EAST WEST UNIVERSITY

Course Title: CSE209

Section: 02

Semester: Fall 22

Assignment- 01

SUBMITTED TO

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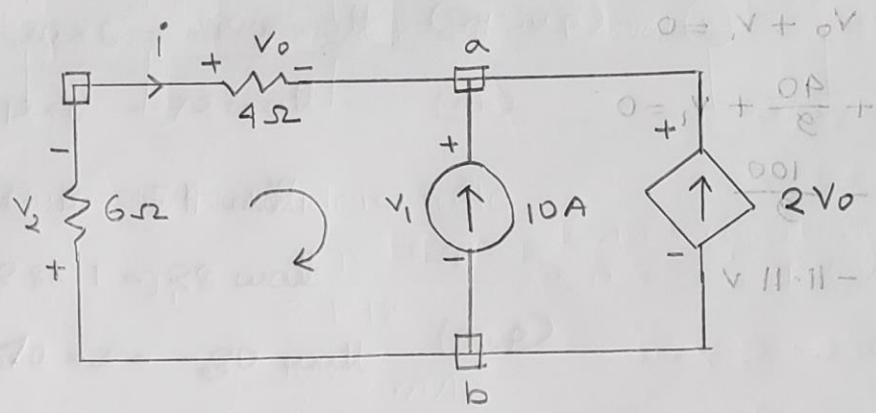
Assignment 1



Let,

the current of V_0, I and given resistance, $R = 4\Omega$

∴ By Ohm's law, $V_0 = IR$

$= I4$

$= 4I$

Now applying KCL in node a,

$$-I - 10 - 2V_0 = 0$$

$$\Rightarrow -I - 10 - 2(4I) = 0$$

$$\Rightarrow -I - 10 - 8I = 0$$

$$\Rightarrow I = \frac{10}{9} A$$

So, $V_0 = 4 \times \frac{10}{9}$

$= 4.444 V$

And, $V_2 = 6 \times \frac{10}{9}$

$= \frac{20}{3}$

$= 6.67 V$

Applying KVL in the loop.

$$V_2 + V_0 + V_1 = 0$$

$$\Rightarrow \frac{20}{3} + \frac{40}{9} + V_1 = 0$$

$$\Rightarrow V_1 = -\frac{100}{9}$$

$$\therefore V_1 = -11.11\ V$$

$\therefore$ So, the power across the dependent source is,

$$P = -V_1 \times (2V_0)$$

$$= \frac{100}{9} \times \left(2 \times \frac{40}{9}\right)$$

$$= 98.765 \text{ watt}$$