CSE-250

Simmulation Project

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Sec : 07

Group: 05

Methodology

Getting values of unknown variables

↓

Putting them on Ltspice

↓

Use specific commands

↓

Plot them accordingly

↓

Use specific commands using Ltspice plot

Question 1

① Ans: As my student ID is 21301576

changing or Discharging time is

$$5\tau = 2+1+3+0+1+5+7+6$$

$$\Rightarrow \tau = \frac{25}{5} \times 10^{-3}$$

$$= 5 \times 10^{-3}$$

we know,

$$RC = \tau$$

$$\Rightarrow R = \frac{5 \times 10^{-3}}{2 \times 10^{-6}} = 2.5 \times 10^{3}$$

Lets assume, $R = R_1 + R_2 + R_3$

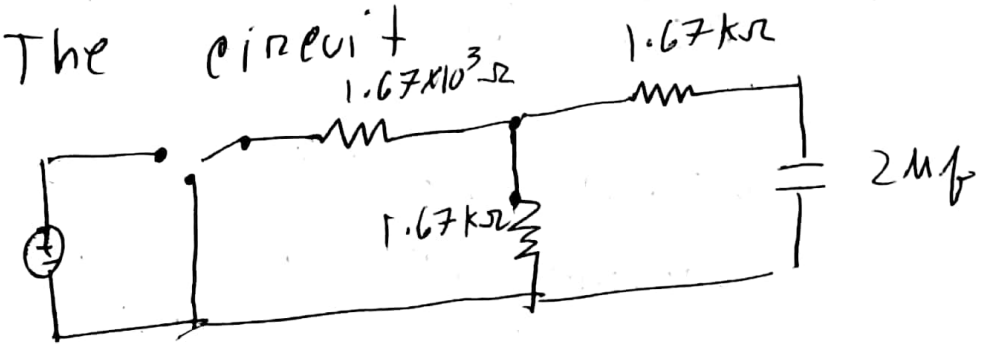
$$\therefore R_{eq} = R + R \| R$$

$$= \frac{3}{2} R$$

$$\therefore \frac{3}{2} R = 2.5 \times 10^{3}$$

$$\therefore R = 1.67 \times 10^{3}$$

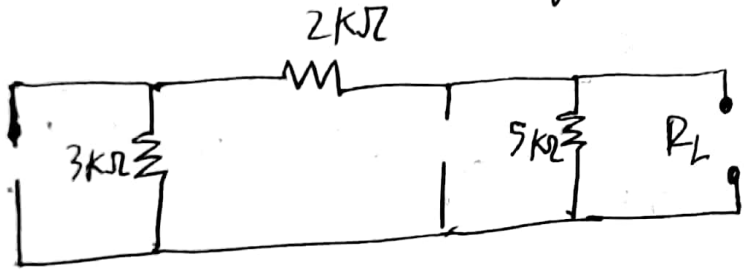
∴ The circuit



(11) As the ~~final~~ highest Voltage of the following plot is 5v, so the total Voltage for the circuit will be 2×5v, which is 10v. As in 10v the full cycle will be complite. As in 5v it only complete half cycle.

Question 2)

