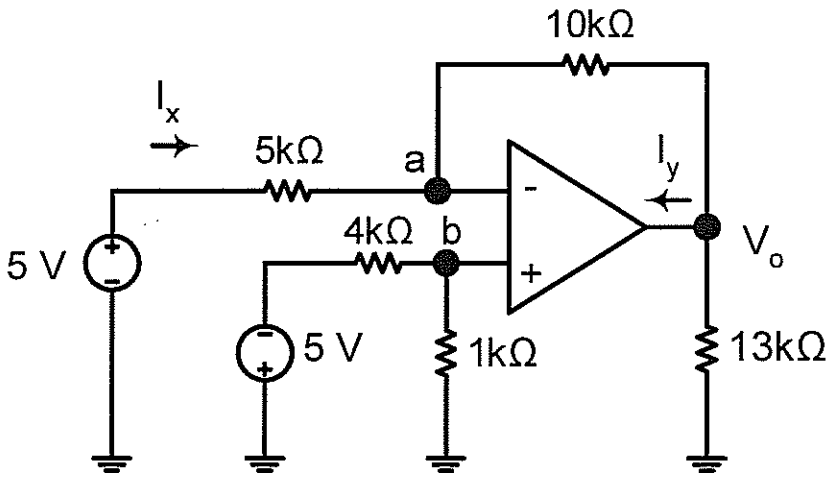
Last Name, First Name *Student No.*

University of Toronto
Department of Electrical & Computer Engineering
ECE110S – Electrical Fundamentals
Quiz 3 – March 14, 2007, 4:30-5:00 PM

Instructions: Non-programmable calculators allowed. No other aids. Answer in the space provided on these sheets. The back sides of these sheets can be used as well. For full marks (20) you must show methods, state UNITS and compute numerical answers when requested. **Please write in PEN, not pencil.**

1. **[8 marks]** Consider the circuit shown below with an ideal op-amp. Determine the following variables using KVL, KCL and Ohm's law:

(a) Voltage at node *b*. **(1 marks)**
(b) Voltage at node *a* and Current I_x. **(2 marks)**
(c) Voltage V_o. **(2 marks)**
(d) Current I_y. **(3 marks)**



2. **[12 marks]** Consider the circuit shown below:

(a) Find a Thevenin equivalent circuit of the circuit in the DASHED LINE BOX. **(6 marks)**

(b) Find R_L for maximum power transfer and the maximum power that can be transferred to the load R_L. **(4 marks)**

(c) If R_L=200Ω, calculate the load current I_L and power transferred to the load. **(2 marks)**