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Laboratory 5 - Node Voltage and Mesh Current Methods

SPICE Simulation

Problem 1

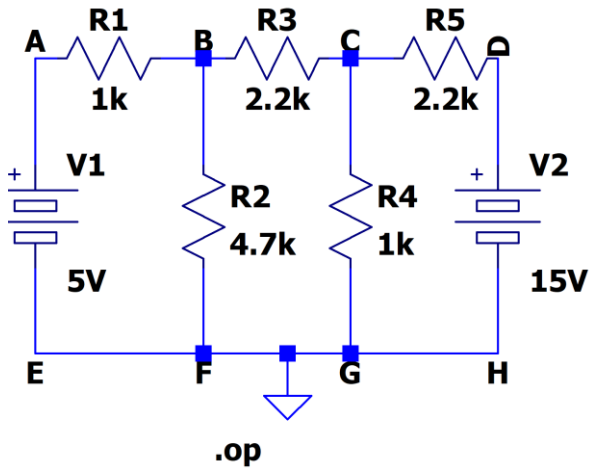


Fig 1a. Circuit Diagram

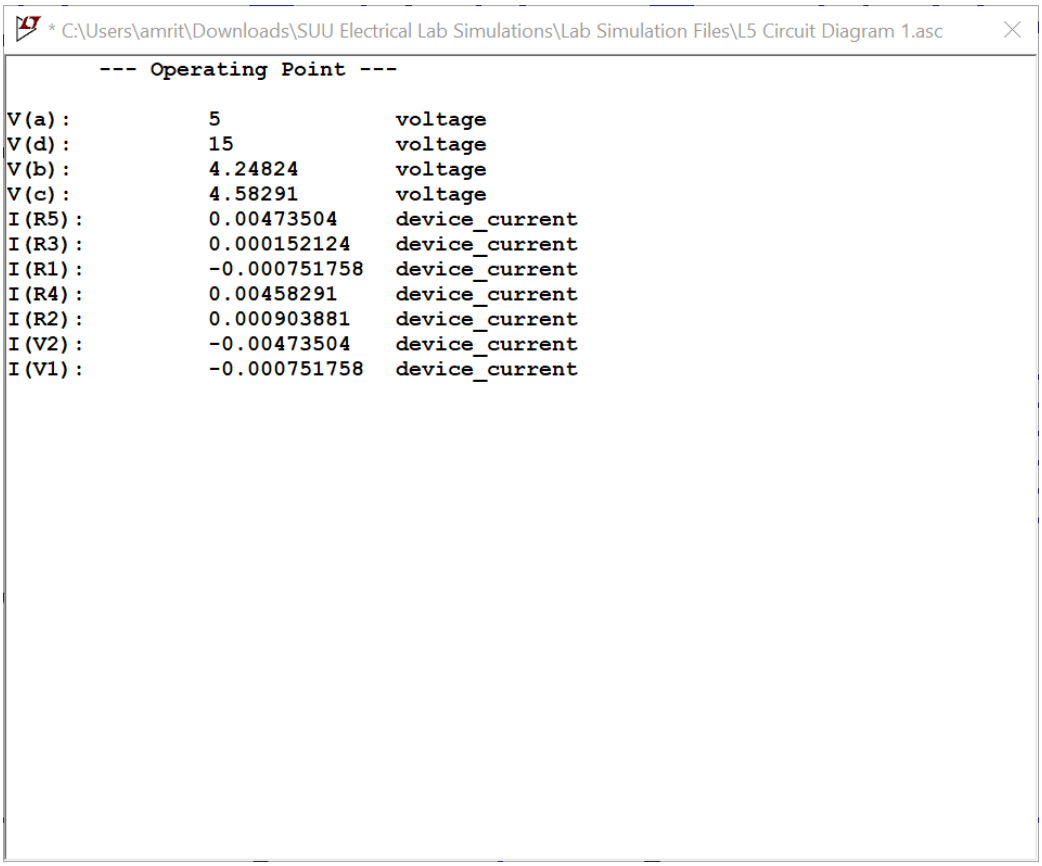


Fig 1b. Operating Points

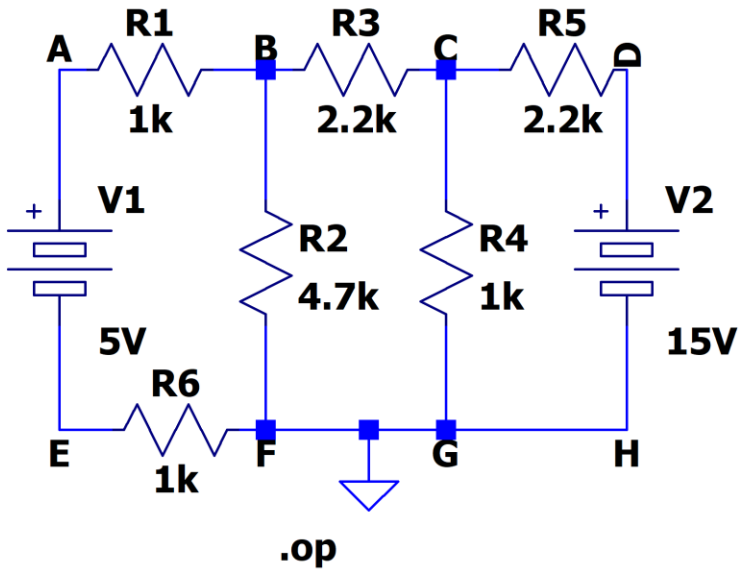
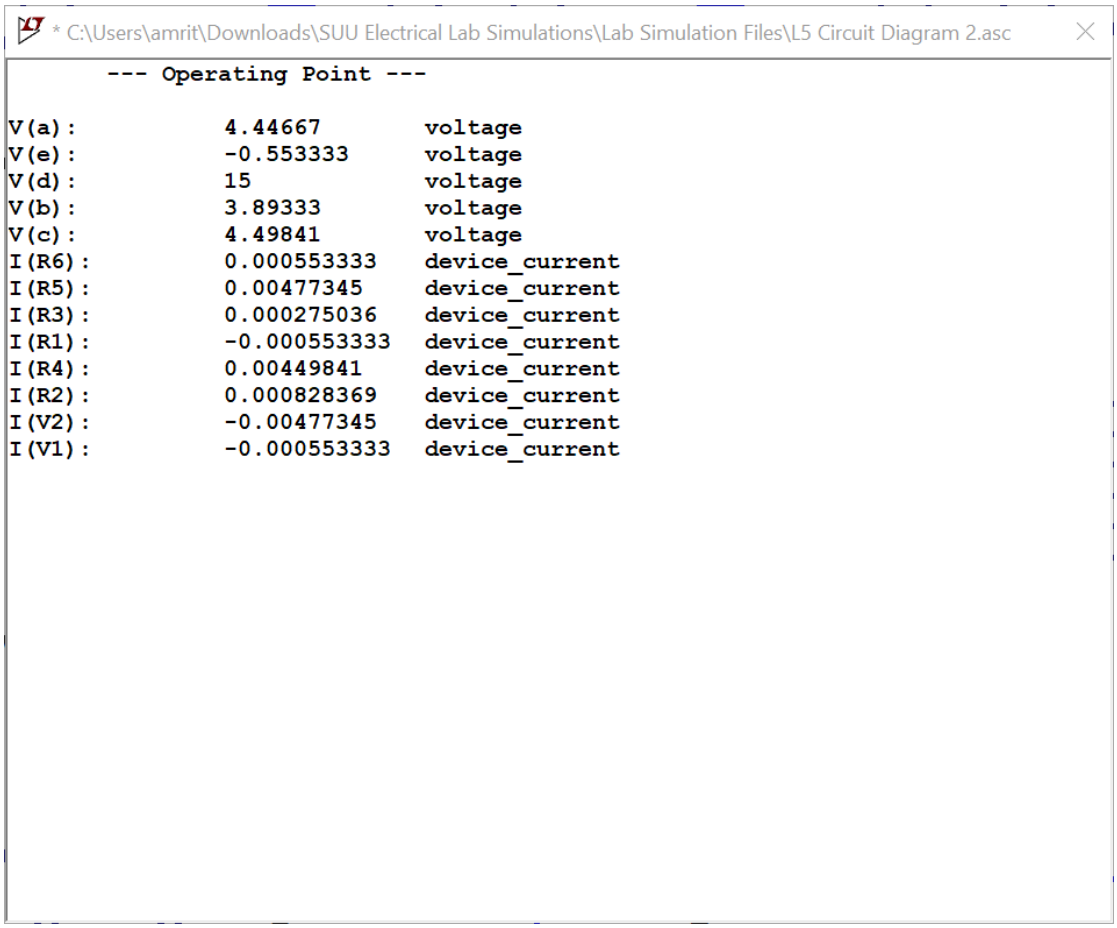


Fig 2a. Circuit Diagram with Resistor between Nodes E & F



* C:\Users\amrit\Downloads\SUU Electrical Lab Simulations\Lab Simulation Files\L5 Circuit Diagram 2.asc

--- Operating Point ---

V(a):	4.44667	voltage
V(e):	-0.553333	voltage
V(d):	15	voltage
V(b):	3.89333	voltage
V(c):	4.49841	voltage
I(R6):	0.000553333	device_current
I(R5):	0.00477345	device_current
I(R3):	0.000275036	device_current
I(R1):	-0.000553333	device_current
I(R4):	0.00449841	device_current
I(R2):	0.000828369	device_current
I(V2):	-0.00477345	device_current
I(V1):	-0.000553333	device_current

