & 0 & 2.33 & -2 & -4.33 & 1.33 \\ 0 & 0 & 0 & -2.57 & -0.57 & 4.71 \\ 0 & 0 & 0 & 0 & 4.22 & 9.67 \\ 0 & 0 & 0 & 0 & 1.11 & -8.67 \end{bmatrix} \begin{bmatrix} T_1 \\ T_2 \\ T_3 \\ T_4 \\ T_5 \\ T_6 \end{bmatrix} = \begin{bmatrix} 4 \\ 12 \\ -4 \\ -16.14 \\ -1.22 \\ 10.89 \end{bmatrix}$$

$$\begin{bmatrix} 1 & 1 & -2 & 1 & 3 & 1 \\ 0 & -3 & 5 & 0 & -5 & -1 \\ 0 & 0 & 2.33 & -2 & -4.33 & 1.33 \\ 0 & 0 & 0 & -2.57 & 0.57 & 4.71 \\ 0 & 0 & 0 & 0 & 4.22 & 9.67 \\ 0 & 0 & 0 & 0 & 0 & -11.21 \end{bmatrix} \begin{bmatrix} T_1 \\ T_2 \\ T_3 \\ T_4 \\ T_5 \\ T_6 \end{bmatrix} = \begin{bmatrix} 4 \\ 12 \\ -11 \\ -16.14 \\ -1.22 \\ 11.21 \end{bmatrix}$$

$$-11.21\,T_6 = 11.21$$

$$T_6 = \frac{11.21}{-11.21}$$

$$= -1 \,/\!/$$

$$4.22T_5 + 9.67T_6 = -1.22$$
$$4.22T_3 + 9.67(-1) = -1.22$$
$$T_3 = \frac{8.45}{4.27}$$
$$T_3 = 2.002 \approx 2 \;///$$
$$-2.57T_4 + 0.57T_3 + 4.71T_6 = -16.14$$
$$-2.57T_4 + 1.14 - 4.71 = -16.14$$
$$-2.57T_4 = -16.16 - 1.14 + 4.71$$
$$T_4 = 4.89$$

$$2.33T_3 - 2T_4 - 4.33T_3 + 1.33T_6 = -11$$
$$2.33T_3 - 2(4.89) - 4.33(2) + 1.33(-1) = -11$$
$$2.33T_3 - 9.78 - 8.66 - 1.33 = -11$$
$$T_3 = 3.76$$

$$-3T_2 + 3T_3 - 5T_3 - T_6 = 12$$
$$-3T_2 + 13.8 - 10 + 1 = 12$$
$$T_2 = -0.73$$

$$T_1 + T_2 - 2T_3 + T_4 + 3T_3 - T_6 = 6$$
$$T_1 - 0 + 3 - 7.52 + 4.89 + 6 + 1 = 6$$
$$T_1 = 4 - 3.64$$
$$T_1 = 0.36$$

$$T_1 = 0.36 \qquad T_4 = 4.89$$
$$T_2 = -0.73 \qquad T_3 = 2$$
$$T_3 = 3.76 \qquad T_6 = 1$$