(i) The following circuit can be drawn for the value of R_L



$\therefore R_L = (3+2) \parallel 5$

$= 2.5\ K\Omega$

(ii) As my ID is 21301576

$\therefore P_{max} = 2+1+3+0+1+5+7+6$

$= 25\ mW$

As, $P_{max} = \left(\frac{V_{th}}{R_{th}+R_L}\right)^2 \times R_L$

For, P_{max} $R_L = R_{th}$

~~$= 2V_{th} =$~~

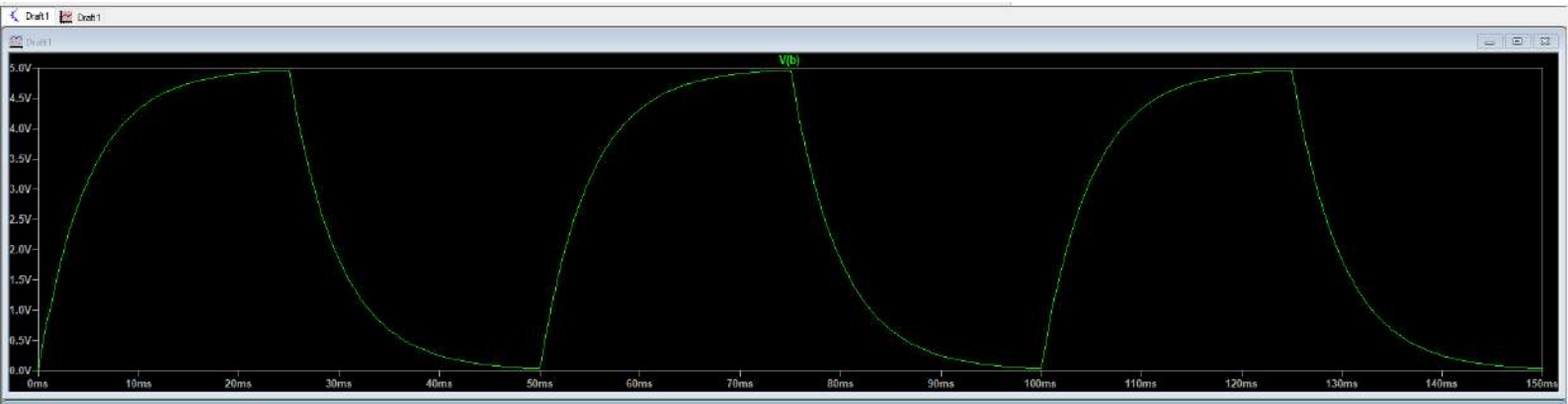
$$\Rightarrow P_{max} = \frac{(V_{th})^2}{(2.5+2.5)\times 10^3} \times (2.5)10^3$$

