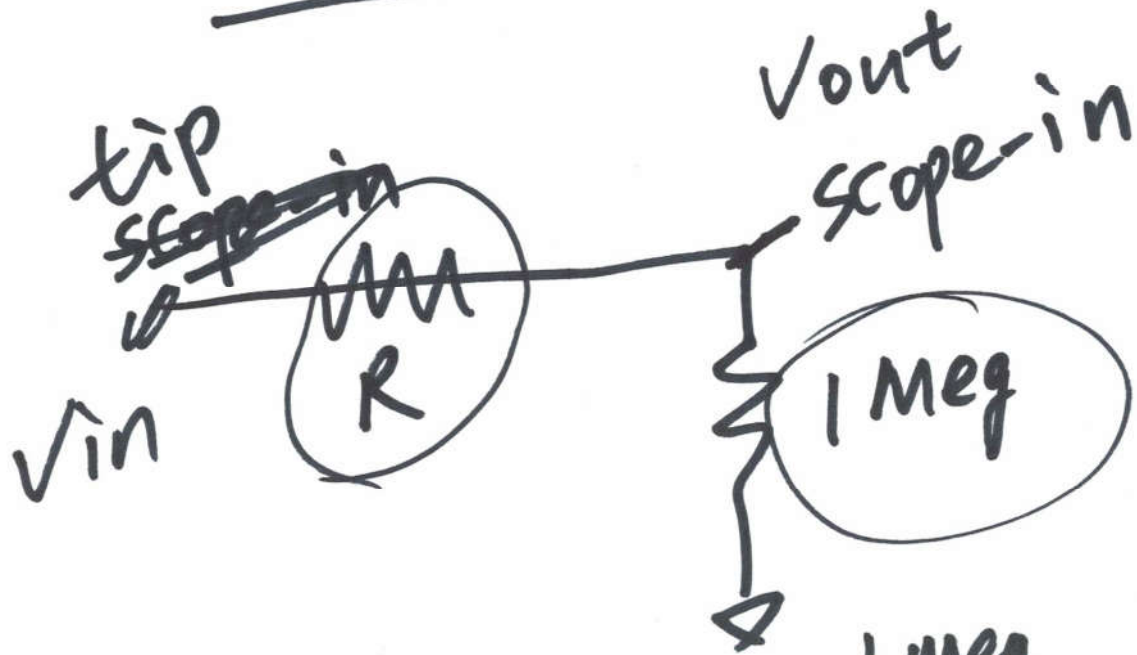


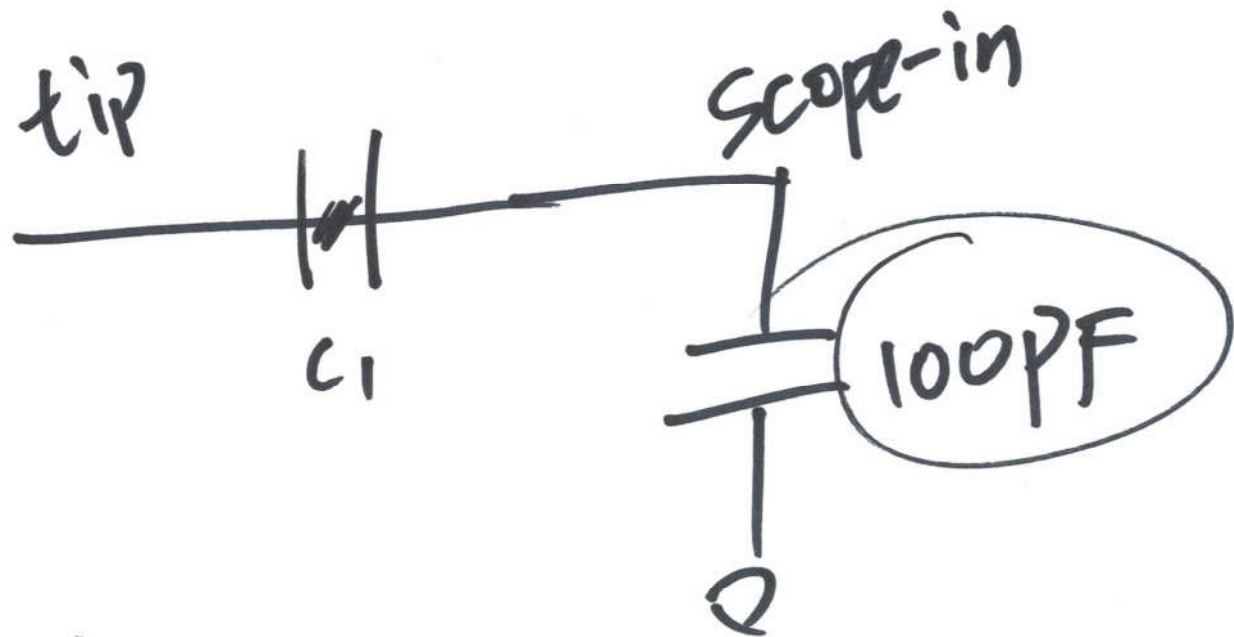
Lab 2



$$\frac{V_{out}}{V_{in}} = \frac{1}{10} = \frac{1\text{ meg}}{R + 1\text{ meg}}$$

$$R = 9\text{ M}\Omega$$

①



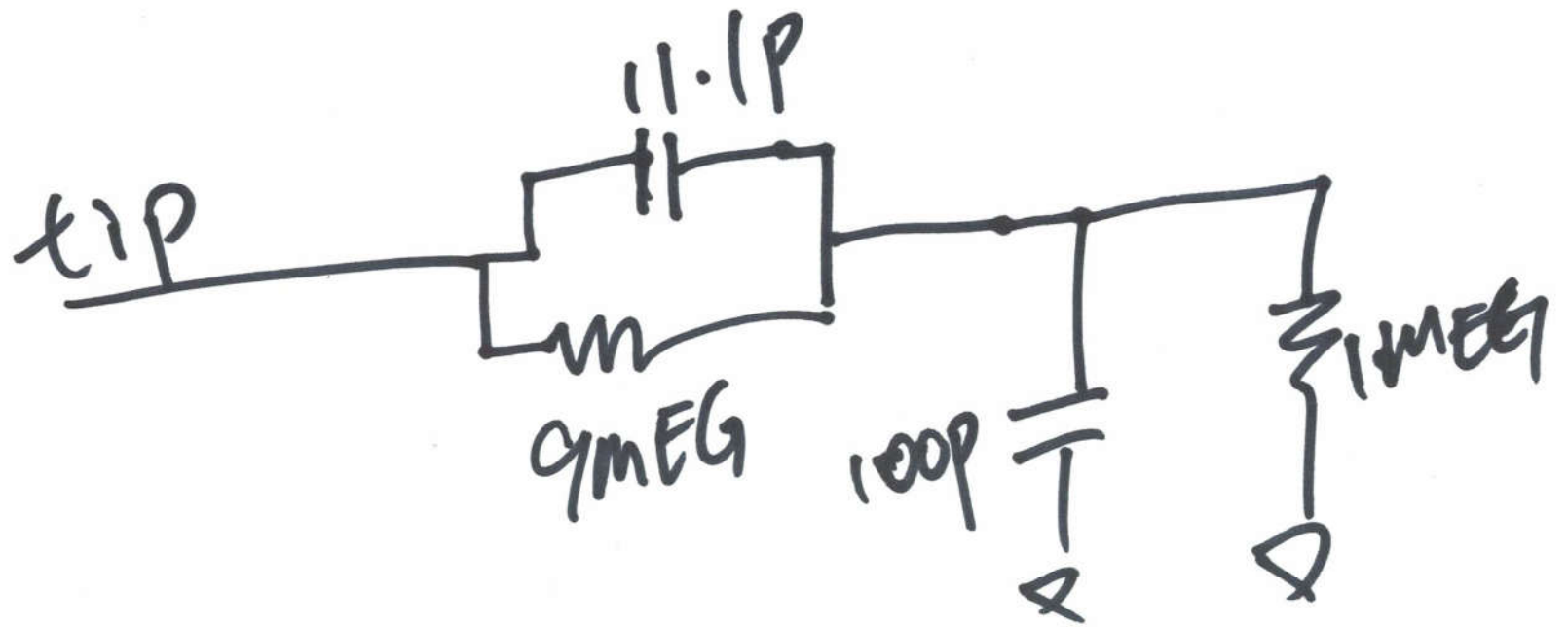
$$\frac{V_o}{V_{in}} = \frac{\frac{1}{j\omega 100p}}{\frac{1}{j\omega C_1} + \frac{1}{j\omega 100p}} = \frac{C_1}{100p + C_1}$$

