Experiment NO: 07

Title: DC circuit Analysis in PSpice using source and Resistance Sweep

Circuit Diagram:

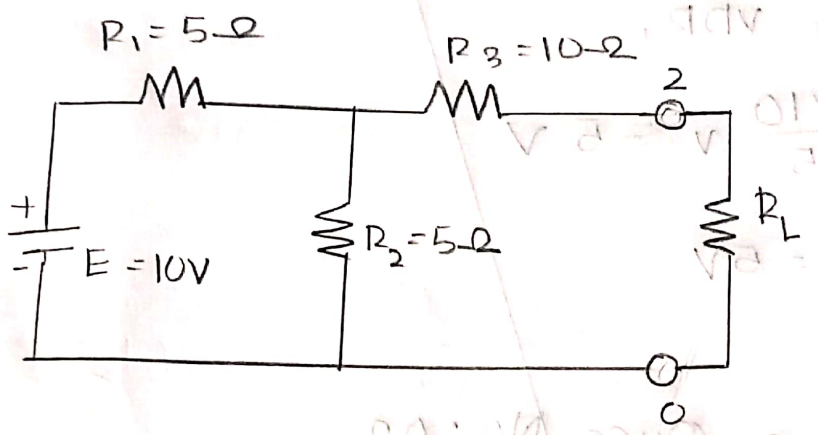
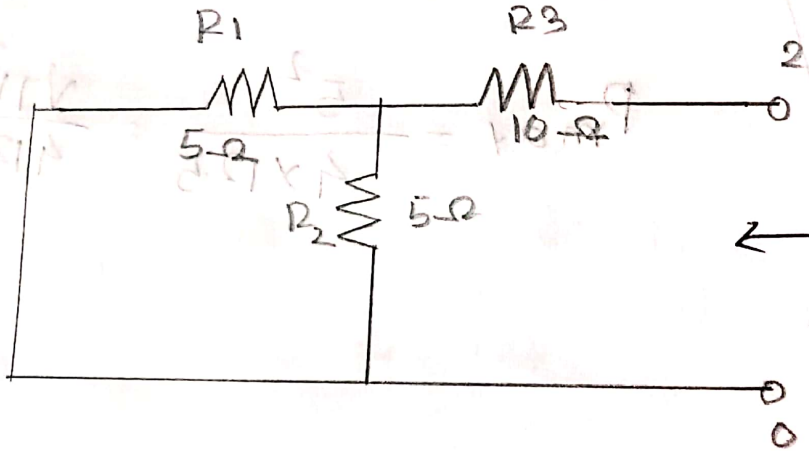


Figure 1 : Example Circuit

Ans to the Ques NO : 01

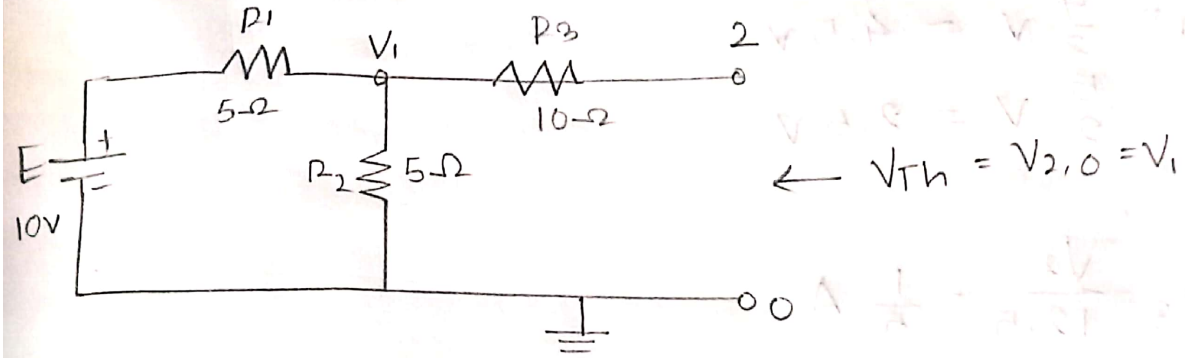


← Req = RTh = RL

$$Req = 10 + (5 \| 5)\Omega = 12.5\Omega$$

$$\therefore R_{Th} = 12.5\Omega$$

Ans to the Ques No : 01

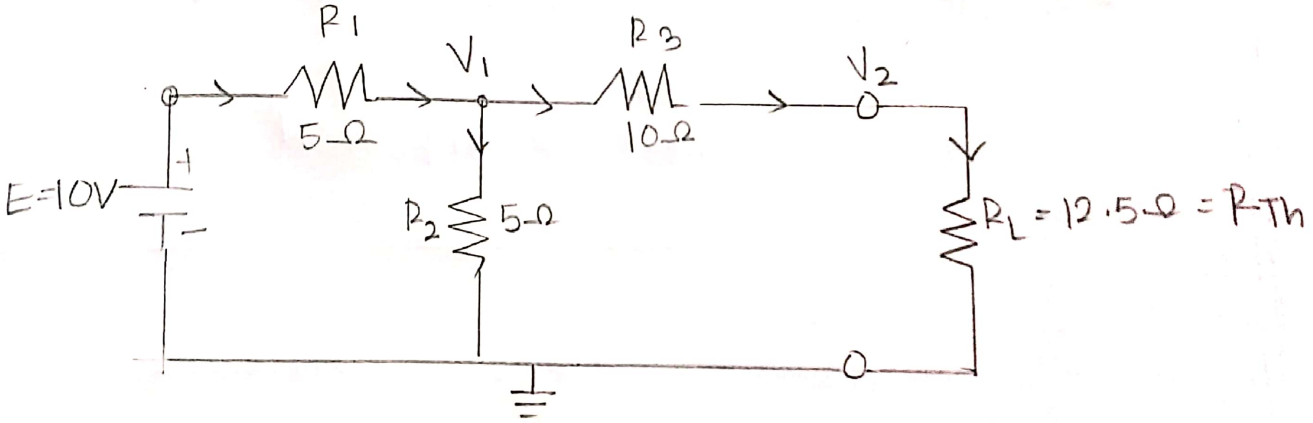


Applying VDR,

$$v_1 = \frac{5 \times 10}{5+5} V = 5\,V$$

$\therefore V_1 = V_{Th} = 5\,V$

Ans to the Ques No : 02



Applying KCL at node 1,

$$\frac{10-V_1}{5} = \frac{V_1}{5} + \frac{V_1-V_2}{10} \quad \text{— a)}$$

Applying KCL at node 2,

$$\frac{V_1-V_2}{10} = \frac{V_2}{12.5} \quad \text{— (1)}$$

Solving equation (i) and (ii),

$$V_1 = \frac{9}{2} V = 4.5\,V$$

$$V_2 = \frac{5}{2} V = 2.5\,V$$

$$I_{R_3} = \frac{V_2}{12.5} = \frac{1}{5}\,A$$

(Ans:)