

$$T = RC = 10\text{K} \times 1\text{ms} = 10\text{s}$$

$$\omega RC \approx \omega ms \rightarrow \frac{\omega ms}{\alpha} = \frac{1\text{ms}}{1} = 1\text{s} \quad \checkmark$$

روش آزمایش - ۱: طبق نایل های اولین  $\rightarrow$  orcad

روش آزمایش - ۲: درست آوردن مقادیر موجود:

مقادیر:  $1\text{K}\Omega$

$$\text{orcad} \rightarrow \omega_2 = \frac{104,19\pi - 1,493\pi}{10\pi} \approx 0.0\pi$$

$$\frac{11 \times 10^{-4}}{\alpha} = (\underline{R}) \times \underline{f} \quad ? \quad R = \frac{11 \times 10^{-4}}{1\pi} \approx 1\text{K} \quad \checkmark$$

$$T = 3\text{ms} \quad f = \frac{1}{3} \text{Hz}$$

مقادیر:  $12\text{k}\Omega$

$$\text{orcad} \rightarrow \omega_2 = 1,4\pi\text{rad} - 1,0\pi \approx 1,4\pi$$

$$\frac{11 \times 10^{-4}}{\alpha} = (\underline{R}) \times 1\pi \rightarrow R = \frac{11 \times 10^{-4}}{1\pi} = 12\text{k}\Omega \quad \checkmark$$

$$T = \omega ms \quad f = 100 \text{ Hz}$$

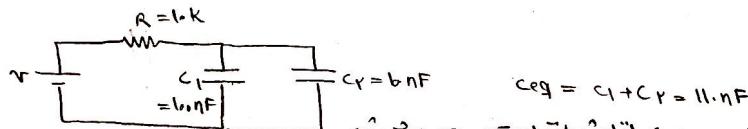
مقادیر:  $33\text{k}\Omega$

$$\text{orcad} \rightarrow \omega_2 = 1,4\pi\text{rad} - 1,0\pi \approx 1,4\pi$$

$$\frac{11 \times 10^{-4}}{\alpha} = (\underline{R}) \times 1\pi \rightarrow R = \frac{11 \times 10^{-4}}{1\pi} \approx 4\text{k}\Omega \quad \checkmark$$

$$T = 1\text{ms} \quad f = 100 \text{ Hz}$$

پیش گزارش ۲:



سچون داریم  $C_{eq} > 2 = RC$   $\rightarrow$  از ایستایان است، هم سنت سده است و  $\omega_2$  هم بیشتر سنت دنیان بیشتری دارد سکستا خازن شادر لستود

$$\text{orcad} \rightarrow \omega_2 = 14\text{m} - 10\text{m} \approx 4\text{m}$$

$$\rightarrow Z = \frac{V}{I} = 112\text{m} = RC$$

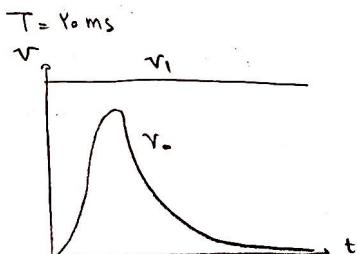
در راست اول داشتم  $RC = 1\text{ms}$   $\rightarrow$  سچون طلت  $\rightarrow$  که بیشتر سده است چون خازن سعل بیشتر سده است.

: ۲-۸

پیش گزارش ۳:

روش آزمایش - ۱:

$$\text{طبق تئوری داشتم: } V_{max} = 0,775\text{V}$$



$$V_{max} = 0.1 \times \omega V = -14V \text{ at } t = 1/1$$

$$t_1 \approx 0.142 \quad Z = RC = \frac{1.4}{10k \times 100\pi} = 1.4 \rightarrow t_1 = 0.14 \text{ ms}$$

$$= 14 \mu\text{s}$$

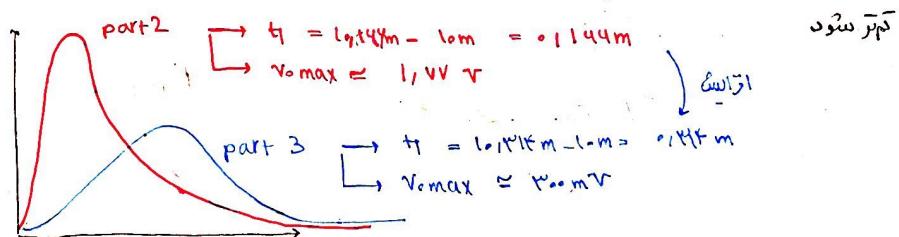
طبق نتایج تئوری دانستم :

$$\text{or consider} \rightarrow V_{max} \approx 1/1 \text{ V} \checkmark$$

$$t_1 = 10.141 \text{ m} - 1 \text{ m} = 0.141 \text{ ms. } \checkmark$$

- 2 در این مسیر سرعت شارژ  $C_1$  از  $C_2$  بیشتر است زیرا  $R_{eq}$  برای  $C_2$  بیشتر است زیرا  $\omega_2 \uparrow \iff C_2 \uparrow$   
بیشتری برای مشارکت می‌برد  
حال آنکه سرعت شارژ  $C_1$  خیلی بالاتر است  $\iff C_1 = 10NF$  انتظاراً لازم است  $t_1$  باید بیشتر  $V_{max}$  نزدیک باشد  $\iff \omega_2 \downarrow$

- 3 می‌دانیم  $V_0 = V_1 - V_2$  طبق نظریه. اگر  $C_2 = 10NF$  سود، باز هم سرعت  $C_1$  بیشتر است با اینکه سرعت  $C_2$  از  $\omega_2$  بیشتر است نسبت به قبل. دلیل  $V_2 \uparrow$  باز هم  $V_1 - V_2$  من دارد می‌باشد سود سرعت  $C_2$  از  $\omega_2$ . یاد نهاده سود سرعت  $C_1$  باز هم  $V_1$  است.



$$T = \frac{1}{4k}$$

: تئوری : 3-8

$$Z = \frac{L}{R} \rightarrow Z = \frac{18 \text{ mH}}{1 \text{ k}} = 18 \mu\text{H} \rightarrow \omega Z = 90 \mu\text{r}$$

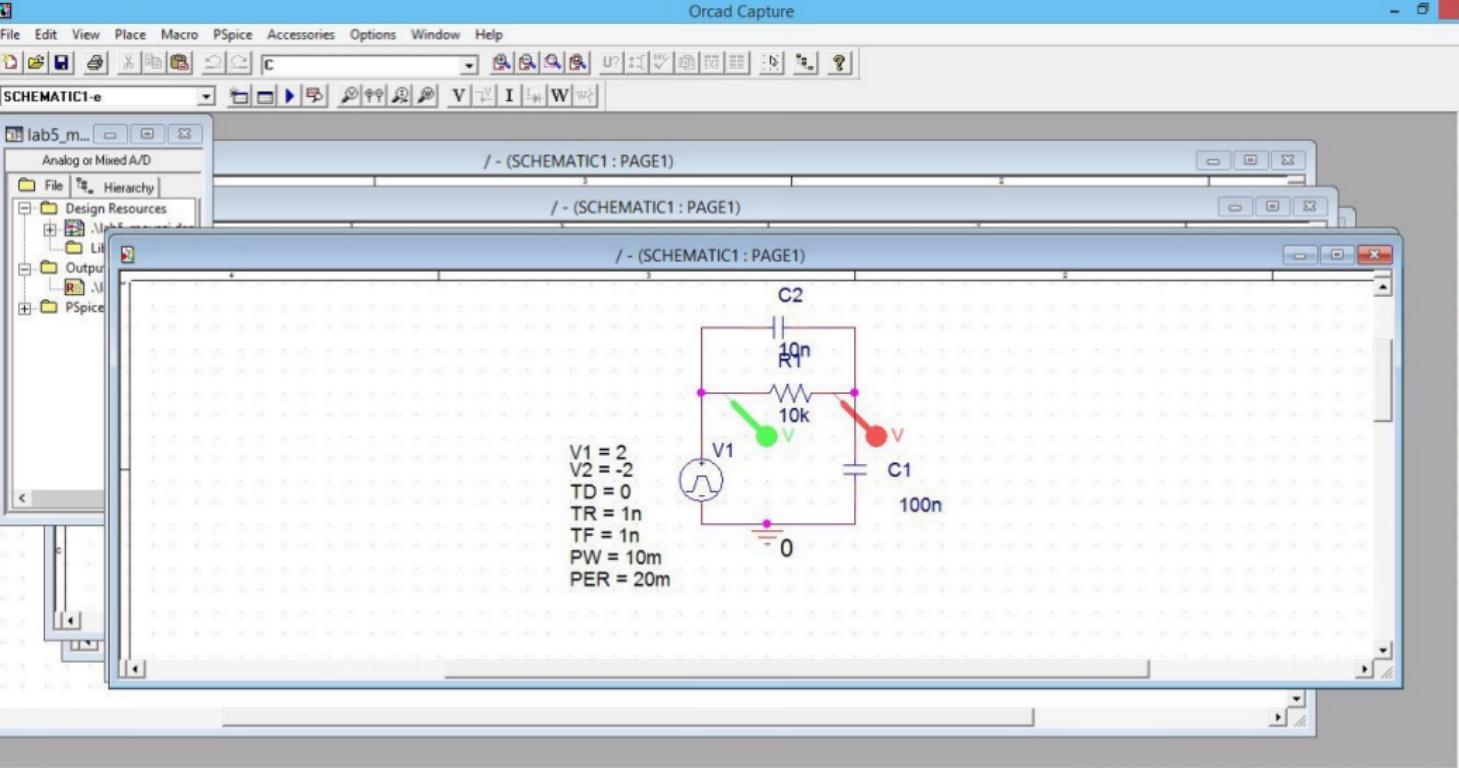
$$\text{or consider} \rightarrow \omega Z \approx 90 \mu\text{r} - 0 \mu\text{r} \approx 90 \mu\text{r} \approx \underline{\underline{\quad}} \checkmark$$

: با محاسبه : 1K

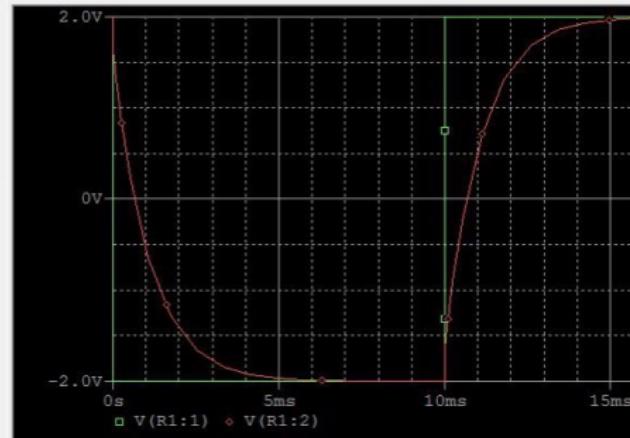
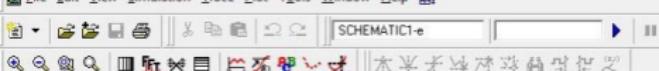
$$Z = \frac{L}{R} = \frac{18 \mu\text{H}}{11 \mu\text{A}} = 18 \mu\text{H} \rightarrow \omega Z = 4.5 \mu\text{r}$$

$$\text{or consider} \rightarrow \omega Z \approx 90 \mu\text{r} - 0 \mu\text{r} = 90 \mu\text{r} \approx \underline{\underline{\quad}}$$

با محاسبه 8 1AK

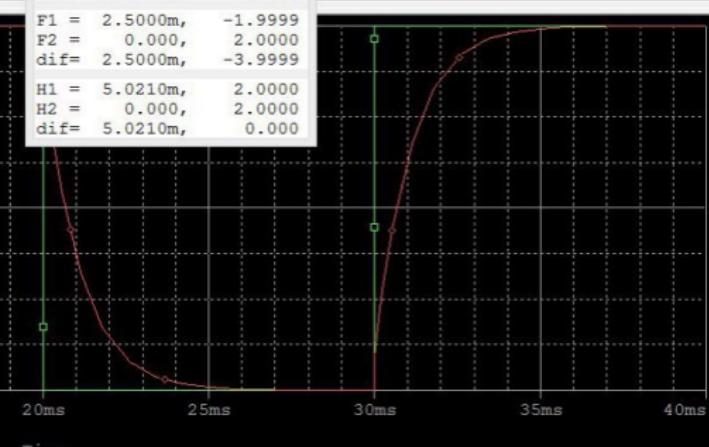


File Edit View Simulation Trace Plot Tools Window Help



## Probe Cursor

```
A1 = 15.042m, 2.0000
A2 = 0.000, 2.0000
dif= 15.042m, 0.000
F1 = 2.5000m, -1.9999
F2 = 0.000, 2.0000
dif= 2.5000m, -3.9999
H1 = 5.0210m, 2.0000
H2 = 0.000, 2.0000
dif= 5.0210m, 0.000
```



(A) lab5part. (D) lab5meg. (F) lab5\_r\_2. (H) lab5\_r\_3... (I) lab5\_mov...

```
Profile: "SCHEMATIC1-e" [C:\ORCAD_PROJECTS\lab5_movazi-SCHEMATIC1-e.sim]
Reading and checking circuit
Circuit read in and checked, no errors
Calculating bias point for Transient Analysis
Bias point calculated
Transient Analysis
Transient Analysis finished
Simulation complete
```

