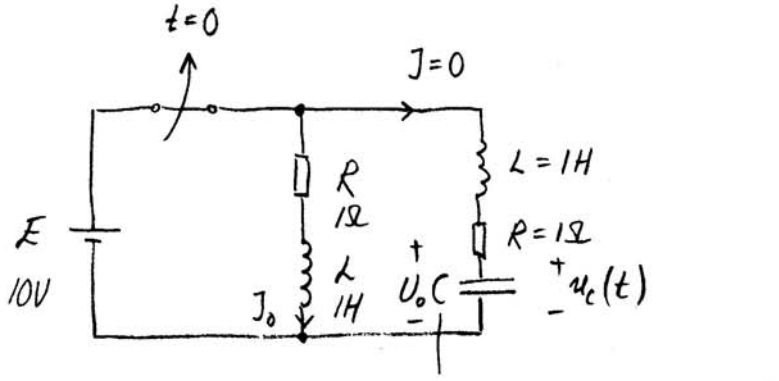
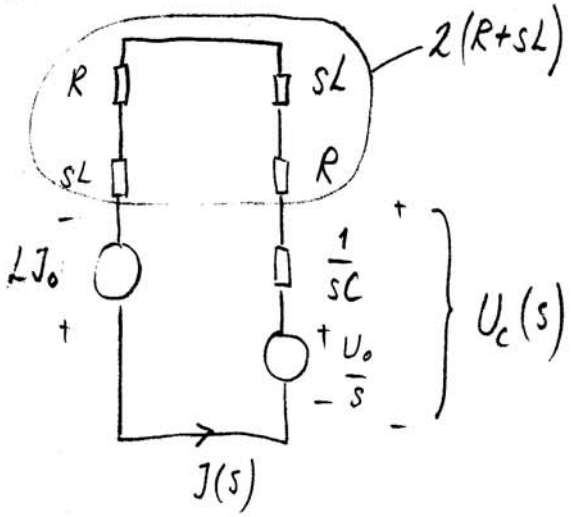
C20



$$J_0 = \frac{E}{R} \quad \Rightarrow \quad J_0 = 10A$$

$$U_0 = E \quad \text{y} \quad J = 0 \quad \Rightarrow \quad U_0 = 10V$$

OPERATORSCHEMA



$$U_c(s) = \frac{U_0}{s} - J(s) \cdot \frac{1}{sC} \quad \ldots (1)$$

$$+LJ_0 + \frac{U_0}{s} - \frac{1}{sC} \cdot J(s) - 2(R+sL)\,J(s) = 0$$

$$J(s) = \frac{LJ_0 + \frac{U_0}{s}}{2(R+sL) + \frac{1}{sC}} \quad \Rightarrow$$

$$\Rightarrow \quad I(s) = \frac{10 + \frac{10}{s}}{2(1+s) + \frac{1}{s \cdot 0{,}5}} = \frac{10s + 10}{2s^2 + 2s + 2}$$

INS I (1) $\rightarrow$

$$U_c(s) = \frac{10}{s} - \frac{10s + 10}{2s^2 + 2s + 2} \cdot \frac{1}{s \cdot 0{,}5} =$$

$$= \frac{10s^2 + \cancel{10s} + \cancel{10} - \cancel{10s} - \cancel{10}}{s(s^2 + s + 1)} = \frac{10s}{\left(s + \frac{1}{2}\right)^2 + \frac{3}{4}} =$$

$$= 10 \cdot \frac{s + \frac{1}{2} - \frac{1}{2}}{\left(s + \frac{1}{2}\right)^2 + \frac{3}{4}} =$$

$$= 10 \cdot \frac{s + \frac{1}{2}}{\left(s + \frac{1}{2}\right)^2 + \frac{3}{4}} - \frac{10}{\sqrt{3}} \cdot \frac{\frac{\sqrt{3}}{2}}{\left(s + \frac{1}{2}\right)^2 + \frac{3}{4}}$$

$\frac{3}{4} \rightarrow \left(\frac{\sqrt{3}}{2}\right)^2$ $\qquad$ $\frac{3}{4} \rightarrow \left(\frac{\sqrt{3}}{2}\right)^2$

$$u_c(t) = 10 \cdot e^{-\frac{1}{2}t} \cdot \cos\left(\frac{\sqrt{3}}{2}t\right) - \frac{10}{\sqrt{3}} \cdot e^{-\frac{1}{2}t} \cdot \sin\left(\frac{\sqrt{3}}{2}t\right)$$