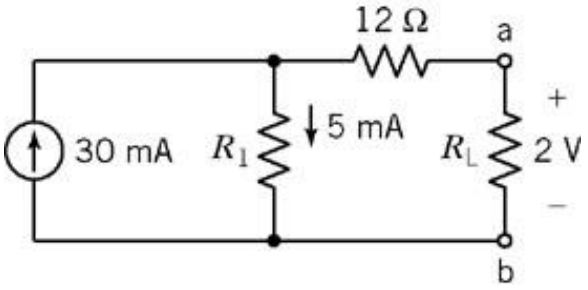
ELG 2138 Fall 2008 Midterm Exam

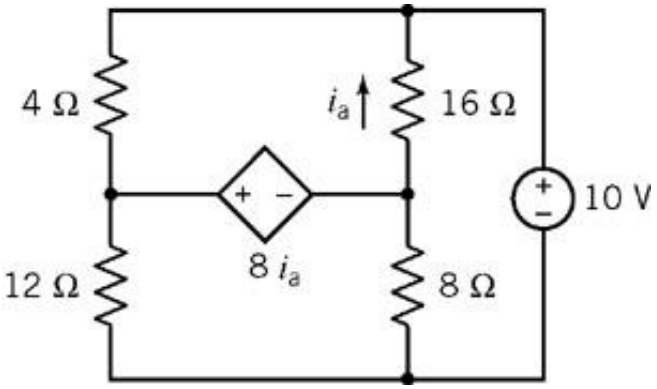
Student Name: _____ **Student ID# : _____**

Student Signature: _____ **Only basic scientific calculators allowed**

P.1 (25%)
Determine the values of R_1 and R_L in the following circuit:

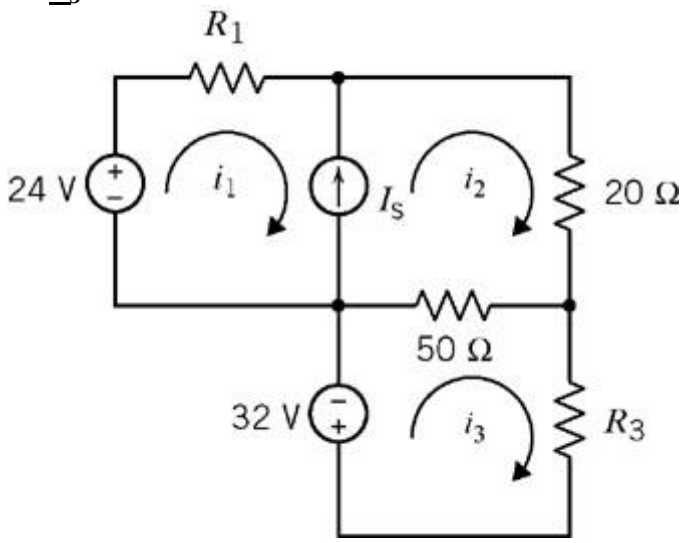


P.2 (25%)
Using *Node Voltage Analysis*, determine the value of the power supplied by the *dependent* source in the following circuit:



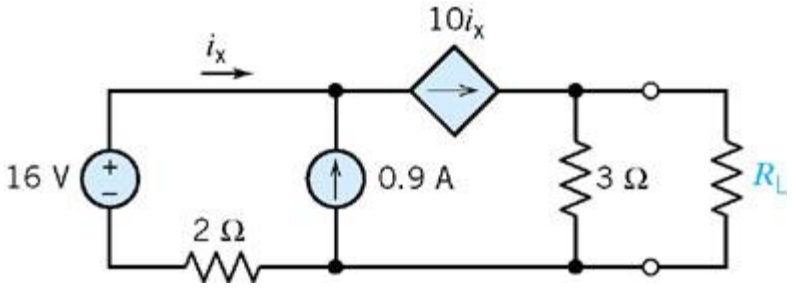
P.3 (25%)

The values of the mesh currents in the circuit below are i_1 = -2.2213A, i_2 = 0.7787A, and i_3 = 0.077A. Using *Mesh Current Analysis*, determine the values of the resistances R_1 and R_3.



P.4 (25%)

In the following circuit, find the maximum power to the load R_L, if the maximum power transfer condition is met:



P.5 (5%)
What is a typical value for the internal resistance of a laboratory voltmeter? Why is it designed with this value of internal resistance? (Explain your answer in one or two sentences)