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"ANÁLISIS DE NODOS"

PRACTICE 8

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PRACTICE DEVELOPMENT

Get values from the circuit of Thevenin starting of the figure 1, measure voltage between A and B and charge in R_L, fill the table 1.

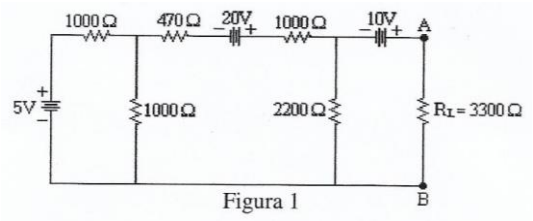


Figura 1

Figure 1

Table 1

Measure	Theoretical Value	Measured Value
I_{RL}	5.04 A	5.02 A
V_{RL}	16.63 V	16.71 V
P_{RL}	83.82 watts	83.88 watts

Turn off voltage fonts, build the circuit and measure.

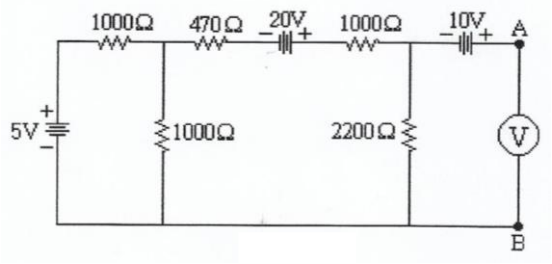


Figure 2

Table 2

Measure	Theoretical Value	Measured Value
I_{RL}	0.021 A	21.37 mA
V_{RL}	21.868 V	22.04 V
P_{RL}	0.459 watts	0.471 watts

Now build a Thevenin circuit as showed in figure 3 and get values required in table 3.

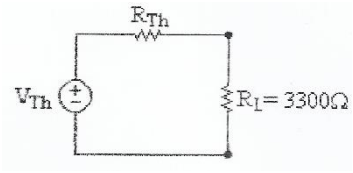


Figure 3

Table 3

Measure	Theoretical Value	Measured Value
I_{RL}	5.038 A	5.01 A
V_{RL}	16.624 V	16.72 V
P_{RL}	83.75 watts	83.7672 watts

It is very similar to table 1, that is the Thevenin Theorem.

QUESTIONARY

WHAT DOES THEVENIN THEOREM SAY?

Any DC bilateral lineal circuit of two terminal could be replaced by a circuit with an electric / voltage font and one resistor in serial form.

WHY DID WE MEASURE OPEN CIRCUIT VOLTAGE AND SHORT CIRCUIT CURRENT BETWEEN A AND B?

Because Thevenin theorem uses superposition theorem, which says we need to do exactly what we did in that exercise to get the value of electric current and voltage in the equivalent circuit.

WHICH VALUES FROM TABLE 2 COULD WE TAKE TO BUILD A CIRCUIT IN NORTON THEOREM?

Electric current and Voltage values.

CONCLUSIONS

CABAÑAS BAXCAJAY JESÚS FRANCISCO

Thevenin theorem allows us to simplify circuits for their analysis, using other circuits theorems and laws, it will take us to an equivalent circuit, that will consist of a voltage supply in series with an impedance so that when connecting an element between the two terminals A and B, the voltage that falls on it and the intensity that passes through it are the same both in the real circuit and in the equivalent. This is dual to Norton theorem.

