Course: ECE 53a
Quiz #2
Instructor: Pamela Cosman
Date: 2/21/07

Name: _____

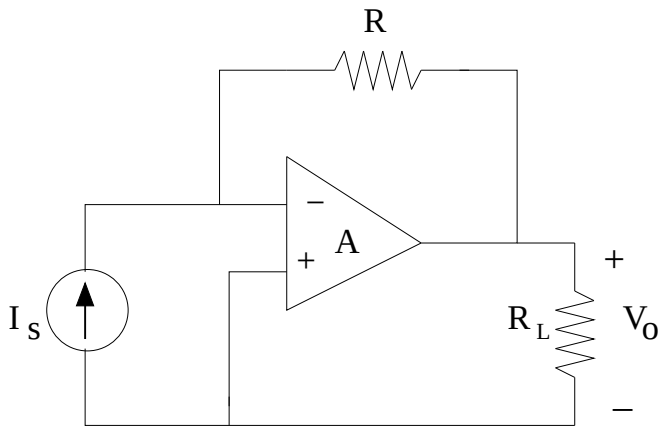
There are 3 problems.
The first two problems are worth 12 points each. The last problem is worth 16 points.

Problem	Possible	Score
1	12	
2	12	
3	16	
Total	40	

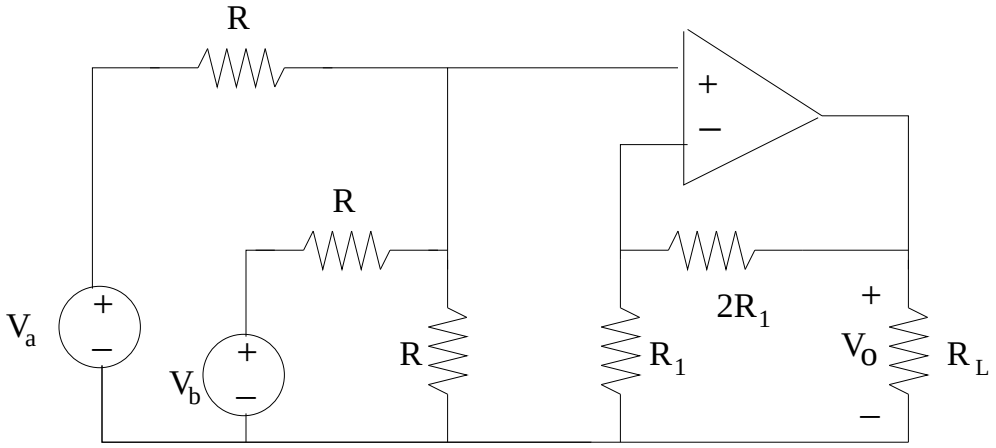
This quiz is CLOSED BOOK, NO CALCULATORS ALLOWED.
You may use one page of notes, 8.5 by 11, both sides, written by you.

You need to show your work for all problems.

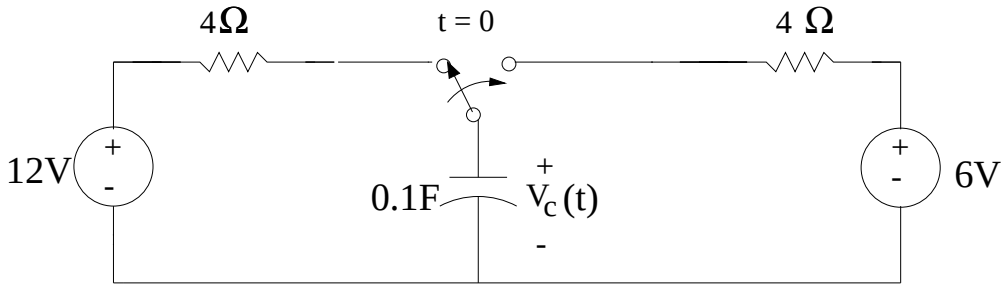
Problem 1: The following circuit is a current-to-voltage converter. The amplifier has a finite gain A = 100. Select the resistance R so that the output voltage V_o has a magnitude of 0.1 V per μA of input current I_s.



Problem 2: Determine the output voltage V_o for the following circuit, in terms of the input voltages V_a and V_b and the resistor values R and R_1. Assume the amplifier is an ideal op amp.



Problem 3:
For the following circuit, assume that the switch is to the left since $t = -\infty$.
(a) Suppose the switch switches over to the right at $t = 0$. Find the voltage across the capacitor, $V_C(t)$, for all t.



(b) Suppose the switch, after having moved over to the right at $t = 0$, were to go back to the left at $t = 0.2s$. Find an expression for the voltage across the capacitor, $V_C(t)$, for $t > 0.2s$.