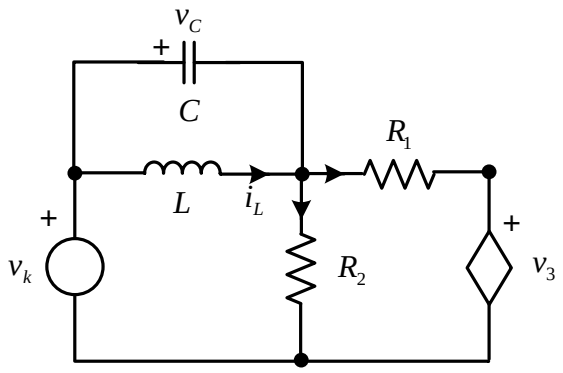
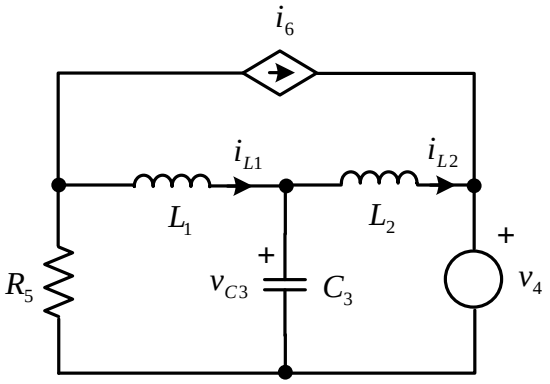
Uygulama 1. Aşağıdaki devrenin uygun ağacını çizerek durum denklemlerini çıkarınız.



$$v_k = \cos 2t$$
$$v_3 = \mu . v_C$$
$$\mu = 1$$
$$C = 1\,\mathrm{F}$$
$$L = \frac{1}{2}\,\mathrm{H}$$
$$R_1 = R_2 = 1\,\Omega$$

$$\frac{d}{dt}\begin{bmatrix} v_C \\ i_L \end{bmatrix} = \begin{bmatrix} -3 & -1 \\ 2 & 0 \end{bmatrix} \cdot \begin{bmatrix} v_C \\ i_L \end{bmatrix} + \begin{bmatrix} 2 \\ 0 \end{bmatrix} \cdot v_k$$

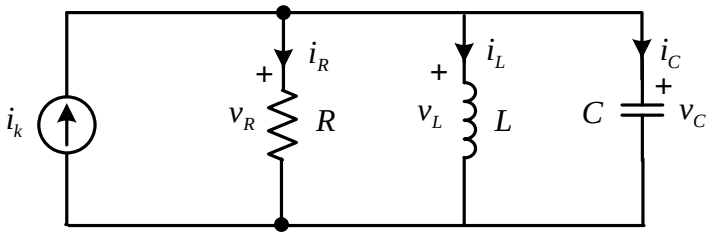
Uygulama 2. Aşağıdaki devrenin uygun ağacını çizerek durum denklemlerini çıkarınız.



$$L_1 = L_2 = 1\,\mathrm{H}$$
$$C_3 = 1\,\mathrm{F}$$
$$R_5 = 1\,\Omega$$
$$i_6 = \beta . v_{C3}$$
$$\beta = 1$$
$$v_4 = u(t)$$

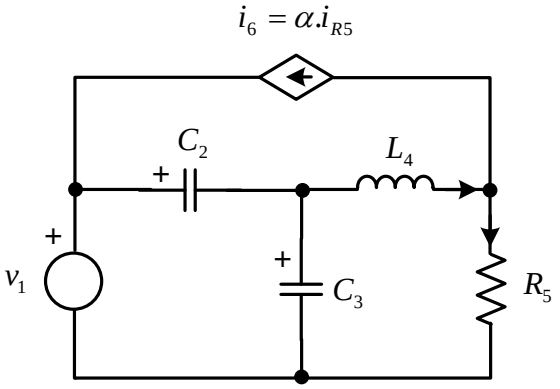
$$\frac{d}{dt}\begin{bmatrix} v_{C3} \\ i_{L1} \\ i_{L2} \end{bmatrix} = \begin{bmatrix} 0 & \frac{1}{C_3} & -\frac{1}{C_3} \\ -\left(\frac{1+R_5}{L_1}\right) & -\frac{R_5}{L_1} & 0 \\ \frac{1}{L_2} & 0 & 0 \end{bmatrix} \cdot \begin{bmatrix} v_{C3} \\ i_{L1} \\ i_{L2} \end{bmatrix} + \begin{bmatrix} 0 \\ 0 \\ -\frac{1}{L_2} \end{bmatrix} \cdot v_4$$

Uygulama 3. Aşağıdaki devrenin uygun ağacını çizerek durum denklemlerini çıkarınız.



$$\frac{d}{dt}\begin{bmatrix} v_C \\ i_L \end{bmatrix} = \begin{bmatrix} -\frac{1}{R.C} & -\frac{1}{C} \\ \frac{1}{L} & 0 \end{bmatrix} . \begin{bmatrix} v_C \\ i_L \end{bmatrix} + \begin{bmatrix} \frac{1}{C} \\ 0 \end{bmatrix} \cdot i_k$$

Uygulama 5. Aşağıdaki devrenin uygun ağacını çizerek durum denklemlerini çıkarınız.



$$\frac{d}{dt}\begin{bmatrix} v_{C3} \\ i_{L4} \end{bmatrix} = \begin{bmatrix} 0 & -\frac{1}{C_2 + C_3} \\ \frac{1}{L_4} & -\frac{R_5}{L_4.(1+\alpha)} \end{bmatrix} . \begin{bmatrix} v_{C3} \\ i_{L4} \end{bmatrix} + \begin{bmatrix} \frac{C_2}{C_2 + C_3} \\ 0 \end{bmatrix} \cdot \frac{dv_1}{dt}$$