University of Jordan
School of Engineering
Electrical Engineering Department

EE 219
Electrical Circuits Lab

EXPERIMENT 2 REPORT & PRE-LAB
RESISTORS AND DC CIRCUITS

Group # _____

	Student Name	ID
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EXPERIMENT 2
RESISTORS AND DC CIRCUITS

PROCEDURE A – RESISTORS

Table 1

	R_1	R_2	R_3	R_{series}	$R_{parallel}$
Nominal Value	1600Ω	1200Ω	1000Ω		
Color Code					
Tolerance (%)					
Measured Value					
Deviation (%)					

3. Does the deviation you calculated reside within the tolerance declared by the color code?

. . . . . .

5. Now connect the three resistors in parallel on the breadboard, and measure the equivalent resistance $R_{parallel}$. Record the nominal, measured and deviation values in Table 1. What is the equation you used to calculate $R_{parallel}$?

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6. Are the series and parallel equivalent resistances close to the measured values or not?

. . . . . .

7. Try to identify the power ratings of each of the three resistors. State them here:

. . . . . .

PROCEDURE B - VOLTAGE AND CURRENT DIVISION

3. Use theoretical analysis to determine the expected current I and record it in Table 2. What equation did you use?

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4. What is the voltage divider equation for the voltage across R_1?

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Table 2

I Theory (mA)	I point a (mA)	I point b (mA)	I point c (mA)

Table 3

	V_{ab} (V)	V_{bc} (V)	V_{ce} (V)	$V_{ab}+V_{bc}+V_{ce}$	V_S (V)
Theory					**10 V**
Measured					

9. What is the current divider equation for the current in resistor R_1?

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Table 4

	I_1 (mA)	I_2 (mA)	I_3 (mA)	$I_1+ I_2+ I_3$	I (mA)	V_{ae} (V)
Theory						
Measured						

PROCEDURE C – CAPACITORS AND INDUCTORS IN DC CIRCUITS

3. What is the current divider equation for the current in resistor R_1?

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Table 5

	I_1 (mA)	I_2 (mA)	I_3 (mA)	$I_1+ I_2+ I_3$	I (mA)	V_{ae} (V)
Theory						
Measured						

5. Why is the measured current I_1 slightly smaller than the theoretically expected value?

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6. What happens to inductors in DC circuits?

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7. What happens to capacitors in DC circuits?

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PROCEDURE D – NODAL AND MESH ANALYSIS

3. What was the nodal equation you wrote at node *b*?

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Table 6

	V_{ae} (V)	V_{be} (V)	V_{ce} (V)	V_{de} (V)
Theory				
Measured				
Deviation (%)				

5. What was the mesh equation you wrote for the *left* mesh?

. . . . . .

Table 7

	I_1 (mA)	I_2 (mA)	I_3 (mA)	I_4 (mA)
Theory				
Measured				
Deviation (%)				

CONCLUSIONS

Summarize in clear but concise format what you learned from this experiment:

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