

Department of Electrical Engineering and Computer Science  
**ENGR 210. Introduction to Circuits and Instruments (4)**

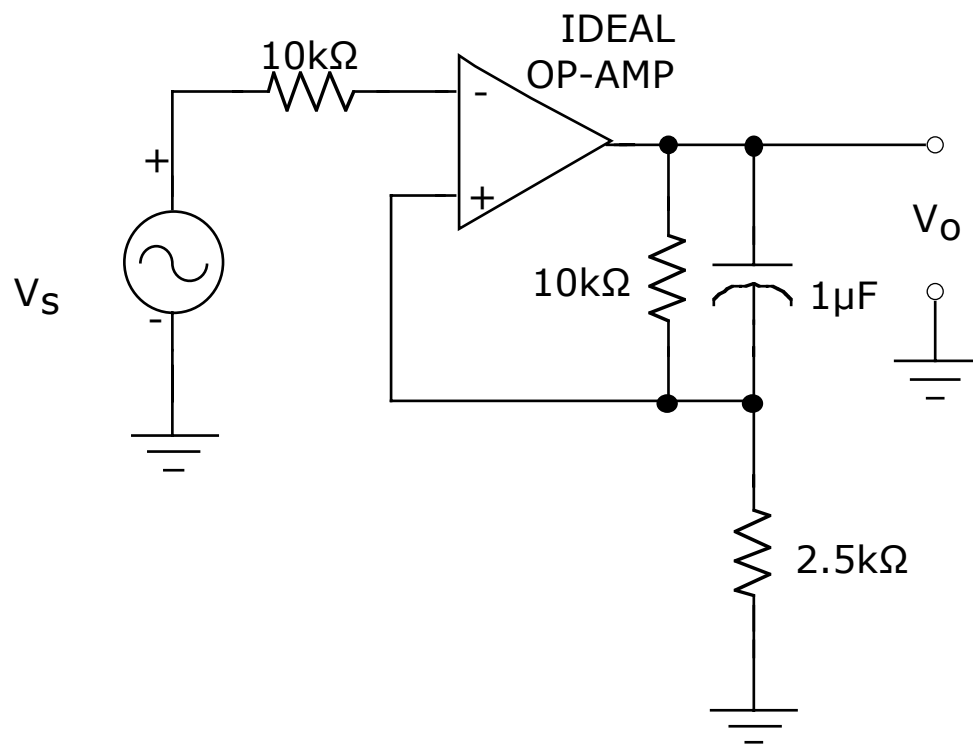
**Quiz No. 12**

**4/16/04**

**PUT ANSWERS IN THE SPACE PROVIDED AND, IF APPROPRIATE, SHOW YOUR WORK. BE SURE TO STATE ANY ASSUMPTIONS**

**Problem 1 Op Amp with Phasors (10 points)**

Determine the transfer function  $T(j\omega) = \frac{V_o(j\omega)}{V_s(j\omega)}$  of the following OP AMP circuit.



Name : \_\_\_\_\_ Section: \_\_\_\_\_ CWRU e-mail: \_\_\_\_\_

**Problem 2 Frequency dependent transfer functions** (10 points)

(a) Using the chart below plot the frequency dependence of  $20\log_{10}\left|j\frac{\omega}{2000}\right|$

(b) Using the chart below plot the frequency dependence of  $-20\log_{10}\left|1+j\frac{\omega}{2000}\right|$

(c) If the expressions of (a) and (b) are added together what type of filter does this represent? Sketch this frequency response on the plot below.