Fig 2b. Operating Points

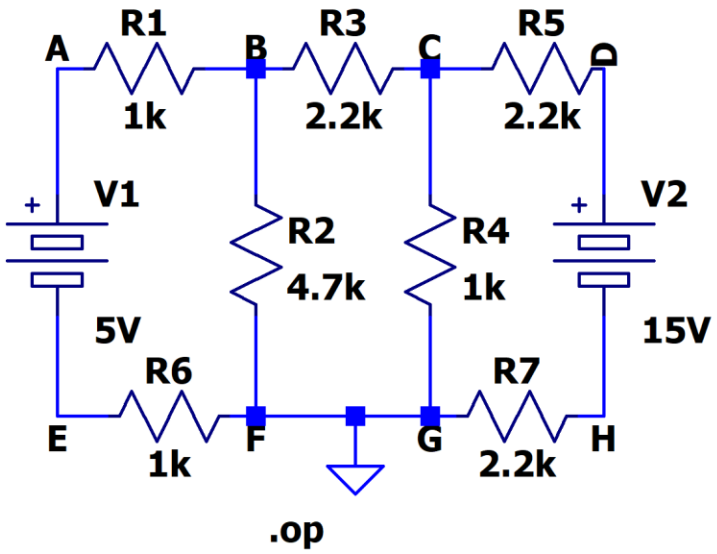


Fig 3a. Circuit Diagram with Resistor between Nodes G & H

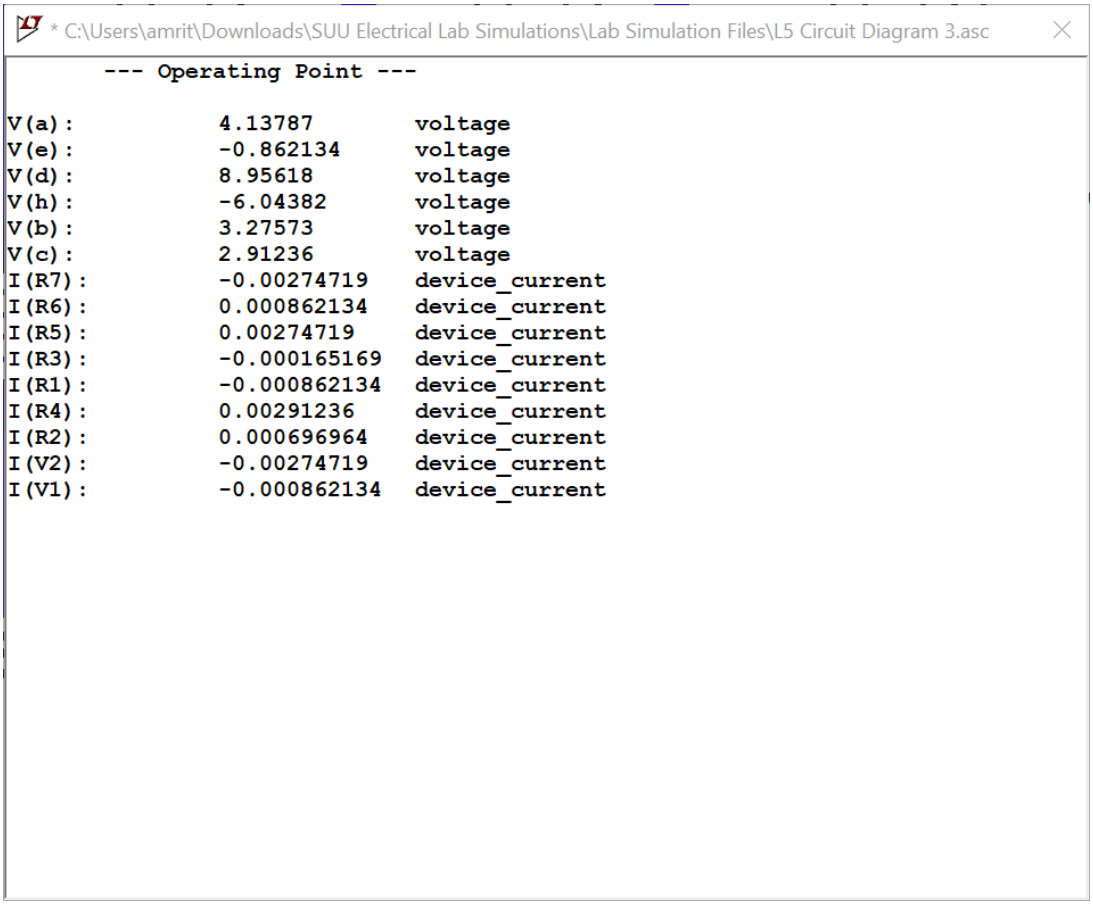


Fig 3b. Operating Points

Both Nodal and Mesh analysis can be applied for all three cases but mesh is easier to solve because it doesn't involve a reference ground voltage. But Nodal is the more practical approach of measurement because the mesh cannot be done in real-time.
