CASE WESTERN RESERVE UNIVERSITY
Case School of Engineering
Department of Electrical Engineering and Computer Science

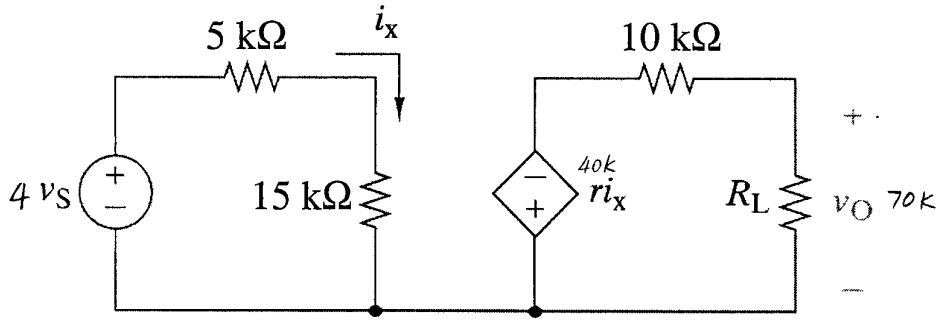
ENGR 210. Introduction to Circuits and Instruments (4)

Quiz No. 5 10/03/03

Name (*Section*): Solutions

PUT ANSWERS IN THE SPACE PROVIDED AND SHOW YOUR WORK

Problem 1 (10 points)
Calculate i_X, v_O, and p_O (the power dissipated by R_L) given
v_S = 4 V, r = 40 kΩ, and R_L = 70 kΩ. Complete the table.



VARIABLE	VALUE FOR V_S = 4 V, R = 40 KΩ, AND R_L = 70 KΩ
i_X	0.2 mA
v_O	−7 V
p_O	0.7 mW

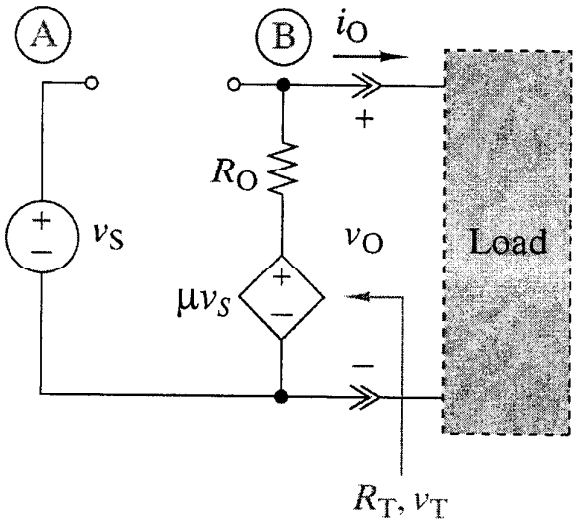
Given v_S and r as above, choose the value of R_L that give maximum p_O, and calculate this value of p_O. Complete the table.

VARIABLE	VALUE FOR MAXIMUM POWER
R_L	10 kΩ
p_O	1.6 mW

(over)

Problem 2 (10 points)

Find the Thevenin and Norton equivalent circuit parameters for interface v_O in this circuit. Complete the table.



ELEMENT	VALUE
v_T	μv_S
R_T	R_o
i_N	$\frac{\mu v_S}{R_o}$
R_N	R_o

(over)