

ECE 580

HOMEWORK 3

Due Nov. 12, 2014

1. Consider the two-port of Problem 2 of the midterm examination. Let $r = R = 50 \Omega$, and assume terminations $R_1 = R_2 = 50 \Omega$.

a. Find the scattering matrix of the circuit.

b. What can you tell about power transmission properties of the terminated two-port?

2. Find the sensitivities of v_o and the input resistance R_{in} to variations of R_1 , R_2 and β . Assume $R_1 = 2 \text{ k}\Omega$, $R_2 = 4 \text{ k}\Omega$ and $\beta = 4$.

