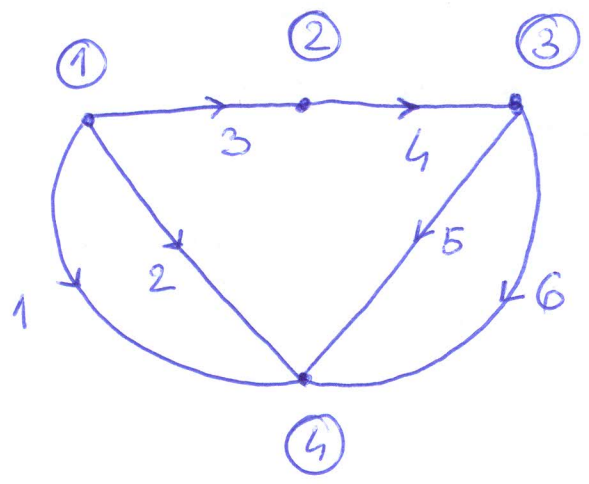
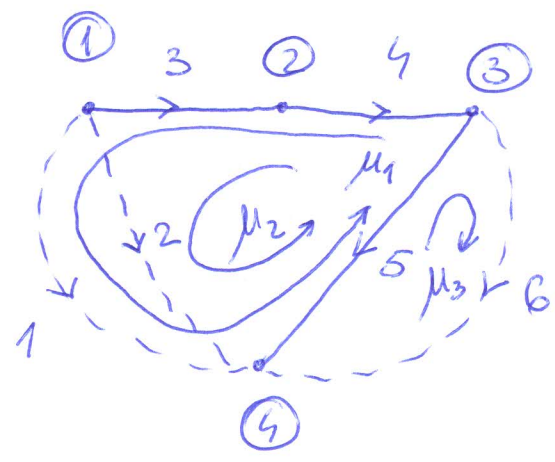
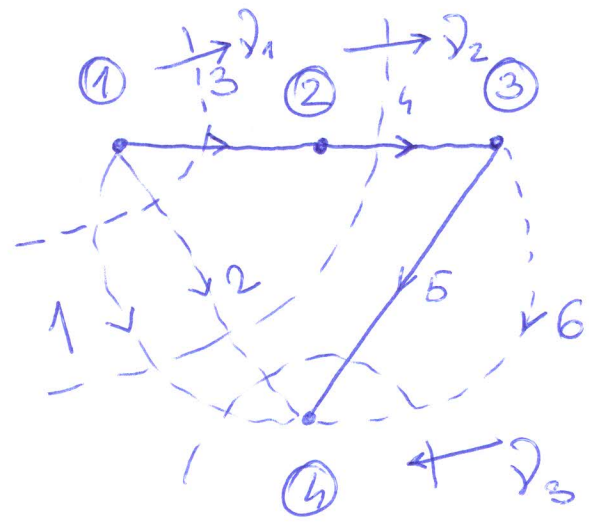


- graf kola



- normalno stablo



promjenljive stanja: u_4, u_5, i_2

KZS za glavne prečke

(2)

$$\mathcal{V}_1: i_1 + i_2 + i_3 = 0$$

$$\mathcal{V}_2: i_1 + i_2 + i_4 = 0$$

$$\mathcal{V}_3: i_1 + i_2 + i_5 + i_6 = 0$$

KZH za glavne konture

$$\mu_1: u_1 - u_5 - u_4 - u_3 = 0$$

$$\mu_2: u_2 - u_5 - u_4 - u_3 = 0$$

$$\mu_3: u_6 - u_5 = 0$$

karakteristike elemenata

$$i_1 = i_g$$

$$u_2 = L \frac{di_2}{dt}$$

$$u_3 = R_1 i_3$$

$$i_4 = C_1 \frac{du_4}{dt}$$

$$i_5 = C_2 \frac{du_5}{dt}$$

$$u_6 = R_2 i_6$$

formiranje sistema j.s.

③

$$C_1 \frac{du_4}{dt} = -i_1 - i_2$$

$$C_2 \frac{du_5}{dt} = -i_1 - i_2 - i_6$$

$$L \frac{di_2}{dt} = u_4 + u_5 + u_3$$

$$i_6 = \frac{1}{R_2} u_6 = \frac{1}{R_2} u_5$$

$$u_3 = R_1 i_3 = -R_1 i_2 - R_1 i_1 = -R_1 i_2 - R_1 i_g$$

$$C_1 \frac{du_4}{dt} = -i_2 - i_g$$

$$C_2 \frac{du_5}{dt} = -i_2 - \frac{1}{R_2} u_5 - i_g$$

$$L \frac{di_2}{dt} = u_4 + u_5 - R_1 i_2 - R_1 i_g$$

$$\frac{du_4}{dt} = 0 \cdot u_4 + 0 \cdot u_5 - \frac{1}{C_1} i_2 - \frac{1}{C_1} i_g$$

$$\frac{du_5}{dt} = 0 \cdot u_4 - \frac{1}{R_2 C_2} u_5 - \frac{1}{C_2} i_2 - \frac{1}{C_2} i_g$$

$$\frac{di_2}{dt} = \frac{1}{L} u_4 + \frac{1}{L} u_5 - \frac{R_1}{L} i_2 - \frac{R_1}{L} i_g$$

$$\frac{d}{dt} \begin{bmatrix} u_4 \\ u_5 \\ i_2 \end{bmatrix} = \begin{bmatrix} 0 & 0 & -\frac{1}{C_1} \\ 0 & -\frac{1}{RC_2} & -\frac{1}{C_2} \\ \frac{1}{L} & \frac{1}{L} & -\frac{R_1}{L} \end{bmatrix} \begin{bmatrix} u_4 \\ u_5 \\ i_2 \end{bmatrix} + \begin{bmatrix} -\frac{1}{C_1} \\ -\frac{1}{C_2} \\ -\frac{R_1}{L} \end{bmatrix} i_g$$

