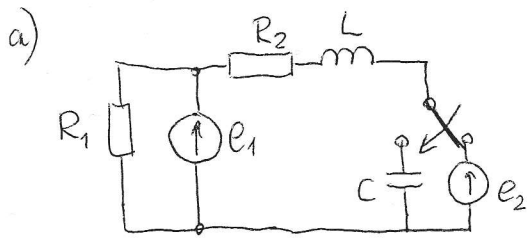
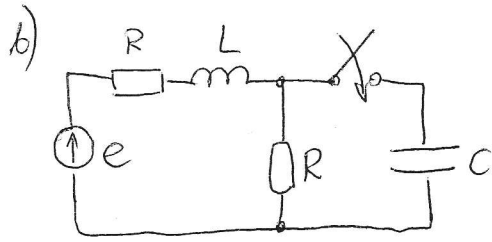


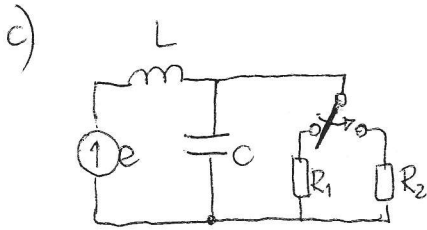
1. Determine $u_c(t)$ and $i_L(t)$ in transient using state space method



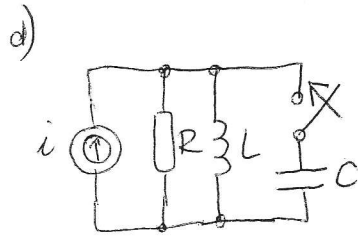
$e_1(t) = 10\sqrt{2} \sin t$
 $e_2(t) = 5$
 $R_1 = 4\Omega$ $L = 2H$
 $R_2 = 5\Omega$ $C = 0.5F$



$e(t) = 20V$
 $R = 10\Omega$
 $L = 0.1H$
 $C = 0.1F$



$e(t) = 10V$
 $R_1 = 5\Omega$ $L = 1H$
 $R_2 = 10\Omega$ $C = 1000\mu F$



$i(t) = 5\sqrt{2} \sin t$
 ~~$G = 0.6S$~~ $G = 1S$
 $L = 1H$
 $C = 0.1F$

2) Calculate e^{At} using Lagrange or Cayley-Hamilton method

a) $A = \begin{bmatrix} -3 & 2 \\ 0 & -4 \end{bmatrix}$

b) $A = \begin{bmatrix} -2 & 6 \\ 1 & -3 \end{bmatrix}$

c) $A = \begin{bmatrix} -1 & 1 \\ -1/2 & -2 \end{bmatrix}$