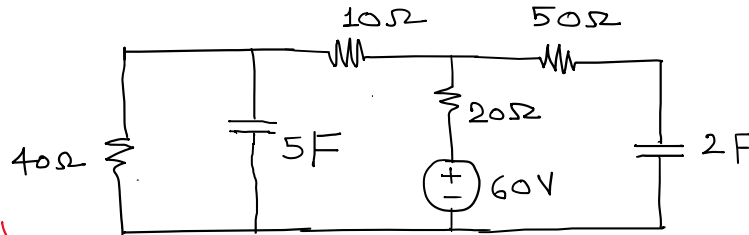


North South University
Fall 2021
EEE141 (sec - 5)
Quiz 4

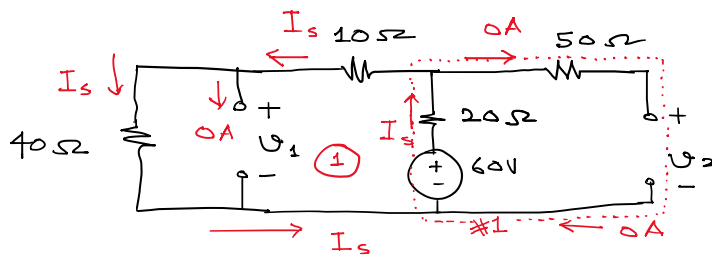
Marks = 5

Time = 20 minutes

1. Find the energy stored in the capacitors of the following circuit under dc conditions.



SOLUTION :



$$I_s = \frac{60}{20 + 10 + 40} = \frac{6}{7} = 0.857A$$

$$V_1 = 40 I_s = 34.29V$$

$$W_1 = \frac{1}{2} \times 5 \times 34.29^2$$

$$= 2.94 kJ$$

KVL at loop #1, $-60 + 20 \times 0.857 + V_2 = 0$

$$\Rightarrow V_2 = 42.86V$$

$$W_2 = \frac{1}{2} \times 2 \times 42.86^2 = 1.84 kJ$$