HW#2 to be **GRADED** (ENEE 610) due to October. 10, 2001 (HJ/RWN 09/30/01)

1. (5pts) Consider the coupling 2-port network in figure 1. Find the relation $Z_{(in)}(s)$ versus $Z_{(load)}(s)$ and $Z_{(load)}(s)$ versus $Z_{(in)}(s)$, show that the latter is a Richards' function. Realize the following function as driving point impedance using a cascade synthesis via the use of Richard's functions.

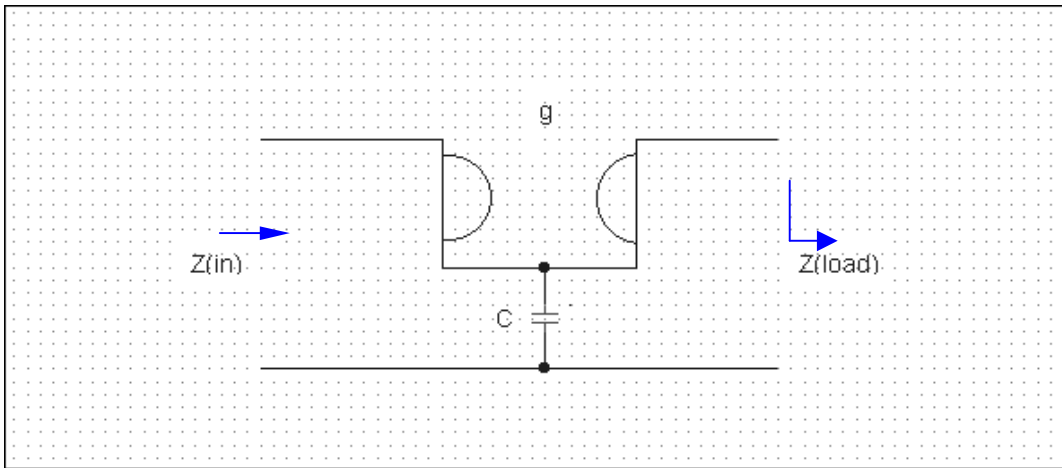$$z(s) = \frac{s(s^2+4)(s^2+8)}{(s^2+2)(s^2+5)}$$

Figure 1

2. (5pts) Use adjoint circuit to calculate the sensitivity of the function $h(s) = \dfrac{i_{(out)}(s)}{i_{(in)}(s)}$ for the following network with respect to the mutual conductance g_m of the voltage controlled current source.
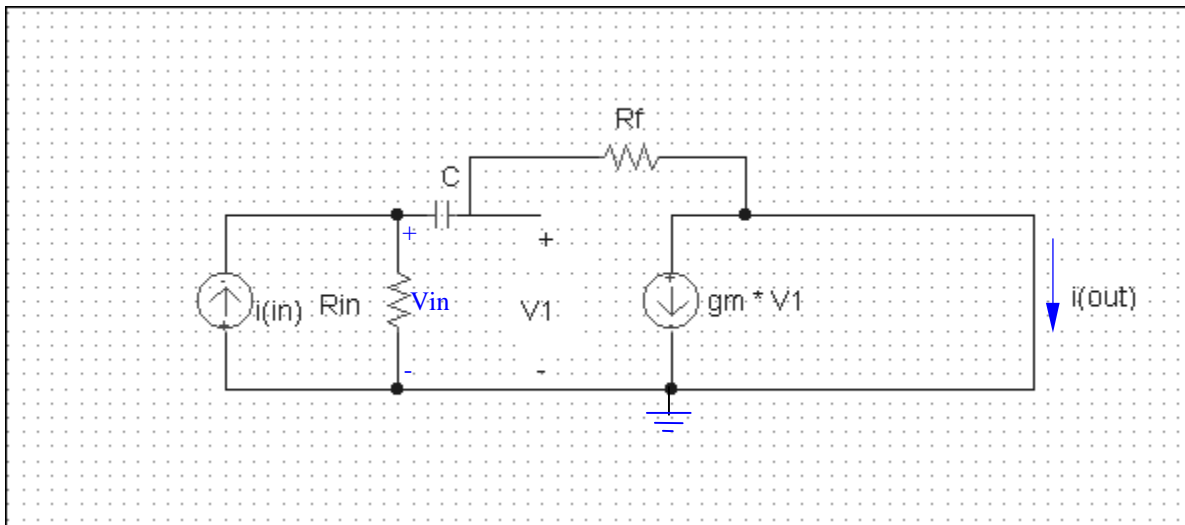

Figure 2