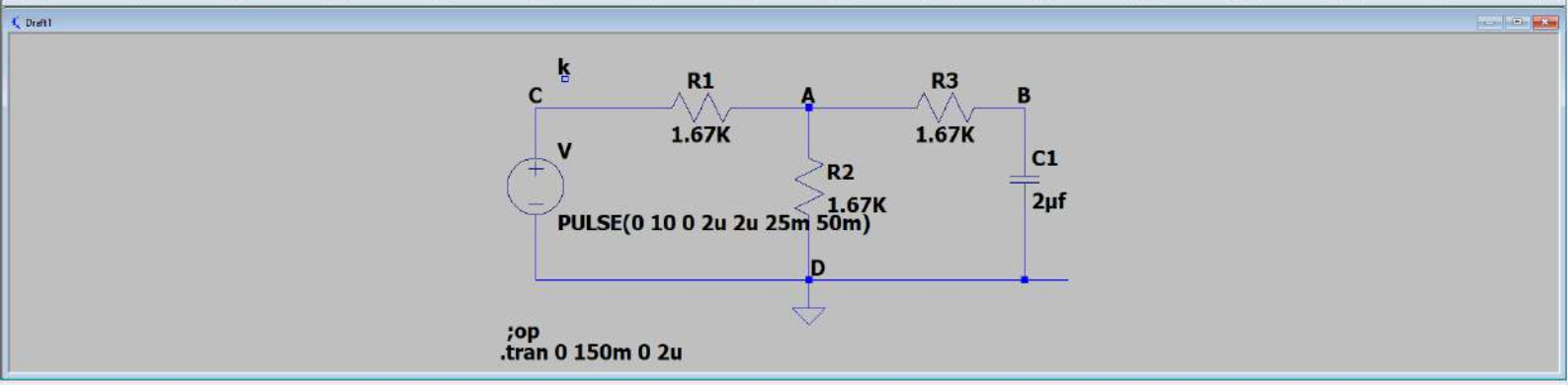
$$\Rightarrow V_{th} = 15.811$$

(iii) The I_s we get for the circuit is 0.00364 A or 3.64 mA

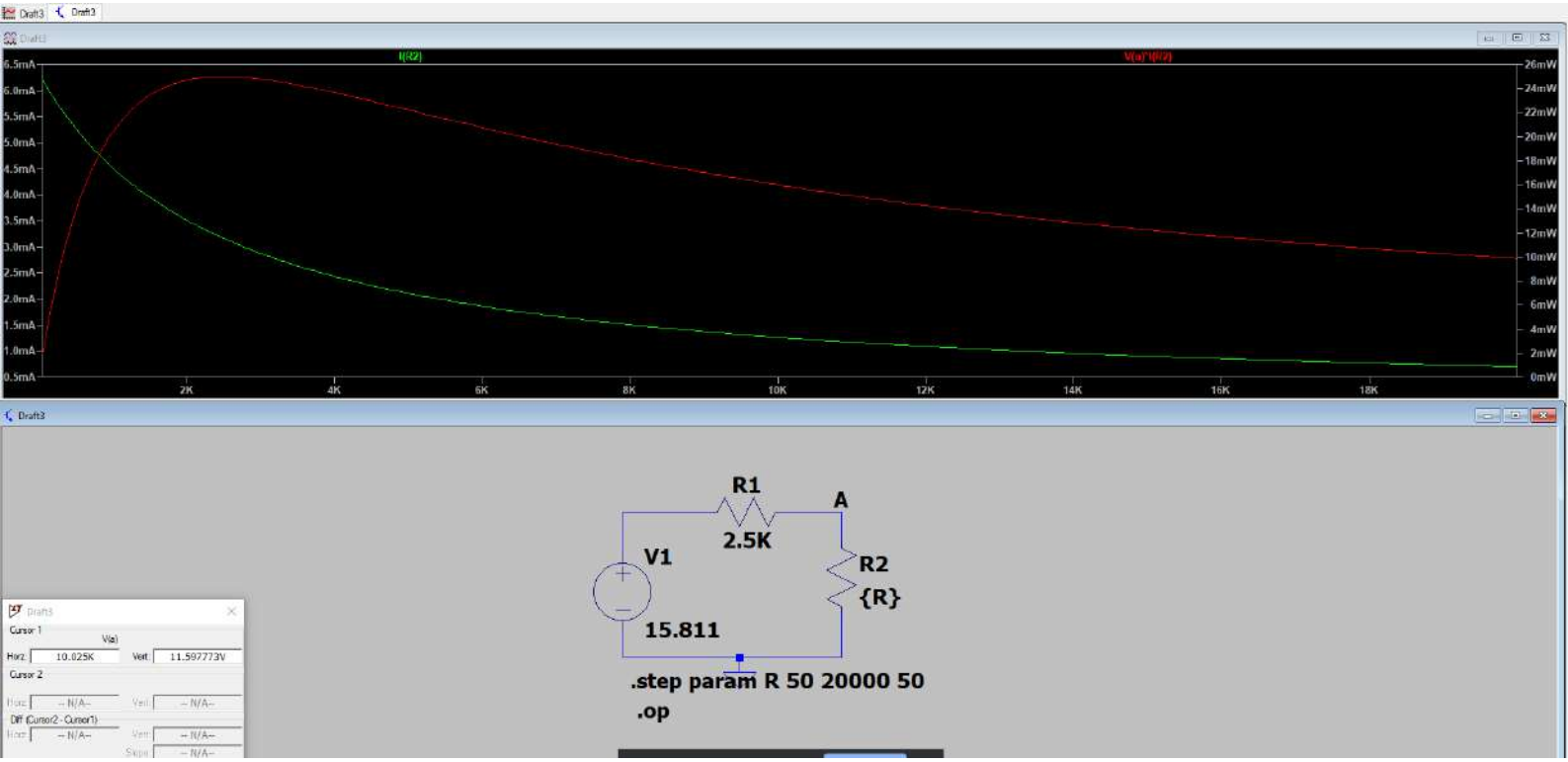
(iv) As, I am seeing the max power generated by thevenin and orginal circuit is same, so the thevenin circuit is connect.

Question
1(3)ans:





Question
2(2) ans:



Question
2(4)ans: