Joaquin Soles Ecen 214 PRE LAB 9

A) $Q = \frac{\omega_0}{2\alpha}$, $\alpha = \frac{R_1 + R_2}{2R_1R_2C_1}$, $\omega_0 = \sqrt{\frac{1}{R_1C_1R_2C_2}}$ → $\omega_0^2 = \frac{1}{R_1C_1R_2C_2}$

$C_2 = 1nF$ $R_1 = 70k\Omega$

$C_1 = 10nF$ $R_2 = 360k\Omega$

$C_2 = \frac{1}{\omega_0^2 R_1 C_1 R_2}$

$$|G| = \frac{1}{\sqrt{(1-\omega^2R_1C_1R_2C_2)^2 + (\omega R_1C_1R_2C_2)^2}}$$

$$\angle G = \tan^{-1}\left(\frac{\omega R_1C_1R_2C_2}{1-\omega^2R_1C_1R_2C_2}\right)$$

Part B

$$\frac{V_{in} - V_1}{V_{jw}C_1} + \frac{V_{out} - V_1}{V_{jw}C_2} + \frac{V_{out} - V_1}{-R_1} = 0$$

$$\angle G = \tan^{-1}\left(\frac{\omega R_1C_1R_2C_2}{1-\omega^2R_1C_1R_2C_2}\right)$$