Tutorial 2
DC Transients (Ist order)

Problem 1

In Figure 1, the switch closes at t=0. Find $v_0(t)$ for t>0

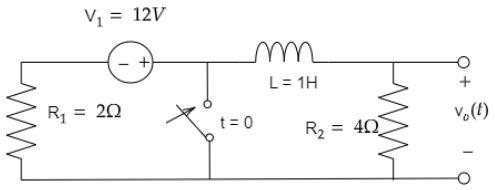

Figure 1: fig1

Problem 2

In Figure 2, find the expression for currents in the 1 mH inductor and the 90Ω resistor if the switch was on for a long time and is disconnected at time t=0. (Assume ideal components)

Problem 3

Consider the network shown, determine Vc, ic and i(t) .Assume initial voltage of capacitor to be 0V.

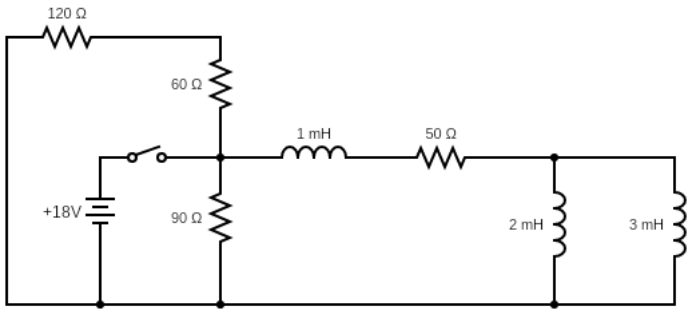

Figure 2: Circuit for problem 2

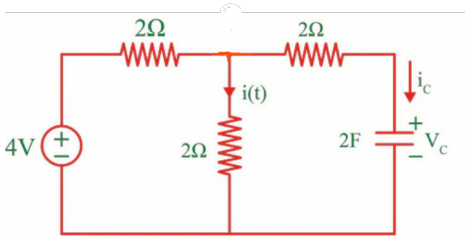

Figure 3: Circuit 3

Problem 4

Find the Steady state current in each inductor and the energy stored in them for the given circuit.

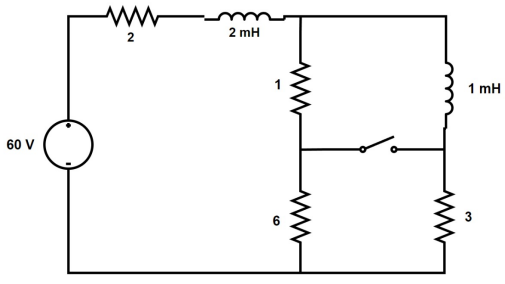

Figure 4: Circuit 4

Problem 5

Consider the following circuit. The switch is closed for a long time and it is opened at $t = 0$. Determine $i_L(0^+)$, $V(0^+)$ and $i_L(t)$ for $t > 0$

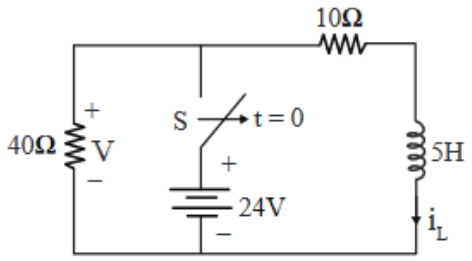

Figure 5: Circuit 5

Problem 6

Consider the following circuit. The switch is closed for a long time and it is opened at $t = 0$. Determine $V_C(0^+)$, $i(0^+)$ and $V_C(t)$ for $t > 0$

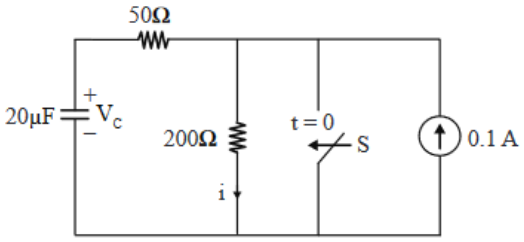

Figure 6: Circuit 6