Name: Musfikur Rahman Malin

ID: 23201432
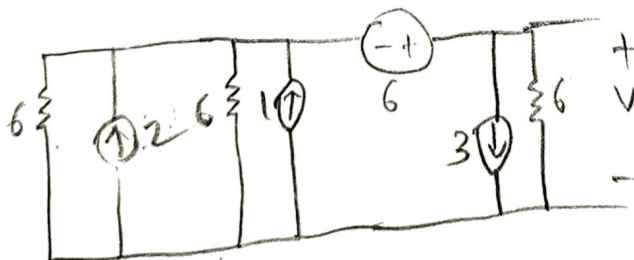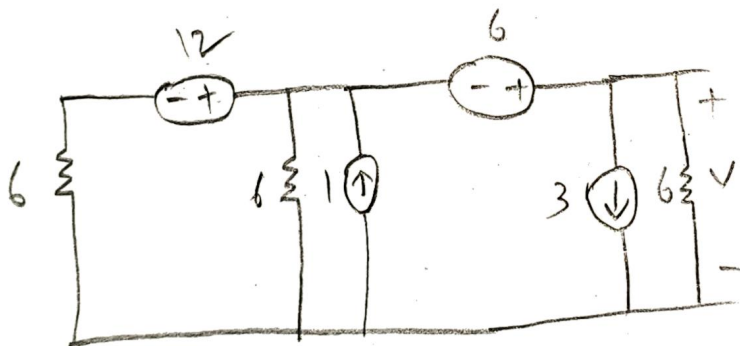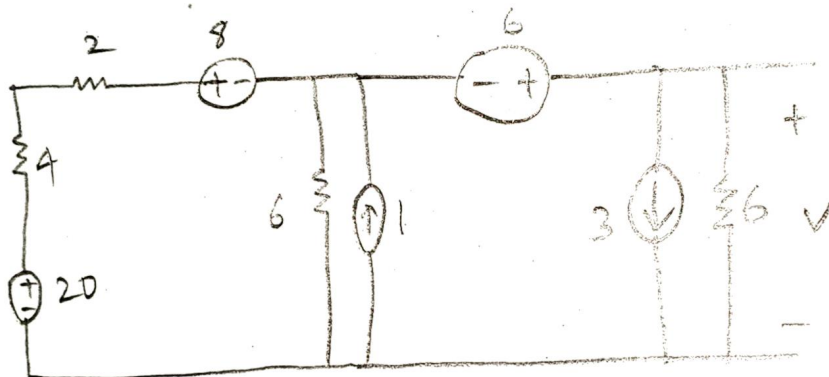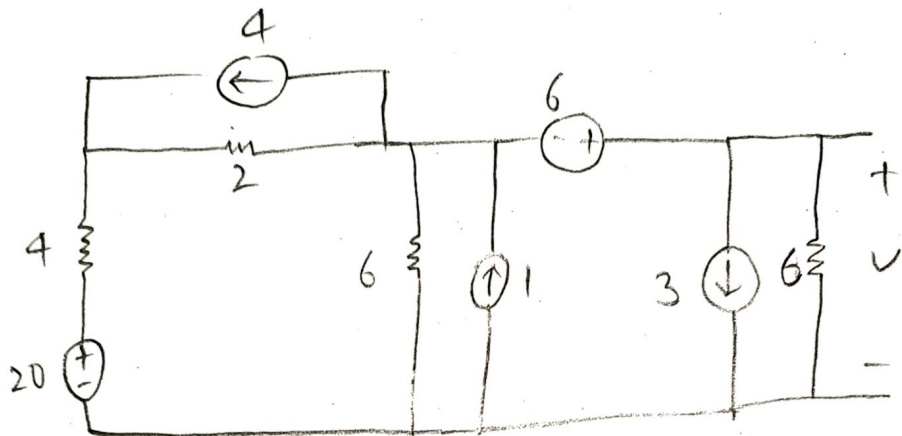
CSE250 Sec: 05
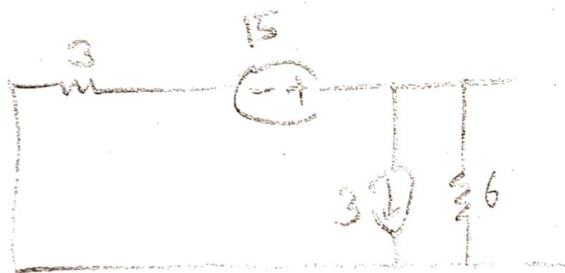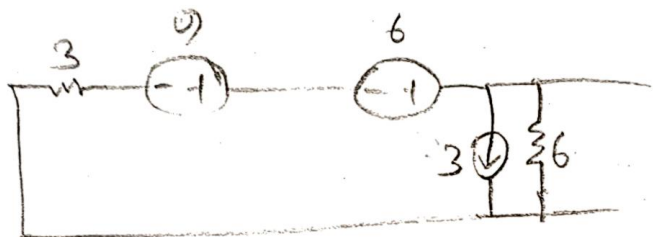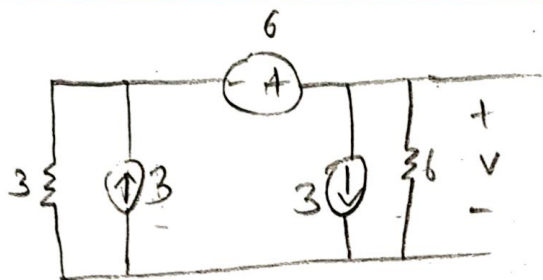
Submitting to: Saiful Bari Iftu [SDB]
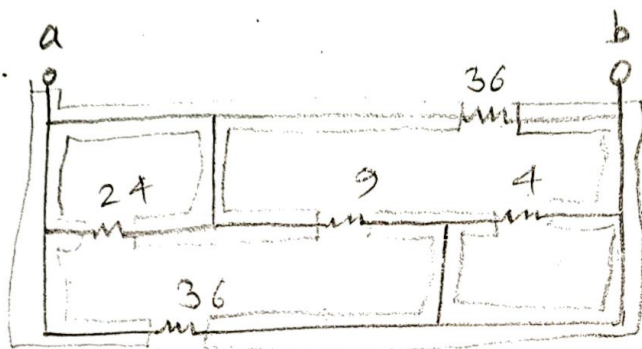
Submission Date: 23.03.2025

