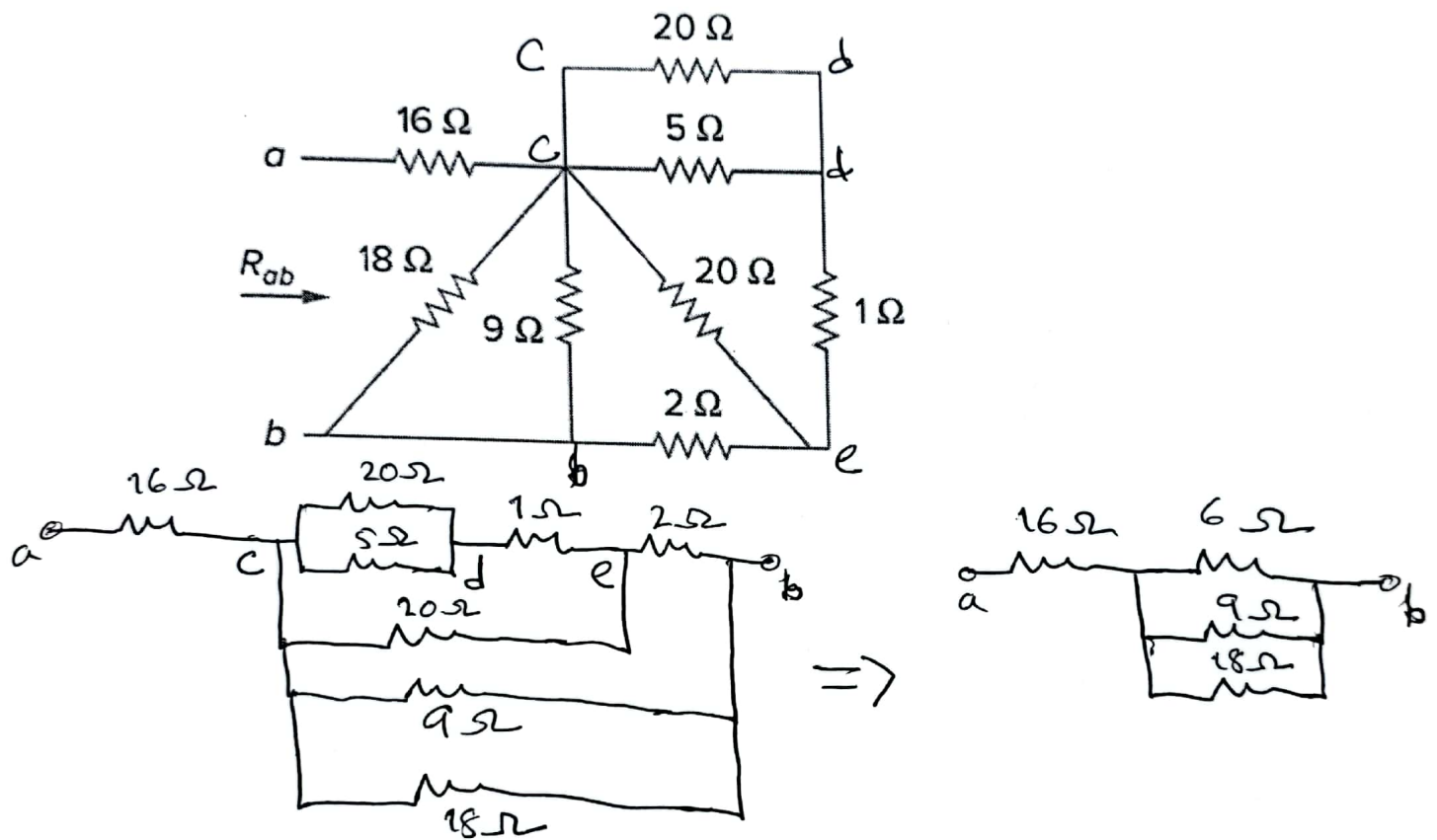


■ Question 1 of 2 [CO1] [10 marks]

Determine R_{ab} and find the current, I if we connect the terminals a-b to a voltage source of 10V.



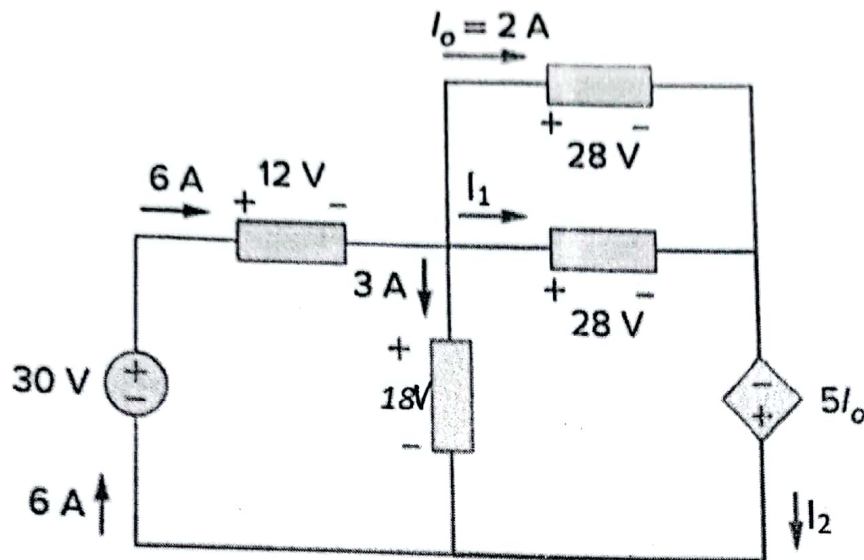
$$R_{ab} = 16 + \left(\frac{1}{6} + \frac{1}{9} + \frac{1}{18} \right)^{-1}$$

$$= 19 \Omega$$

$$I = \frac{10}{R_{ab}} = \frac{10}{19} = 0.526 A$$

■ Question 2 of 2 [CO1] [10 marks]

Determine I_1 , I_2 using KCL and the power supplied/absorbed by the two sources and the element with 3A current.



$$6 = 2 + I_1 + 3$$

$$\text{or, } I_1 = 1 \text{ A}$$

$$2 + I_1 = I_2$$

$$\text{or, } I_2 = 3 \text{ A}$$

$$P_{30V} = -30 \times 6 = -180 \text{ W (supplied)}$$

$$P_{5I_o} = -5I_o \times I_2$$

$$= -5 \times 2 \times 3$$

$$= -30 \text{ W (supplied)}$$

$$P_{3A} = 18 \times 3 = 54 \text{ W (absorbed)}$$