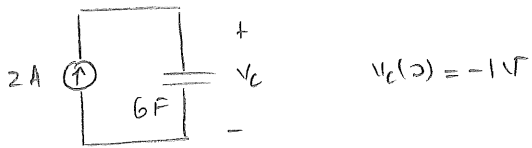
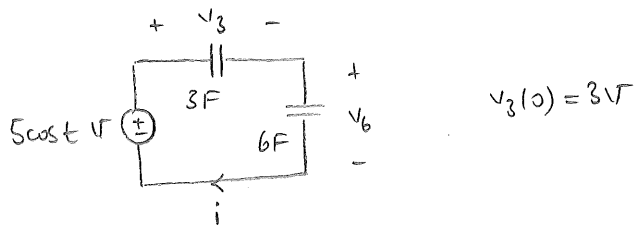


PROBLEM SET VI

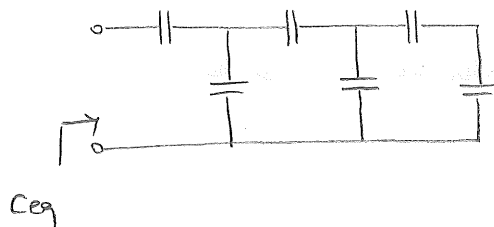
1 Find and sketch $v_c(t)$ for $t \geq 0$.



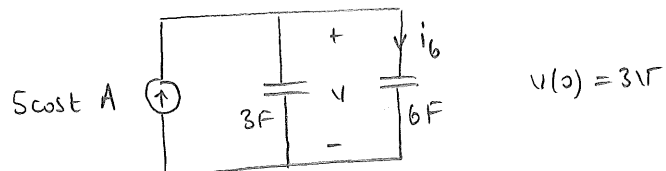
2 Find $i(t)$ and $v_6(t)$



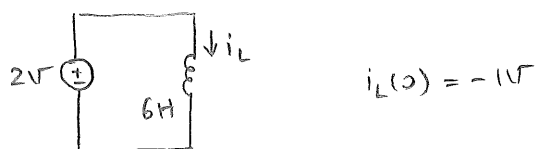
3 All the capacitances are 1F. Compute C_{eq} .



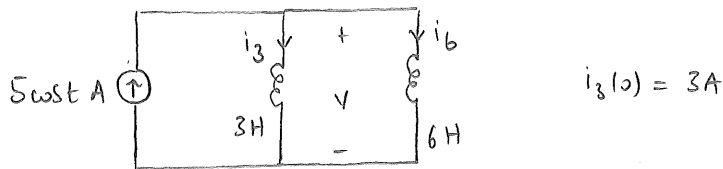
4 Find $v(t)$ and $i_6(t)$.



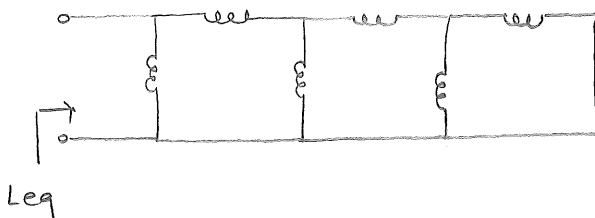
5 Find and sketch $i_L(t)$ for $t \geq 0$



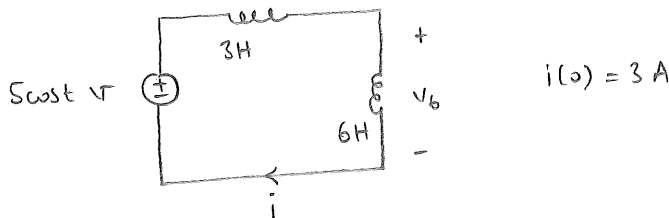
6) Find $v(t)$ and $i_b(t)$



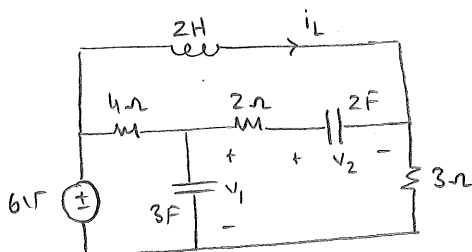
7) All the inductances are 1H. Compute L_{eq} .



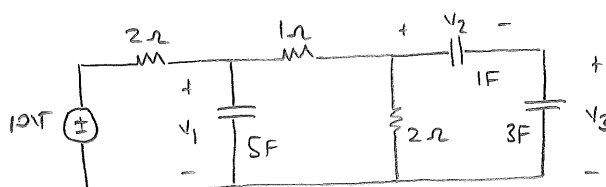
8) Find $i(t)$ and $v_b(t)$



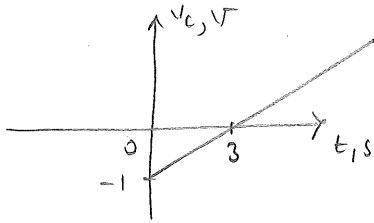
9) Find the DC steady state values $v_1(\infty)$, $v_2(\infty)$, $i_L(\infty)$. Also find the stored energy in the inductor at $t = \infty$.



10) Find the DC steady state values $v_1(\infty)$, $v_2(\infty)$, $v_3(\infty)$. Also find the stored energy in the 3F capacitor at $t = \infty$.



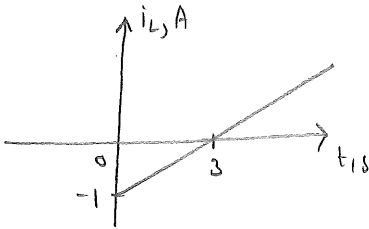
$$v_2(0) = -12V, \quad v_3(0) = 0$$

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2 $i(t) = -10 \sin t \text{ A}$, $v_b(t) = \frac{1}{3} + \frac{5}{3} \cos t \text{ V}$

3 $C_{eq} = \frac{8}{13} \text{ F}$

4 $v(t) = 3 + \frac{5}{9} \sin t \text{ V}$, $i_b(t) = \frac{10}{3} \cos t \text{ A}$

5

6 $v(t) = -10 \sin t \text{ V}$, $i_b(t) = \frac{1}{3} + \frac{5}{3} \cos t \text{ A}$

7 $L_{eq} = \frac{8}{13} \text{ H}$

8 $i(t) = 3 + \frac{5}{9} \sin t \text{ A}$, $v_b(t) = \frac{10}{3} \cos t \text{ V}$

9 $v_1(\infty) = 6 \text{ V}$, $v_2(\infty) = 0$, $i_L(\infty) = 2 \text{ A}$, $E_L(\infty) = 4 \text{ J}$

10 $v_1(\infty) = 6 \text{ V}$, $v_2(\infty) = 0$, $v_3(\infty) = 4 \text{ V}$, $E_{sf}(\infty) = 24 \text{ J}$