Capacitors:	2
Resistors:	1
Voltage Sour...	1

Analysis Watch Devices

or Help, press F1



Time=.04

100%

11:59 PM  
ENG  
11/10/2020

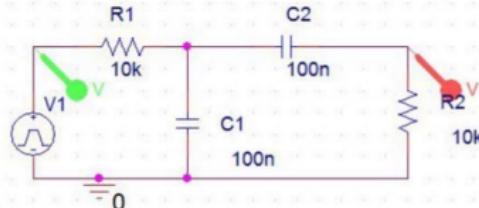


SCHEMATIC1-h

/- (SCHEMATIC1 : PAGE1)

/- (SCHEMATIC1 : PAGE1)

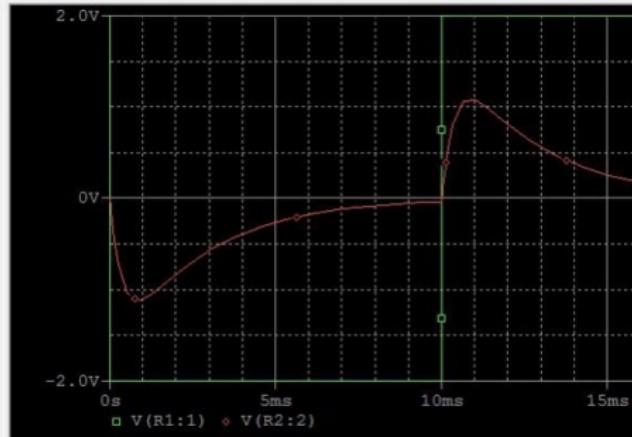
V1 = 2  
V2 = -2  
TD = 0  
TR = 1n  
TF = 1n  
PW = 10m  
PER = 20m



0 items selected

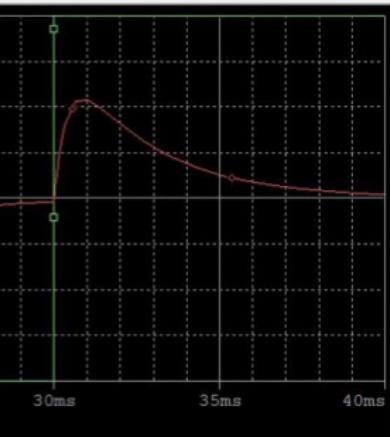
Scale=200% X=5.80 Y=2.10





## Probe Cursor

```
A1 = 15.042m, 2.0000
A2 = 0.000, 2.0000
dif= 15.042m, 0.000
F1 = 2.5000m, -1.9999
F2 = 0.000, 2.0000
dif= 2.5000m, -3.9999
H1 = 5.0210m, 2.0000
H2 = 0.000, 2.0000
dif= 5.0210m, 0.000
```

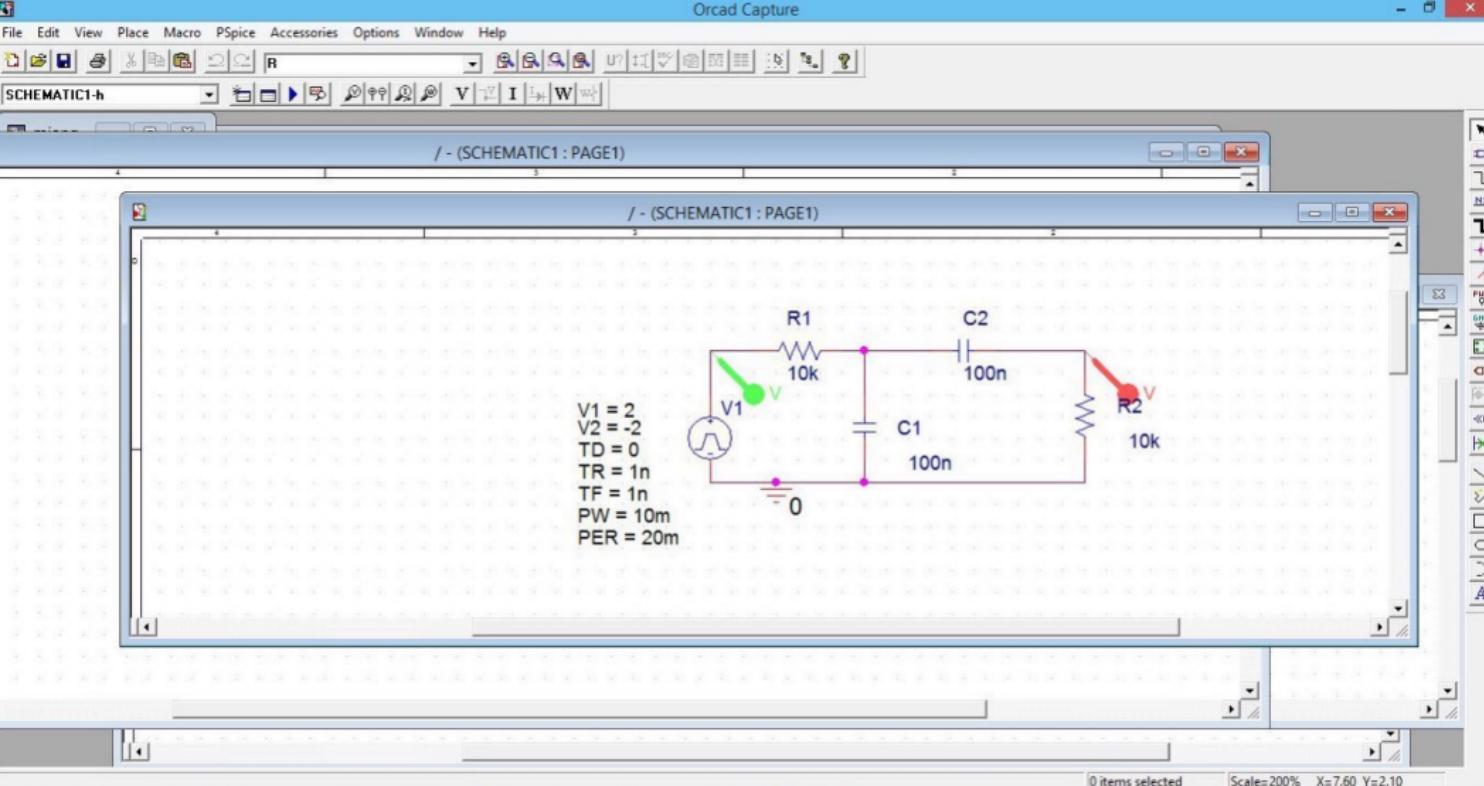


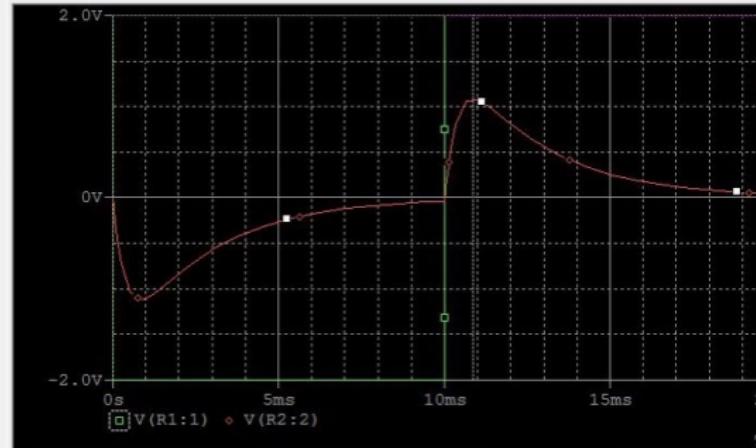
(A) lab5part... (D) lab5meg... (F) lab5\_r\_2... (H) lab5\_r\_3... (L) lab5\_mo... (M) miango...

```
Profile: "SCHEMATIC1-h" | C:\ORCAD_PROJECTS\miangozar-SCHEMATIC1-h.sim |
Reading and checking circuit.
Circuit read in and checked, no errors.
Calculating bias point for Transient Analysis.
Bias point calculated.
Transient Analysis.
Transient Analysis finished.
Simulation complete.
```

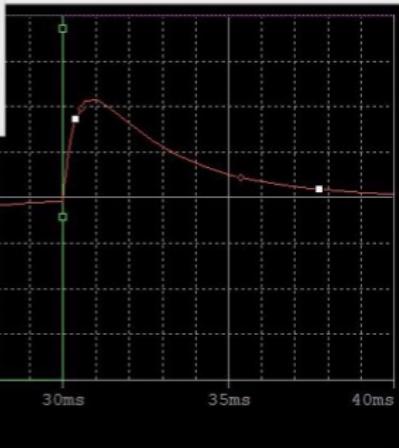
Capacitors:	2
Resistors:	2
Voltage Sour...	1

Analysis Watch Devices





```
A1 = 15.042m, 2.0000
A2 = 0.000, 2.0000
dif= 15.042m, 0.000
F1 = 2.5000m, -1.9999
F2 = 0.000, 2.0000
dif= 2.5000m, -3.9999
H1 = 5.0210m, 2.0000
H2 = 0.000, 2.0000
dif= 5.0210m, 0.000
O1 = 10.861m, 2.0000
O2 = 0.000, 2.0000
dif= 10.861m, 0.000
```



(A) lab5part... (D) lab5neg... (F) lab5\_r\_2... (H) lab5\_r\_3... (L) lab5\_mo... (O) miangoza...

```
Profile: "SCHEMATIC1-h" [C:\ORCAD_PROJECTS\miangoza\SCHEMATIC1-h.sim]
Reading and checking circuit
Circuit read in and checked, no errors
Calculating bias point for Transient Analysis
Bias point calculated
Transient Analysis
Transient Analysis finished
Simulation complete
```

