Dr. Müştak Erhan Yalçın   May 16, 2014
Emre Göncü

Circuit and System Analysis
Homework II

1)

   a) Find the y- parameters in s- domain for the circuit given in Figure 1.
   b) Obtain the Norton equivalent circuit with respect to terminals 2 and 2' while connecting a current
      source $i_1 = \sin(2t + 30°)$ across the terminals 1 and 1'.
   c) Let an admittance $Y = -5 + j2$ mho be connected across terminals 2 and 2'. Determine the
      active, reactive and average powers absorbed by the 2- terminal.

2) Determine the transfer function, I_0/I_1, for circuit given in Figure 2.

3)

   a) Find the h- parameters in s- domain for the circuit given in Figure 3.
   b) When $Z_1 = Z_2 = Z_3 = 1$ and $Z_4 = \frac{1}{s}$, and connecting a resistance, $R = 1\Omega$, across terminals 2
      and 2', determine the input impedance, $Z_{11'}(s)$.

4)

   a) Using the block diagram given in Figure 4.b, obtain a block diagram for the circuit shown in
      Figure 4.a.
   b) Reducing the block diagram obtained in part 4-a, find the transfer function, $I_0(s)/I_k(s)$.
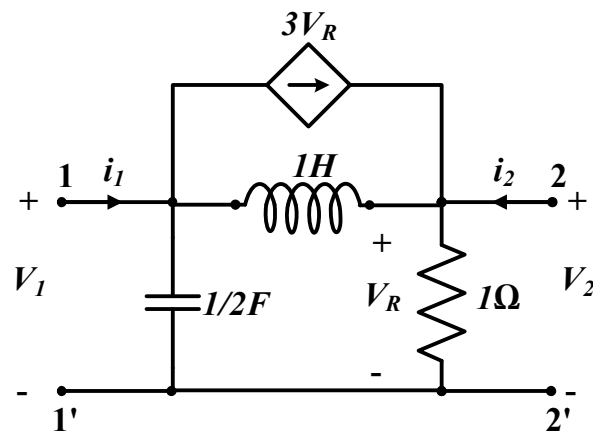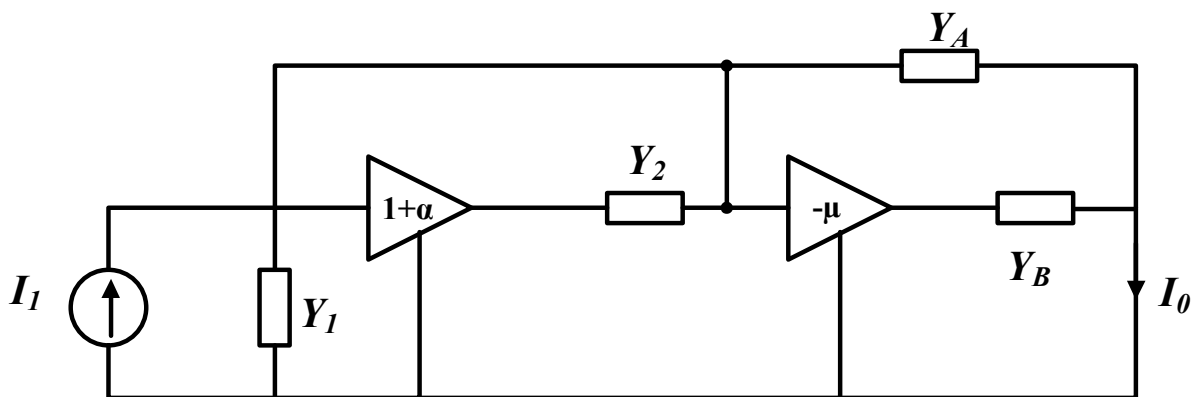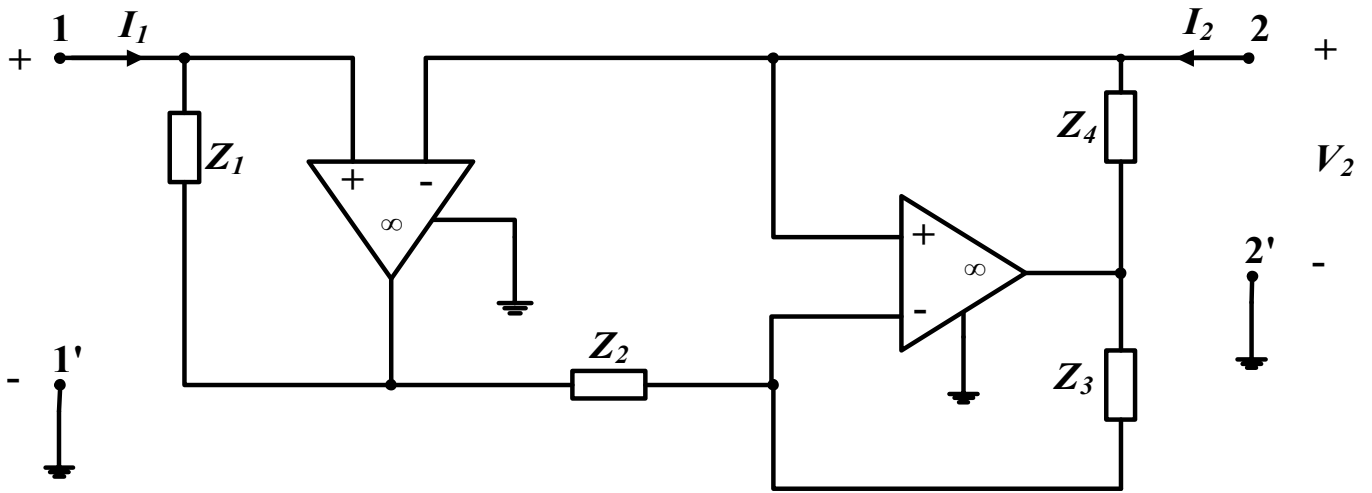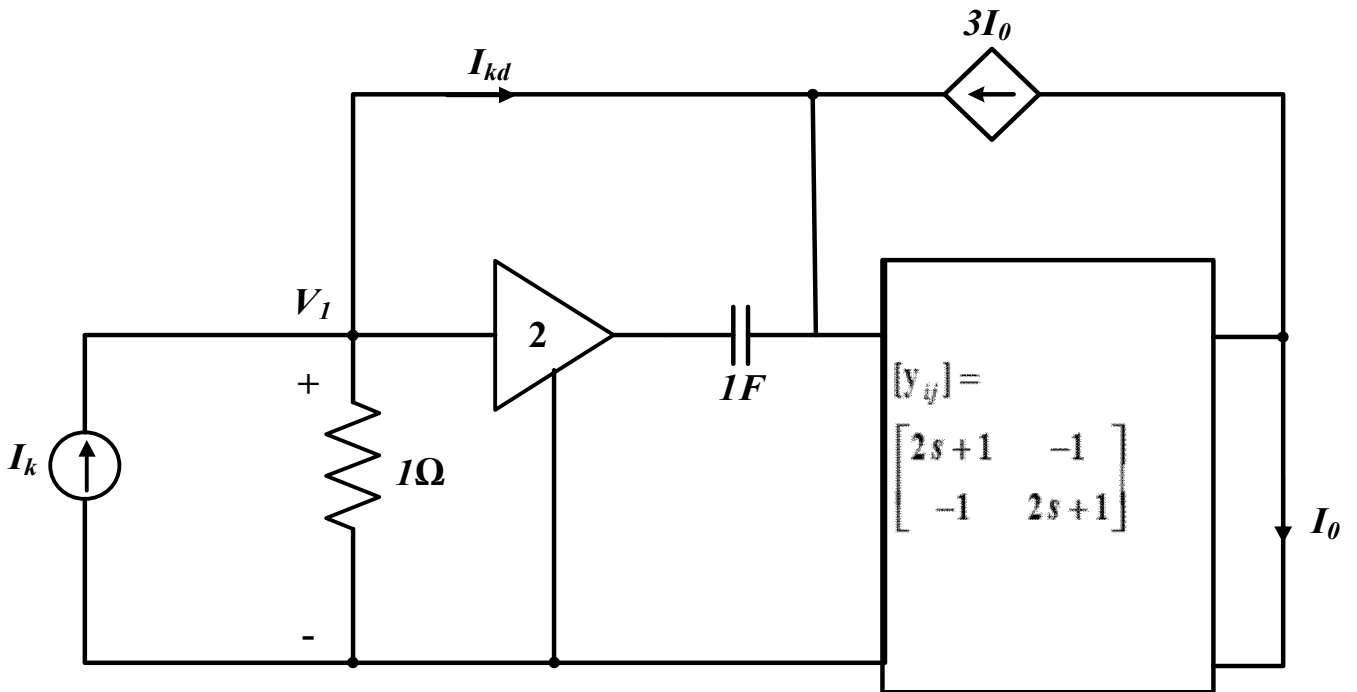

Figure 1

Figure 2

Figure 3

Figure 4.a

Figure 4.b