$$10C_1 = C_1 + 100p$$

$$9C_1 = 100p$$

$$C_1 = 11.1pF$$

2



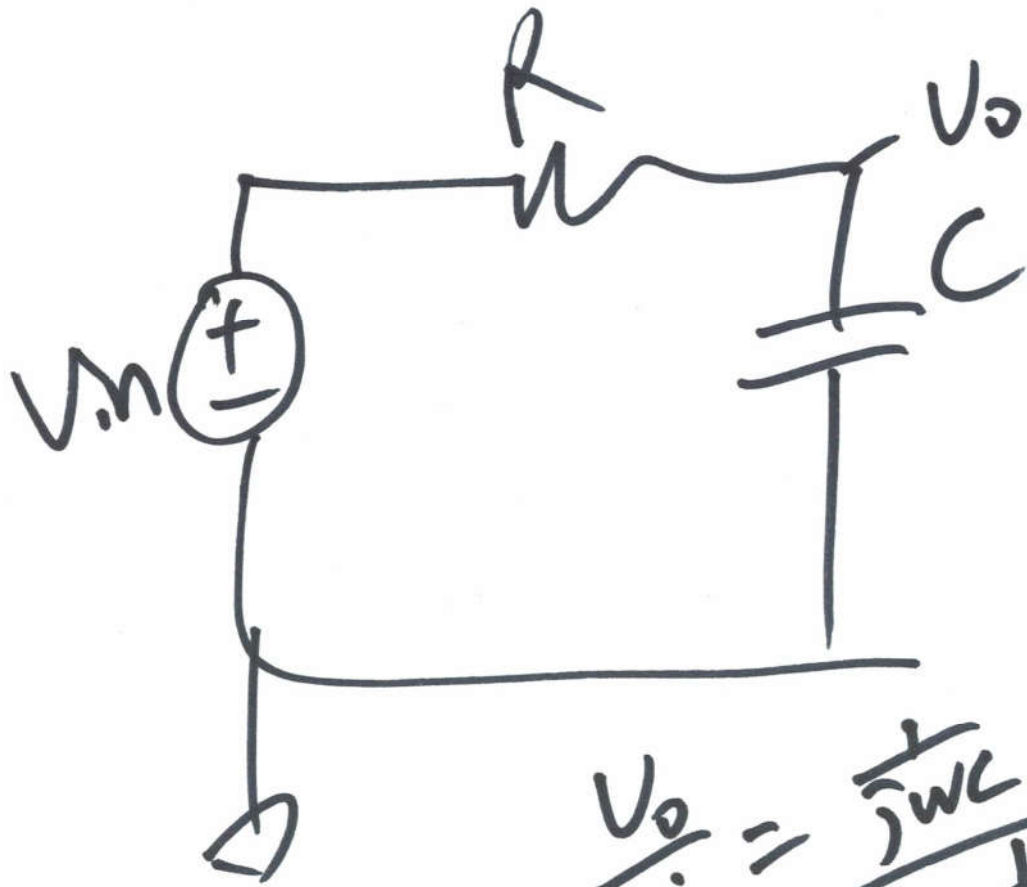
3



NOT 0.7RC

is 0.7RC

④



$$\frac{V_o}{V_i} = \frac{\frac{1}{j\omega C}}{R + \frac{1}{j\omega C}} = \frac{1 + j\omega RC}{1 + j\omega RC}$$

$$\left| \frac{V_o}{V_i} \right| = \frac{\sqrt{1 + \omega^2}}{\sqrt{1 + \omega^2 RC^2}}$$

$$\angle \theta = \angle V_o - \angle V_i = \tan^{-1} 0 - \tan^{-1} \omega RC$$

$$t_d = \frac{\Delta \theta}{360} \cdot T$$

$$T = \frac{1}{f}$$

(5)