Analysis Watch Devices

Capacitors:	2
Resistors:	2
Voltage Sour...	1

or Help, press F1

Time=.04

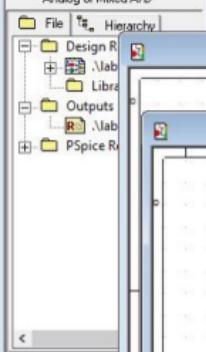
100%

12:29 AM

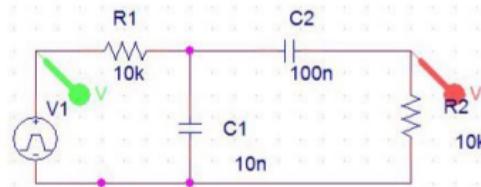
11/11/2020

SCHEMATIC1.w

Analog or Mixed A/D

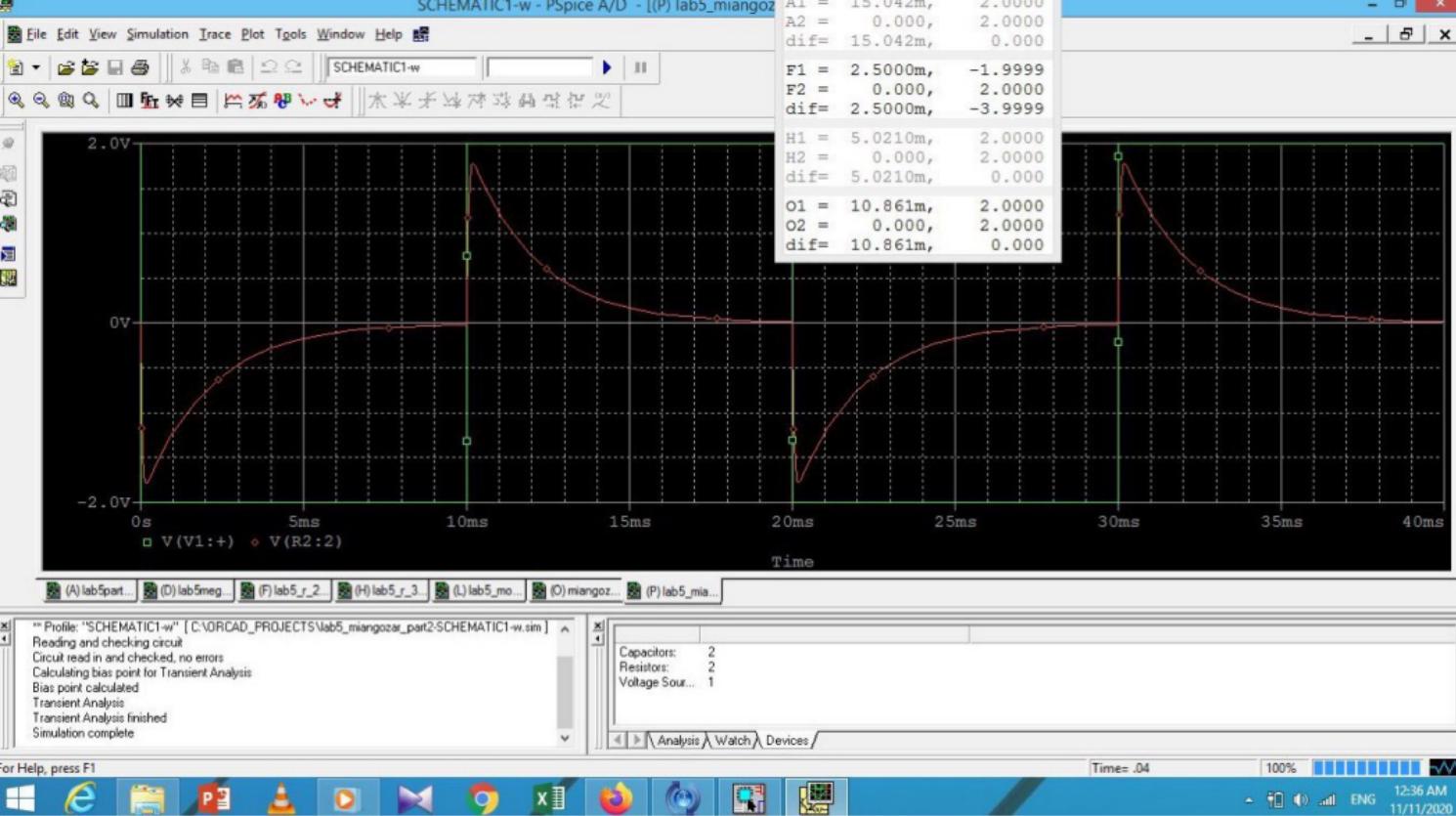


V1 = 2  
V2 = -2  
TD = 0  
TR = 1n  
TF = 1n  
PW = 10m  
PER = 20m



0 items selected Scale=200% X=5.20 Y=2.10

12:36 AM ENG 11/11/2020

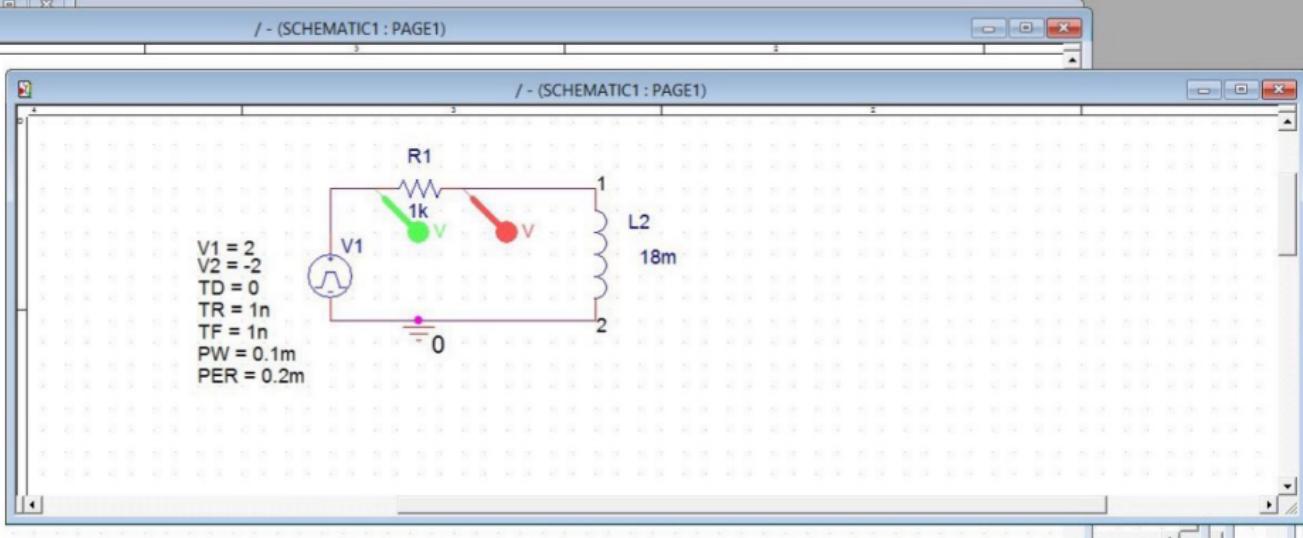


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SCHEMATIC1-w

Lab5.a



0 items selected Scale=200% X=5.50 Y=2.40

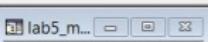
1:01 AM ENG 11/11/2020



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SCHEMATIC1-c

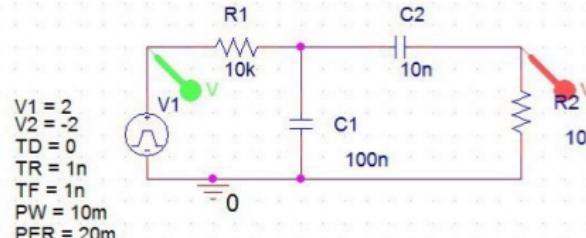


Analog or Mixed A/D

Design Resource  
└ Design Resource  
  └ Lab5\_main  
    └ Library  
Outputs  
└ Lab5\_main  
PSpice Resour

/- (SCHEMATIC1 - PAGE1)

/- (SCHEMATIC1 : PAGE1)