Spring 2024

1.

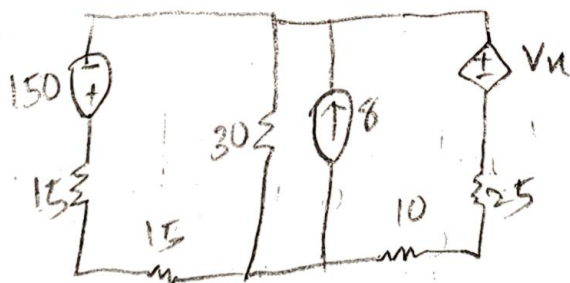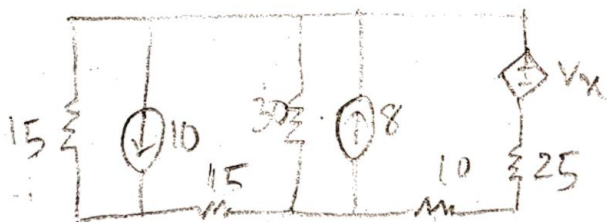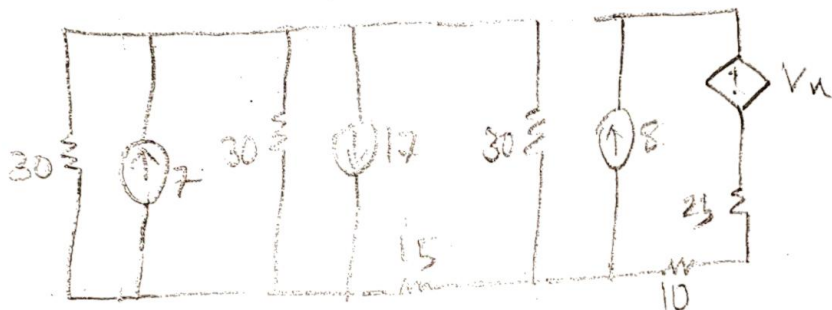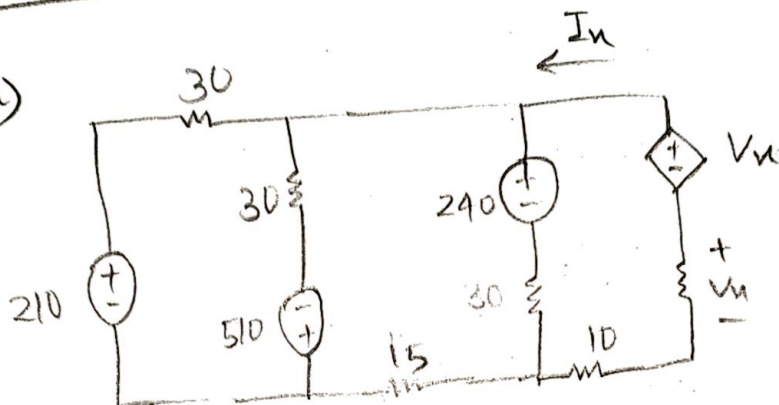**a)**

