Note Title 9/2/2019

ENEE 610 Fall 2019 Homework 2 Due Tu 09/17/19

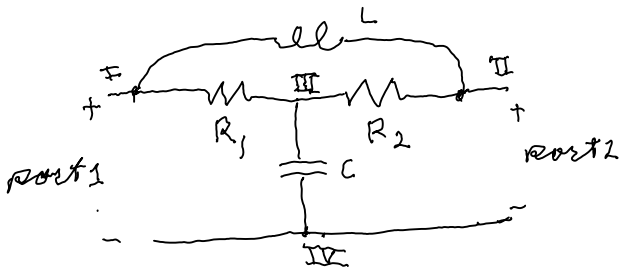
#1(50 points; indefinite admittance matrix)

For the following circuit

a) Give the indefinite admittance.

b) Ground node IV to get the nodal admittance matrix.

c) Eliminate the internal node III to get the 2-port admittcance matrix.



#2 (50 points, gyrator L-C equivalents)

For the following circuits

a) By adding admittance matrices on the left circuit and inverting the sum of impedance matrices on the right circuit find the 2-port admittance descriptions of each of the two 2-ports shown below.

b) These two admittance matrices will be equal if L and g2 are chosen in terms of C and g1. Give those choices.

c) Load the left hand circuit's 2nd port in a resistor of conductance G and calculate the input admittance, $y_{in}(s)$, looking into its first port. Give the poles and zeroes of $y_{in}(s)$.