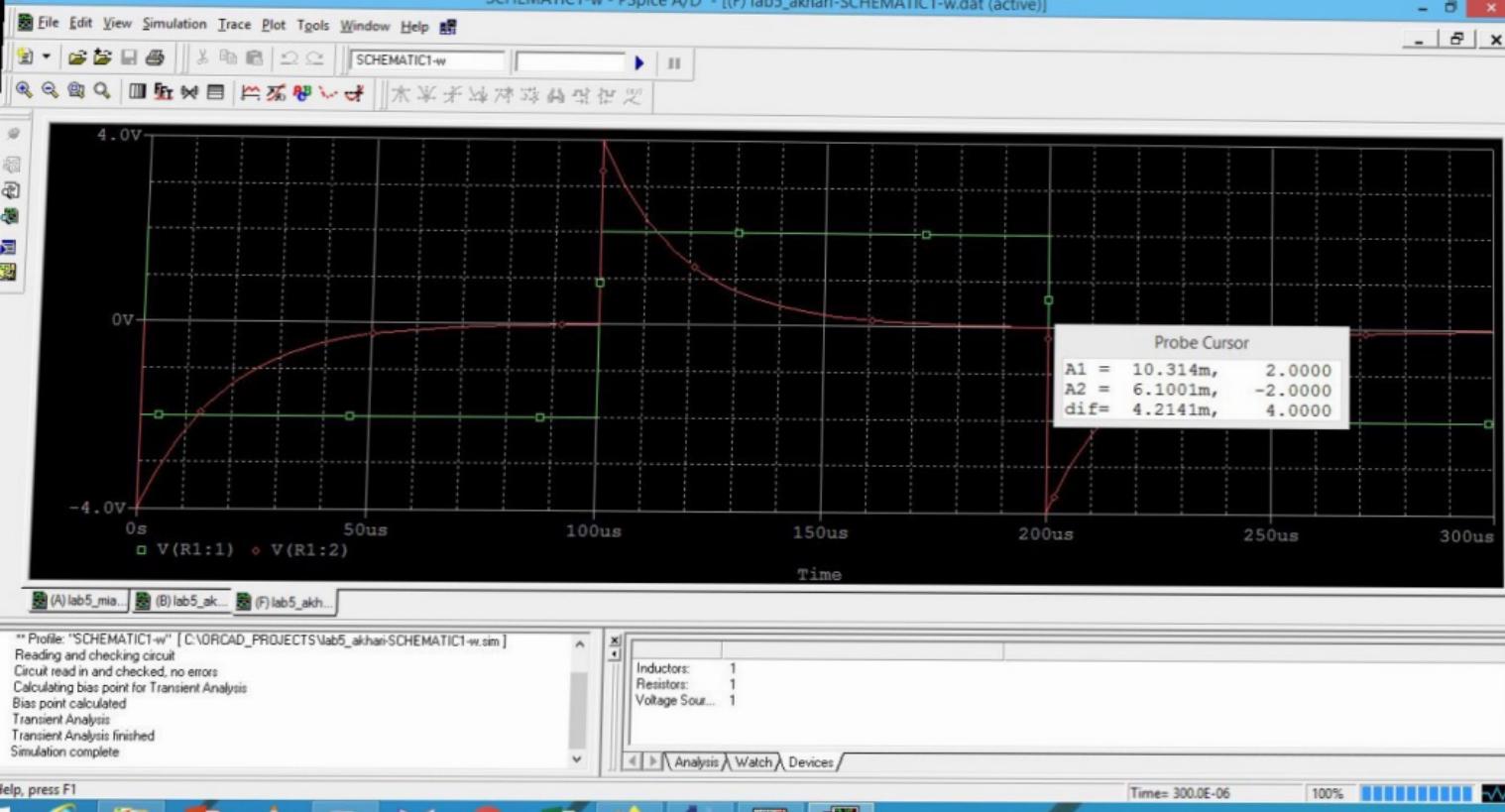
V1 = 2  
V2 = -2  
TD = 0  
TR = 1n  
TF = 1n  
PW = 10m  
PER = 20m

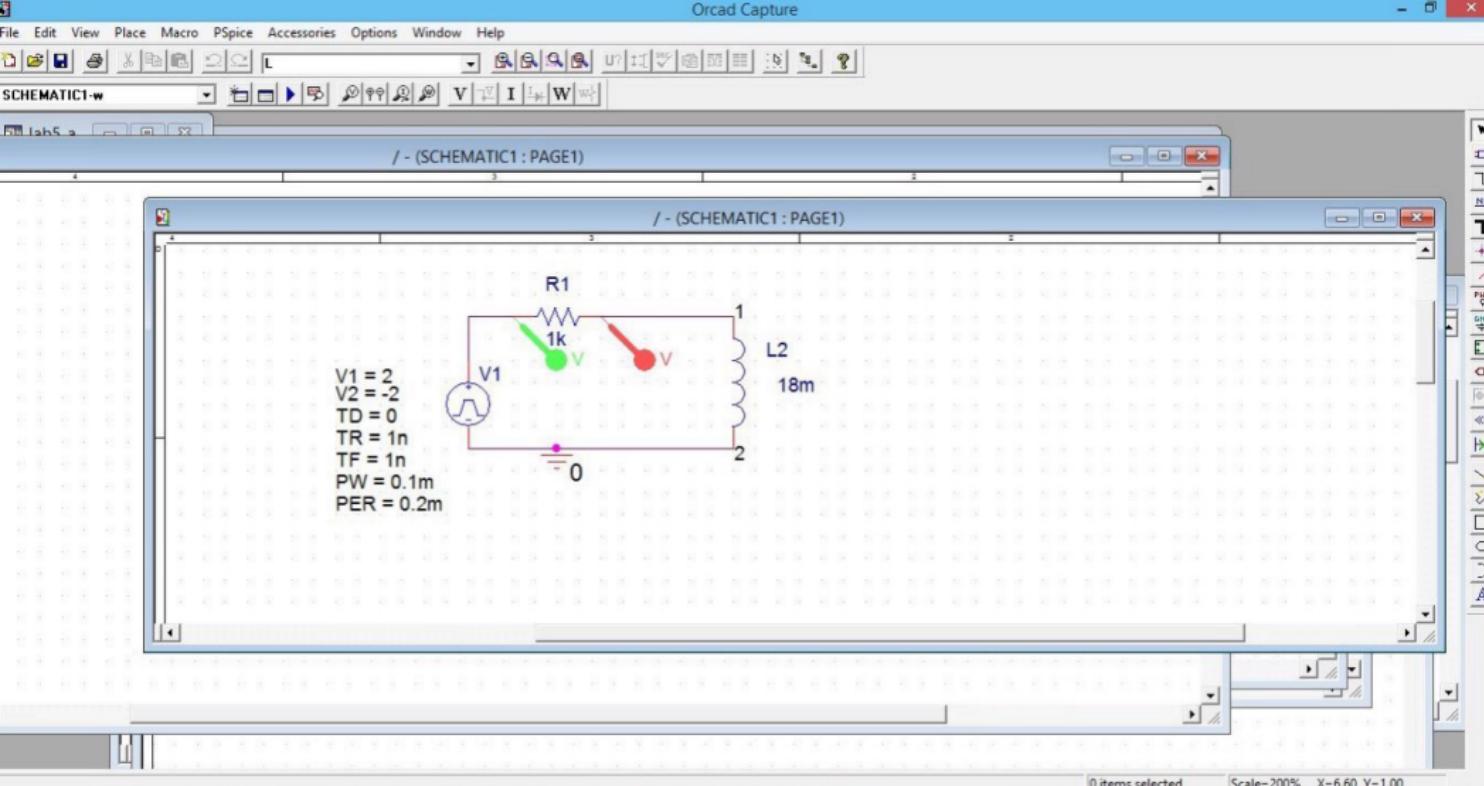
[ PER = 20m ]

