EAST WEST UNIVERSITY

Department of Computer Science and Engineering

Course Title: Electrical Circuits

Course Number: 209

Semester: 4th

Experiment No.: 04

Experiment Title: Bias Point Detail Analysis of DC Circuit with Dependent Sources Using PSpice Schematics.

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Objectives:

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

Circuit Diagram:

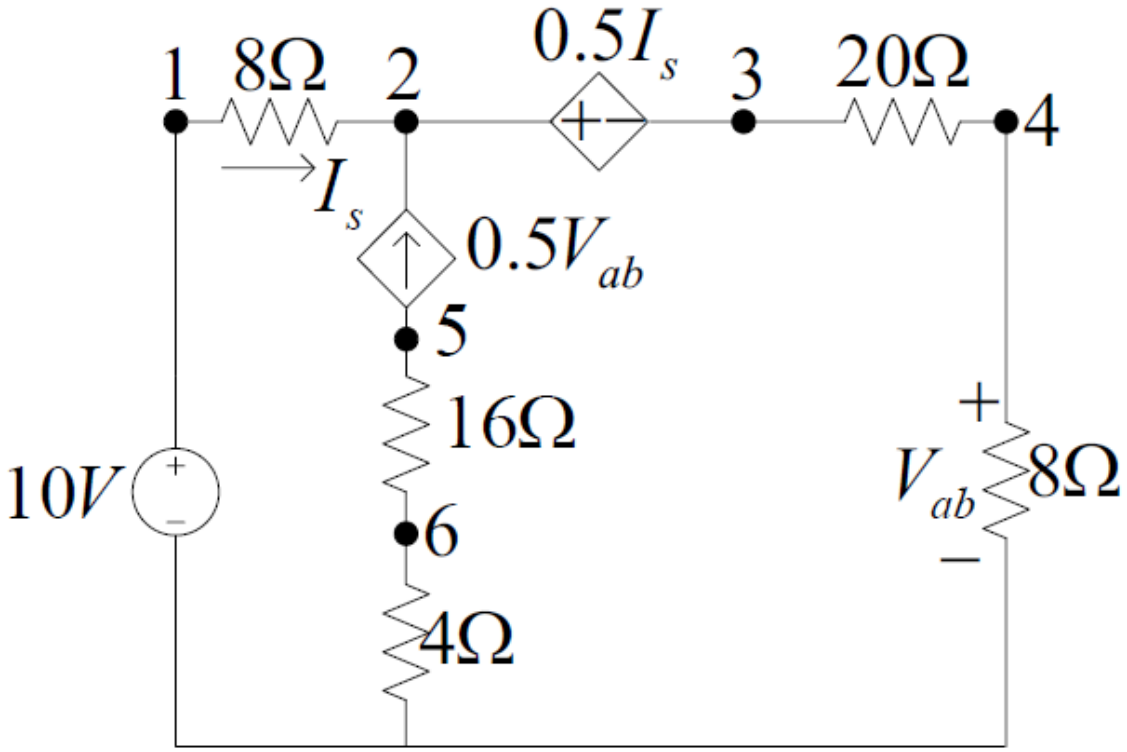

Figure: A circuit with VCCS and CCVS

Answer to the question of post lab report 01:

Applying KCL at node 2,

$i2 - i1 = 0.5Vab$
Or, $i2 - i1 = 4i2$ …… (1)

Applying KVL at SM1,
$10 - 8i1 - 0.5Is - 20i1 - 8i2 = 0$ …….. (2)

Solving equation (1) & (2)

$i1 = -12\ A$

$i2 = 4\ A$

From *i1 & i2*, we can find voltage,

Vab = 8i2 = 32 V
V65= 16× ($i2 - i1$)=256 V
V64= 4×(i1-i2)= - 64 V

Answer to the question of post lab report 02:

The theoretical solution of the circuit and solution obtained from PSpice is the same.

Conclusion:
We have learnt about dependent sources and theoretically calculated all the currents and voltages and found no discrepancy in PSpice.