Ryerson University

Department of Electrical, Computer, & Biomedical Engineering
Faculty of Engineering & Architectural Science

ELE 202
Electric Circuit Analysis
LAB COVER PAGE for Part II submission.

Lab #:	4	Lab Title:	Circuit Theorems & Superposition Principle

Last Name:	Ahamad
First Name:	Sayeed

Student #*:	09136
***Signature*:**	

(* Note: remove the first 4 digits from your student ID)

Section #:	11
Submission date and time:	9/4/2023 - 17:00
Due date and time:	9/4/2023 - 17:00

Document submission for Part II:

- A completed and signed "COVER PAGE – **Part II**" has to be included with your submission, a copy of which is available on D2L. The report will not be graded if the signed cover page is not included.
- Scan your completed pages of **Section 5.0** and **Section 6.0** (via a scanner or phone images), together with any required In-Lab Oscilloscope screen-shot images.
- Collate and create a .pdf or .docx file of the above, and upload it via D2L **by 11.59 p.m. on the same day** your lab is scheduled. ***Late submissions will not be graded.***

**By signing above, you attest that you have contributed to this submission and confirm that all work you have contributed to this submission is your own work. Any suspicion of copying or plagiarism in this work will result in an investigation of Academic Misconduct and may result in a "0" on the work, an "F" in the course, or possibly more severe penalties, as well as a Disciplinary Notice on your academic record under the Student Code of Academic Conduct, which can be found online at: www.ryerson.ca/senate/current/pol60.pdf.*

In lab

	V_{OC}	I_{SC}	$V_{Th} = V_{OC}$	$R_{Th} = V_{OC}/I_{SC}$
E	Measured Result **(volts)**	Measured Value **(mA)**	**(volts)**	**(kΩ)**
10 (volts)	8.37	2.06	8.37	4.06

Input Source, **E**	Thevenin voltage, V_{TH} (volts)	Measured load voltage, V_L (volts)	Load resistance R_L per resultant potentiometer, R_P reading. (kΩ)
	From Pre-Lab	Measured Result	Measured Result
10 (volts)	8.361	4.468	4.18

V_X (volts)	I_X (mA)	V_{X1} (volts)	I_{X1} (mA)	V_{X2} (volts)	I_{X2} (mA)	$V_X = V_{X1} + V_{X2}$	$I_X = I_{X1} + I_{X2}$
Measured Result	Measured Result	Measured Result	Measured Result	Measured Result	Measured Result	From measured results	From measured results
2.65	1.32	3.60	1.85	-0.96	-0.49	2.64	1.36

Table 7.0: Experimental results from the Figure 3.0 related circuit.

Post lab

Date: _____

Post - lab

6.0

a) The measurements are similar for example pre lab V_{th} was calculated at "8.31" V while the measured V_{th} was "8.37". There is a little variation due to resistance between the apparatus, or the frictional forces which are accounted in experiments.

ii) Yes! the concept of V_{th} was verified as the experiment generated the same results as multisim readings and theory calculations.

b) ~~There was a mistake in calculating~~ Multisim circuit was not constructed properly which resulted in $V_L = 8.36$. This value should have been 4.15 V as seen in the experiment and table 6.0. The ~~was~~ value was a little above the expected value which might have been due to apparatus not fixed properly or due to frictional forces.

ii) Yes! the experiment verified the ~~concept~~ maximum power transfer theorem.

c) $V_x = V_{x_1} + V_{x_2}$ and $I_x = I_{x_1} + I_{x_2}$, these equations were satisfied. There was difference between the readings with ± 0.01 uncertainty.

The readings are almost identical, just that environmental conditions of experiment led to the experimental readings to ~~little different~~ differ by ±0.02.