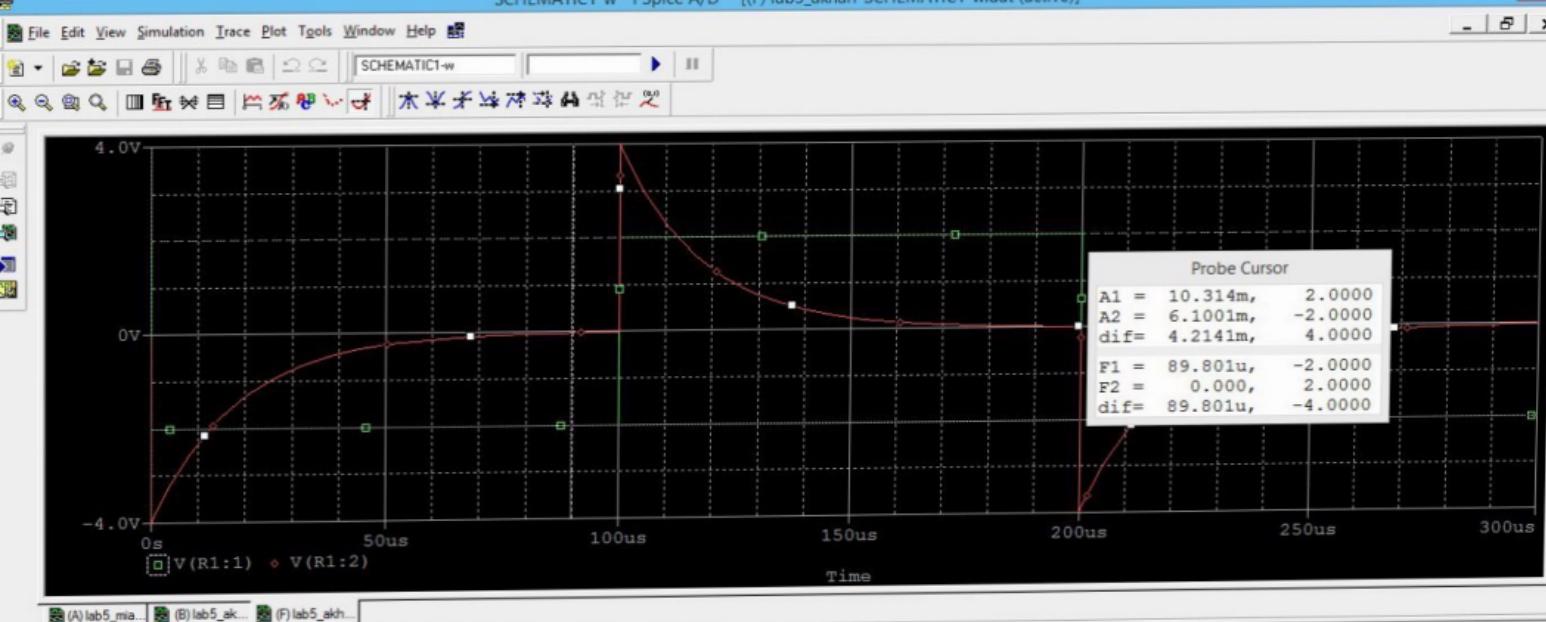
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Scale=200% X=6.10 Y=2.30

12:43 AM  
11/11/2020 ENG





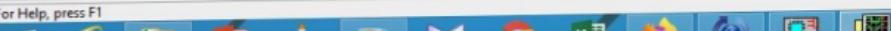


(A) lab5\_mia... (B) lab5\_akh... (F) lab5\_akh...

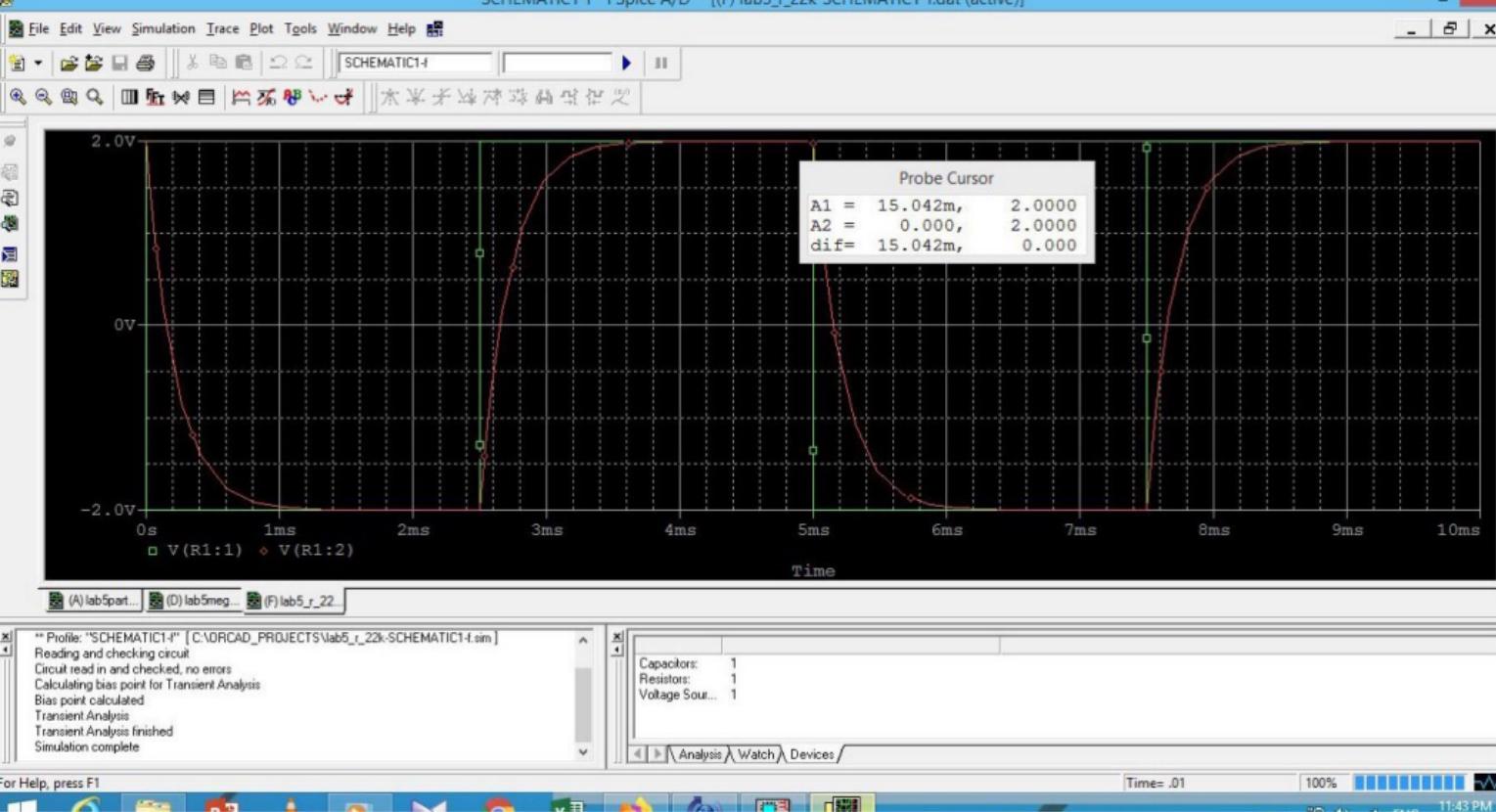
\*\* Profile: "SCHEMATIC1-w" [ C:\ORCAD\_PROJECTS\lab5\_akhari\SCHEMATIC1-w.w ]  
Reading and checking circuit  
Circuit read and checked, no errors  
Calculating bias point for Transient Analysis  
Bias point calculated  
Transient Analysis  
Transient Analysis finished  
Simulation complete