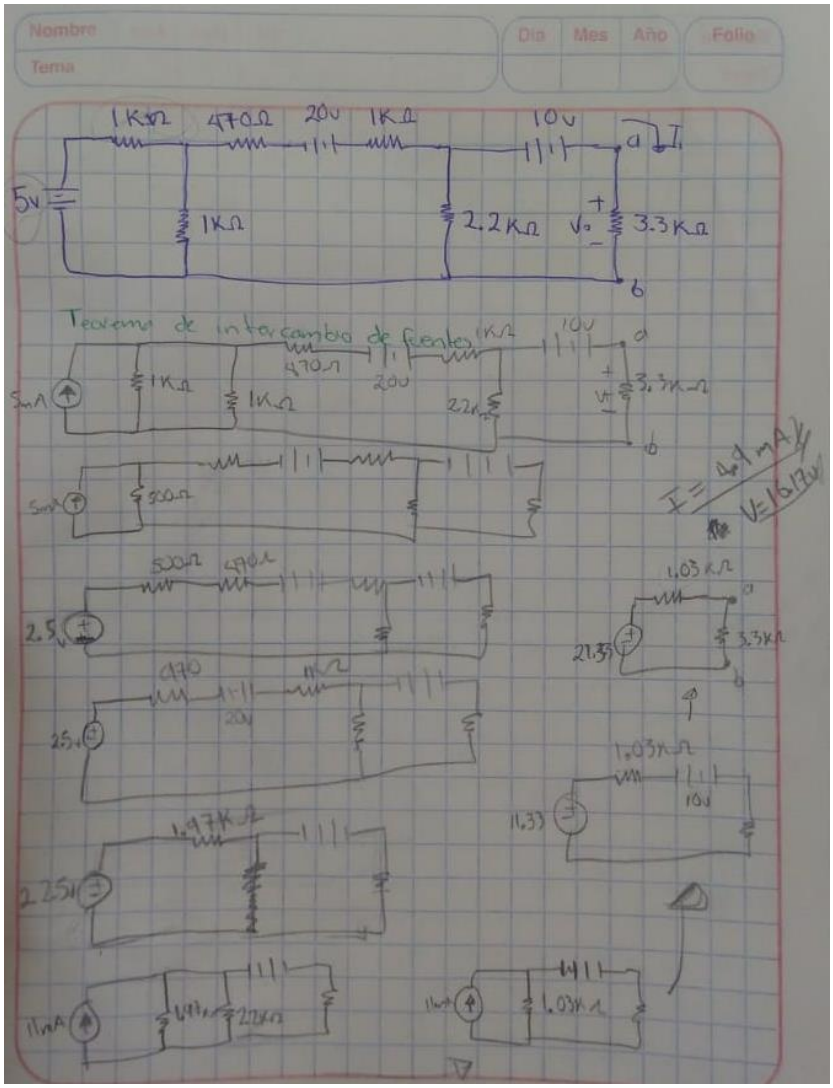
HERNÁNDEZ VELÁZQUEZ ÁNGEL

With Thevenin's Theorem we verify how any circuit where you want to remove an element between a point A and B can be replaced by a resistor and a voltage source. With this we can reduce complex circuits, and in the field professional can save material and space. On the other hand, we also verify that this happens only when searching between two points where there was a resistance.

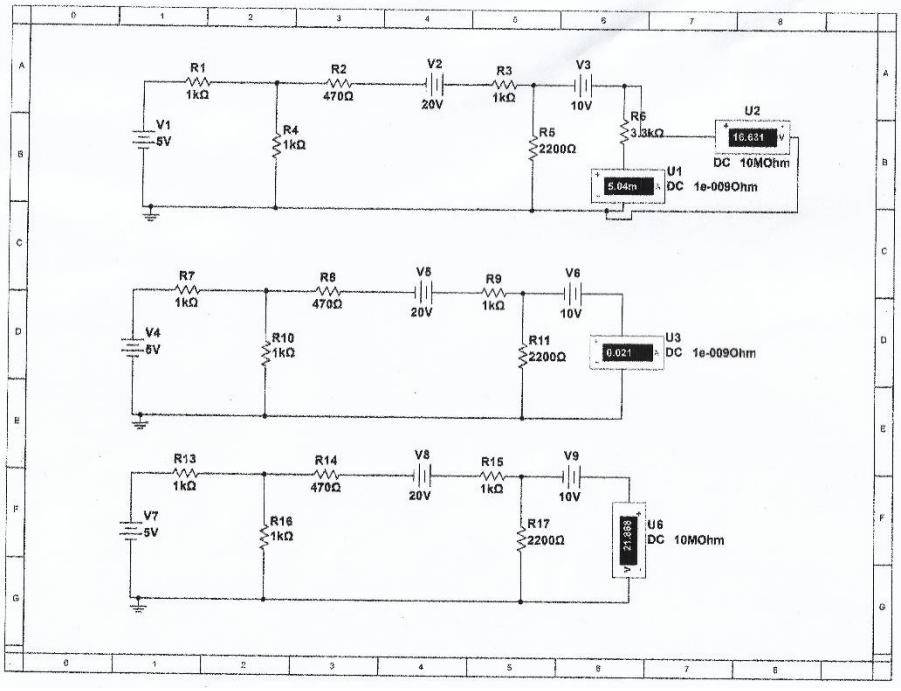
MARTÍNEZ CORONEL BRAYAN YOSAFAT

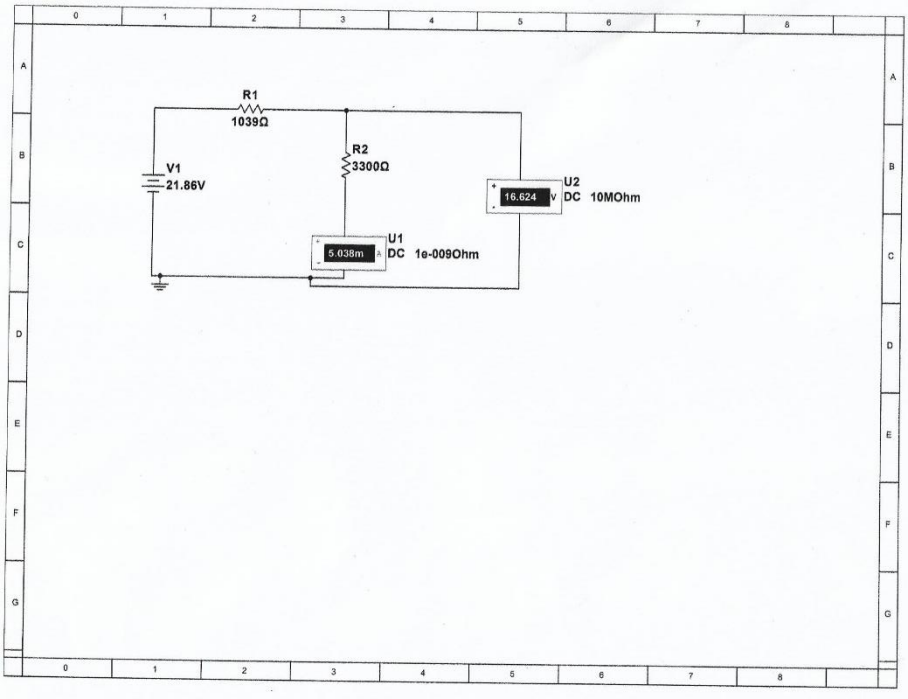
Electronic is a worthy subject, we can do so many things with it. As always mathematics can predict so many things that I am worried about some people hate them, if they just give it a try, they could realize the wonders of the numbers. I know this is a practice of Thevenin Theorem, but I think this is beyond that. We need to teach each other.

CALCULATIONS



SIMULATIONS





INSTITUTO POLITECNICO NACIONAL

ESCUELA SUPERIOR DE CÓMPUTO

LABORATORIO DE ANÁLISIS FUNDAMENTAL DE CIRCUITOS

ANÁLISIS FUNDAMENTAL DE CIRCUITOS

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COMENTARIOS: