

ECE 580 - HW-3 Solutions

Sol 1: (a) $\frac{V_o}{V_{in}} = \frac{-Y_1 Y_3}{Y_4 Y_2 + Y_3 Y_2 + Y_3 Y_4 + Y_4 Y_1}$

(b) $Y_1 = 1/R = G$
 $Y_3 = sC$
 $Y_2 = sC$
 $Y_4 = 1/R = G$

(c) $\omega_0 = \frac{G}{C}$
 $Q = 0.5$

Sol 2: (a) (a) $\frac{V_o(s)}{V_{in}(s)} = \frac{sC/Gm^2 R}{1 + \frac{sC(1-GmR)}{Gm^2 R}}$

(a) (b) $Gm < \frac{1}{R}$

(b) $\frac{1}{1 + sRC - GmR}$