ELEC5508
Assignment #2
Due: March 7 , 2006

Q1: Consider the circuit shown in Figure 1

a) Use your MNA program to plot the magnitude of the output response in the frequency range 10KHz-10MHz. Use log-log scale.

- Use AWE of order [1/2] with a suitable scaling factor to approximate the output response and compare with your results obtained in part a.
- Find the dominant poles.
- Find the time-domain response corresponding to a 10mA ideal step input.
- Find the time-domain response corresponding to a 10mA step input with rise time=1 uS. Compare your results with HSPICE (or equivalent).

C) Repeat part b using AWE of order [2/3] and order [3/4]

Q2: Consider the circuit shown in Figure 2

a) Use your MNA program to plot the magnitude of the output response in the frequency range 10KHz-10GHz. Use log-log scale.

- Use AWE of order [1/2] with a suitable scaling factor to approximate the output response and compare with your results obtained in part a.
- Find the dominant poles.
- Find the time-domain response corresponding to a 5V ideal step input.
- Find the time-domain response corresponding to a 5V step input with rise-time= 1nS. Compare your results with HSPICE (or equivalent).
- Find the time-domain response corresponding to a 5V pulse with rise/fall time=1nS and pulse width=12nS. Compare your results with HSPICE (or equivalent).

C) Repeat part b using AWE of order [2/3] and order [3/4]

All capacitors are 10nF
R1=50 Ohms
R=10 Ohms

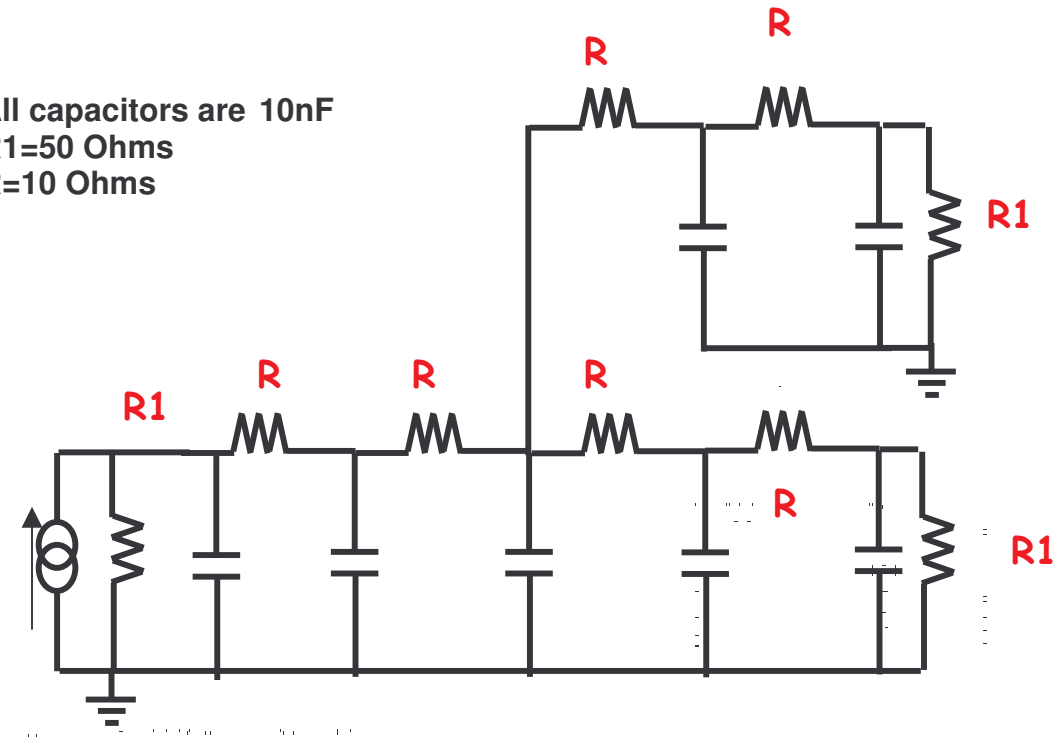

Figure 1

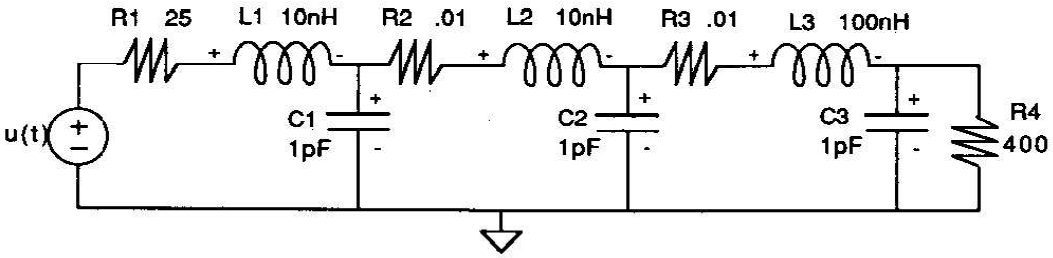

Figure 2