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7.VERIFICATION OF KIRCHOFF's LAW (DC circuits)

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STEP 01: I. To verify KVL, TABLE 01 : For V = 2V

Let us choose, R1 = 100 Ω R2 = 220 Ω R3 = 1000 Ω

For V = 2V, Reff = R1 + R2 + R3 = 1320 Ω

I = V/Reff = 1.5 mA

Theoretical Calculations			Experimentally measured		
V1 = R1I	V2 = R2I	V3 = R3I	V1(V)	V2(V)	V3(V)
0.15	0.34	1.5	0.144	0.316	1.44

Verify V = V1 + V2 + V3 = 2 V

STEP 02: I. To verify KCL, TABLE 02 : For V = 2V

Let us chose, R1 = 100 Ω R2 = 220 Ω R2 = 1K Ω

For V = 2V

1/Reff = (1/R1 + 1/R2 + 1/R3)

I = V/Reff = 31 mA

Theoretical Calculations			Experimentally measured		
I1 = V/R1	I2 = V/R2	I3 = V/R3	I1 (mA)	I2 (mA)	I3 (mA)
20	9.1	2	20.43	9.29	2.05

Verify V = V1 + V2 + V3 = 31 V

STEP 03: To verify KVL and KCL for series-parallel resistive circuit, , TABLE 03 : For V = 2V, experimentally measure the following

I1 (mA)	I2 (mA)	I3 (mA)	V1(V)	V2(V)	V3(V)
7.3	1.32	6.03	0.738	1.31	1.32

Verify I1 = I2 + I3 = 7.3 mA

and V = V1 + V2 = 2.048 V

STEP 04: Results :

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STEP 04: CONCLUSION :

KCL and KVL were verified.