



**VIT**<sup>®</sup>  
**Vellore Institute of Technology**  
(Deemed to be University under section 3 of UGC Act, 1956)

## **BEEE101P Basic Electrical Engineering**

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**Experiment Title: Mesh & Nodal analysis of a given circuit**

**HANDWRITTEN RECORDS TO BE SCANNED AND UPLOADED IN VTOP  
BEFORE DUE DATE**

**Student Name: : \_\_\_\_\_**

Date of experiment

Date of submission



## Mesh & Nodal Analysis of a given Electrical Circuit

Aim/Objective:

1. To perform mesh analysis on a given circuit to obtain branch currents
2. To perform nodal analysis on a given electrical circuit to obtain node voltage

Equipment/Components Required:

S.No	Device	Rating	Quantity
1	Power Supply	0 – 30 V, 10A	1
2	Ammeter	0 – 30 mA	1
3	Voltmeter	0 – 30 V	2
4	Breadboard		1
5	Resistors		1
6	Resistors		1
7	Connecting wires		

Theory: (Mesh & Nodal Analysis)

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Circuit Diagram: (HAND DRAWN FOR HARDWARE)

ELSE PASTE AS BELOW

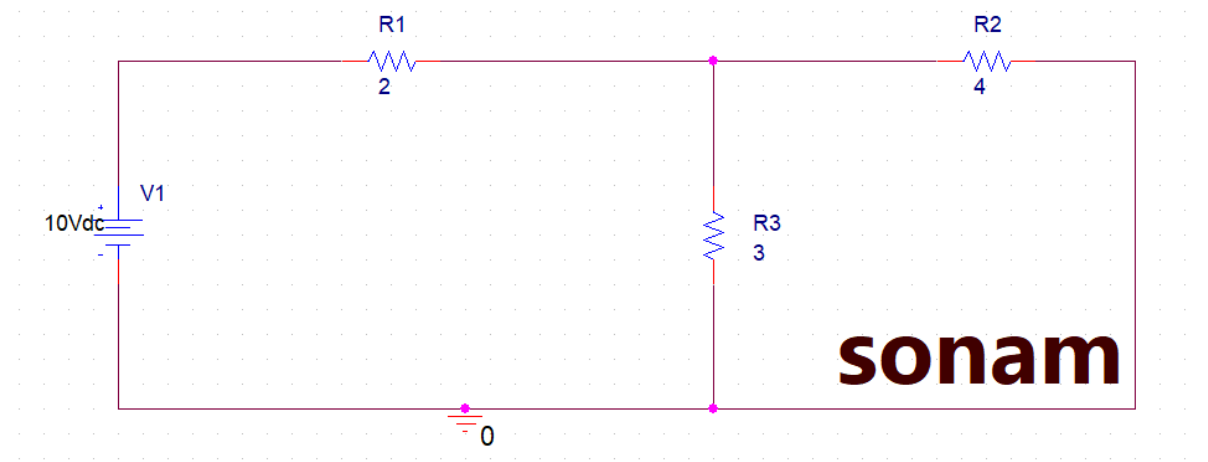


Figure No 1 Electric circuit diagram

Manual/ Theoretical Calculations: HAND WRITTEN

$$V_1 = (i_1 - i_2) \times 2$$

$$10 - 2i_1 - 3(i_1 - i_2) = 0$$

$$10 - 2i_1 - 3i_1 + 3i_2 = 0$$

$$-5i_1 + 3i_2 = -10 \quad \text{--- (1)}$$

$$-4i_2 - 3(i_2 - i_1) = 0$$

$$3i_1 - 7i_2 = 0 \quad \text{--- (2)}$$

$$i_1 = 2.63 \text{ A}$$

$$i_2 = 1.15 \text{ A}$$

Procedure:

Experimental Results:

(All results (PICTURES) related to simulation/ EXPERIMENT must be kept here)

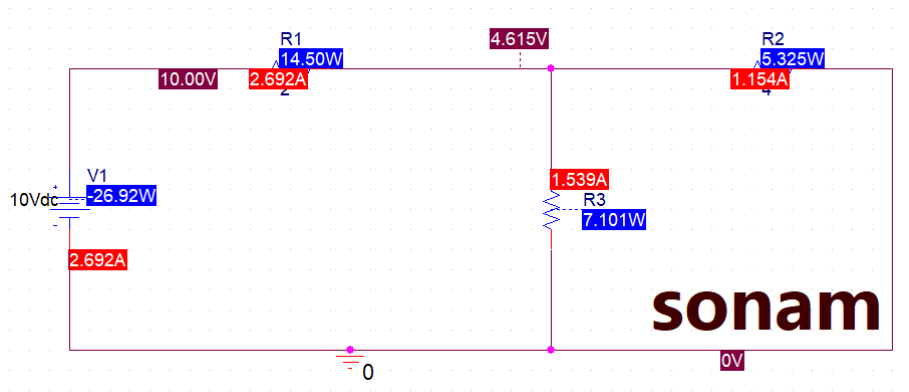


Figure No 2 Electric circuit simulation diagram with results

Observation table:

Table No 1 Analysis of results from the PSPice simulation

Element, $\Omega$	Branch Current, mA	Voltage Drop, Volts	Power, Watts	Remarks
10	370 mA	3.74V	1.32W	
17				
30				

Conclusion: