**Lab Report**

Course Name : Electrical Circuits

Course Code : CSE209 LAB

Section No : 04

Experiment N : 04

Experiment name : Bias Point Detail Analysis of DC Circuit With Dependent Sources Using PSpice Schematics.

**Submitted to**

Course instructor : Rashedul Amin Tuhin

Senior lecturer

Computer science and engineering

**Submitted by**

Name: Apurba Roy Ajay

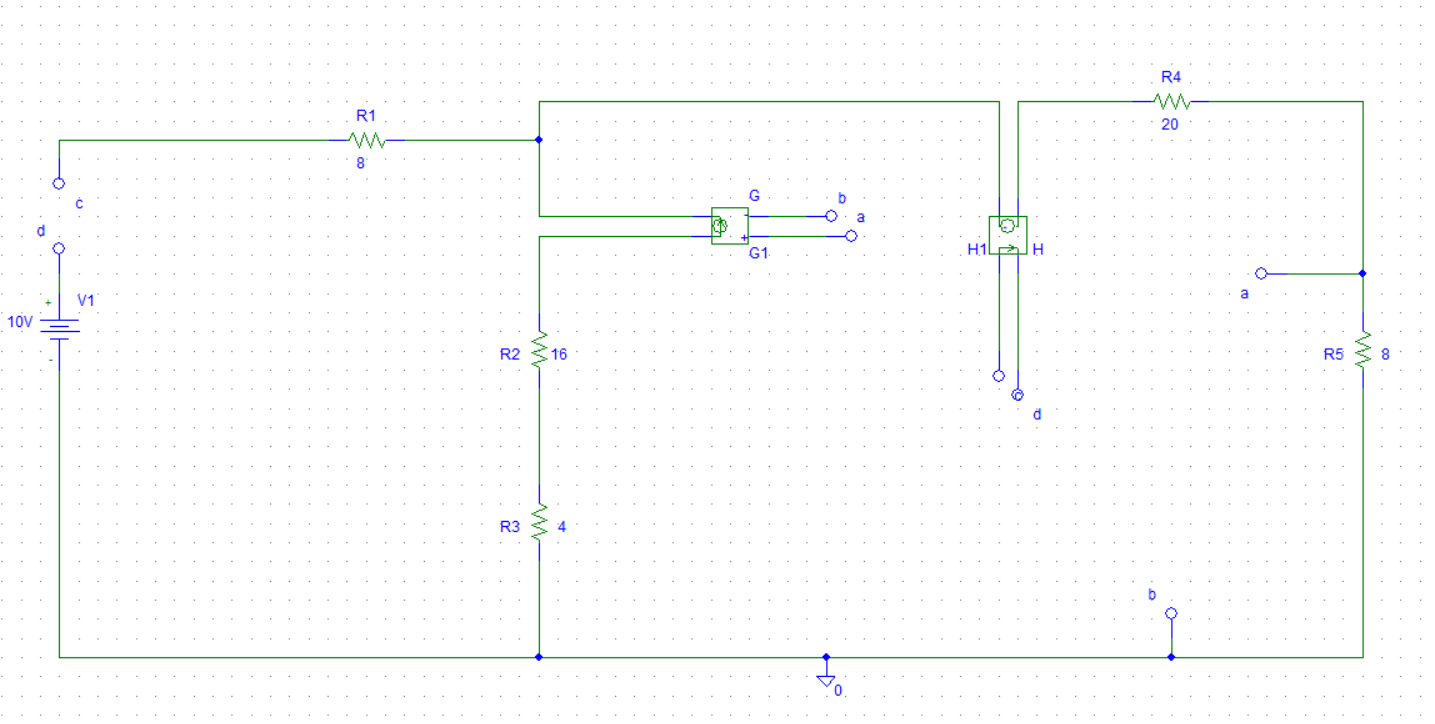
Student’s ID : 2018-3-60-063

Department : Computer science and engineering

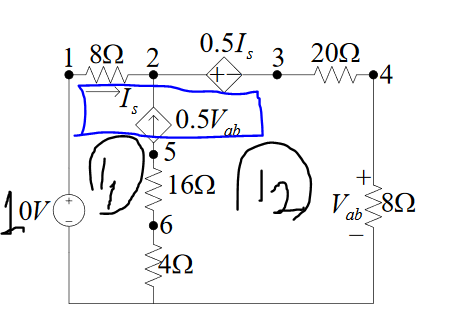
**Date of report submission : /09/2020**

**Objectives:**

1. To analyze Bias Point Detail of DC circuit with Dependent Source using PSpice Schematics.



**Answer(s) to the Post-Lab Report:**



From the figure,

Is = i1

Vab = 8i2

KVL at Super-mesh,  
 -10 + 8 + 0.5 + 20 + 8 = 0  
 -10 + 8 + 0.5 + 20 + 8 = 0 []  
 8.5 + 28 = 10 ----(1)

And,

- = 0.5Vab  
 - = 0.5 8i2 []  
 +3 = 0 ---- (2)

Solving equation (1) and (2), we get,

= -12A, = 4A

So,   
 = – = 4 – (-12) = 4 + 12 = 16A  
Now, Voltage at Node 1,  
 = 10V

Voltage at Node 2,

KCL at Node 2,

- 16 + = 0

- - 16 + - = 0 []

=

= 106V

Voltage at Node 3,

= (4 28) = 112V []

Voltage at Node 4,

= + (4 8) = 32V []

Voltage at Node 5,

= - (16 20) = -320V []

Voltage at Point 6:

= - (16 4) = -64V []

2.

Comparing the theoretical solution of the circuit obtained from above with the solution obtained from PSpice.

|  |  |  |
| --- | --- | --- |
|  | **PSpice** | **Calculated** |
|  | = 12A | = -12A |
| **Currents** | i2 = 4A | i2 = 4A |
|  | i0 = 16A | i0 = 16A |
|  | V1 = 10V | V1 = 10V |
|  | V2=106V | V2=106V |
| **Voltages** | V3=11V | V3=11V |
|  | V4=32V | V4=32V |
|  | V5 = -320V | V5 = -320V |
|  | V6 = -64V | V6 = -64V |

**Conclusion:**We connect this circuit using Pspice software.I think if we could do this same experiment in the lab, the measure value would change a little bit and most importantly we could learn how to connect the circuit for real life.