$$\therefore R = 3 \quad , \quad v' = 15$$

2.

here 24 and 4 ohm is short circuited. The rest are in parallel.

$$\therefore R_{ab} = \left(\frac{1}{36} + \frac{1}{9} + \frac{1}{36}\right)^{-1}$$

$$= 6\ \Omega$$

Fall 2023

1.
a)

A circuit with a 30Ω resistor across the top, 210 voltage source on the left, 30Ω resistor, 510 voltage source, 240 current source, 30Ω resistor, I_u current at top, dependent source V_u with + v_u −, and 15 and 10 resistors along the bottom.

Circuit with 30Ω, current source 7, 30Ω, current source 12, 15, 30Ω, current source 8, dependent source V_u, 21Ω, 10 resistor.

Circuit with 15Ω, current source 10, 15, 30Ω, current source 8, 10, dependent source V_x, 25 resistor.

Circuit with 150 voltage source, 13Ω, 15, 30Ω, current source 8, 10, dependent source V_u, 25 resistor.

Circuit with 30Ω, current source 5, 30Ω, current source 8, 10, dependent source V_u, 25 resistor.

$v' = 45\,V$, $R' = 25\,\Omega$

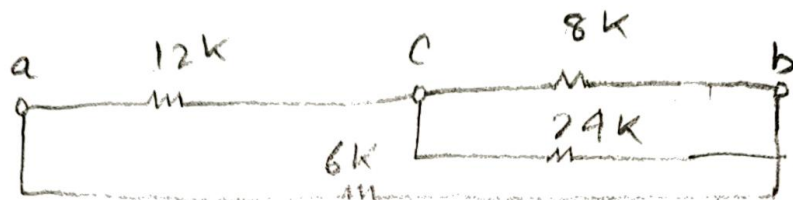b) $I_n = \dfrac{V_n - 45}{50}$, $V_n - 25\,I_n$

$\Rightarrow 50 I_n = 25\,I_n - 45$

$\Rightarrow I_n = -1.8\,V$

$\therefore V_n = -45\,V$

c) $30\,I_n + V_0 - 300 + 20\,I_n - V_n = 0$

$\Rightarrow V_0 = 45 + 50 \times 1.8 - 45 = \angle 90$

4.

a)

$$R_{ab} = (8||24 + 12) || 6$$

$$= ((6+12)||6$$

$$= 4.5 \ \Omega$$

$$R_{ac} = (8||24 + 6) || 12 = (6+6) || 12 = 6 \ \Omega$$

b) $16 = -4 I u$

$\Rightarrow I = -4 \ A$