Inductors: 1  
Resistors: 1  
Voltage Sour... 1

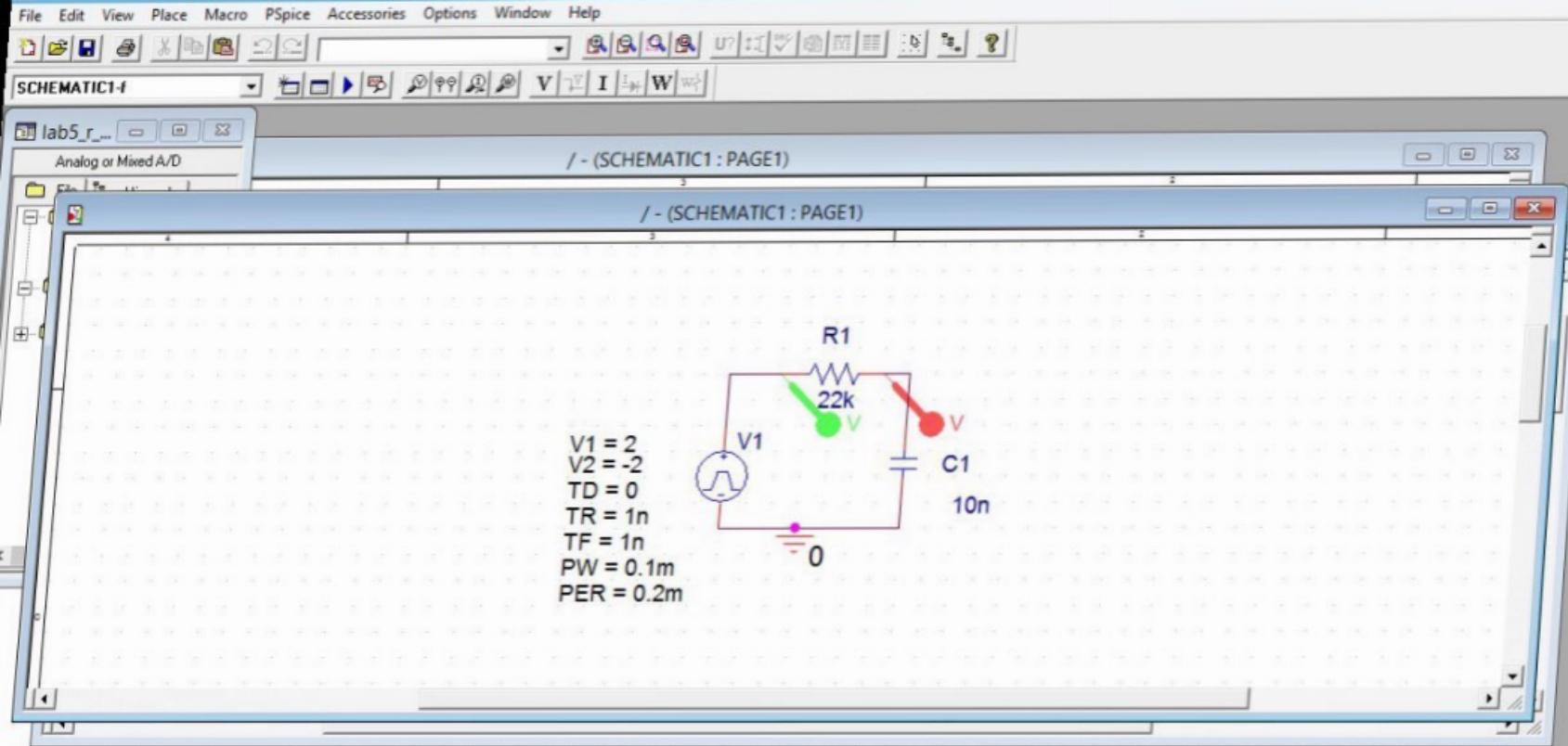
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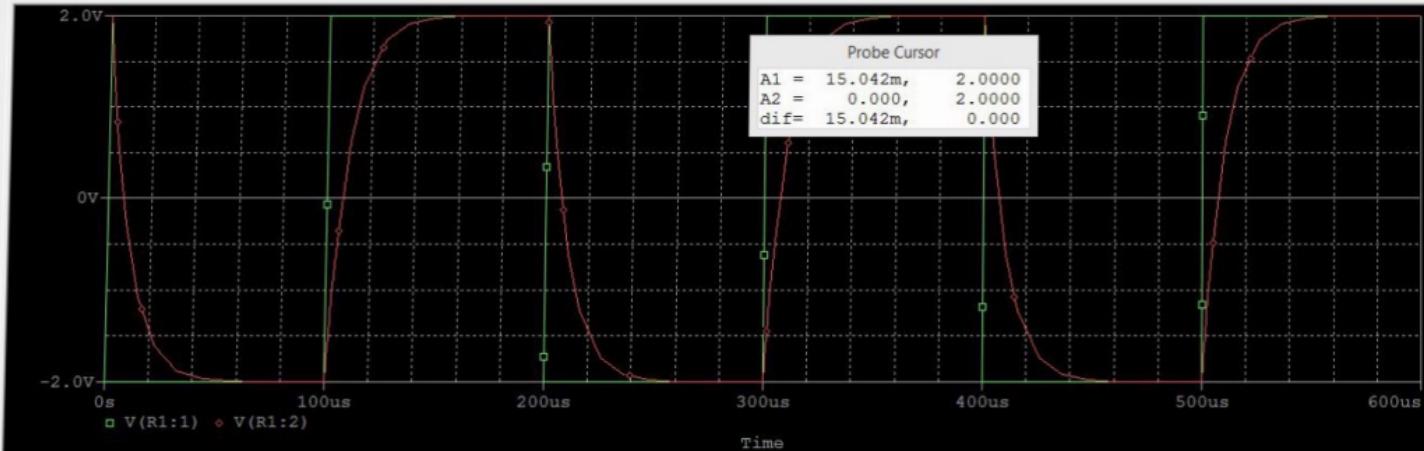
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Scanned with CamScanner



(A) lab5part... (C) lab5meg...

Reading and checking circuit  
Circuit read in and checked, no errors  
Calculating bias point for Transient Analysis  
Bias point calculated  
Transient Analysis  
Transient Analysis finished  
Simulation complete

Capacitors:	1
Resistors:	1
Voltage Sour...	1

Analysis Watch Devices

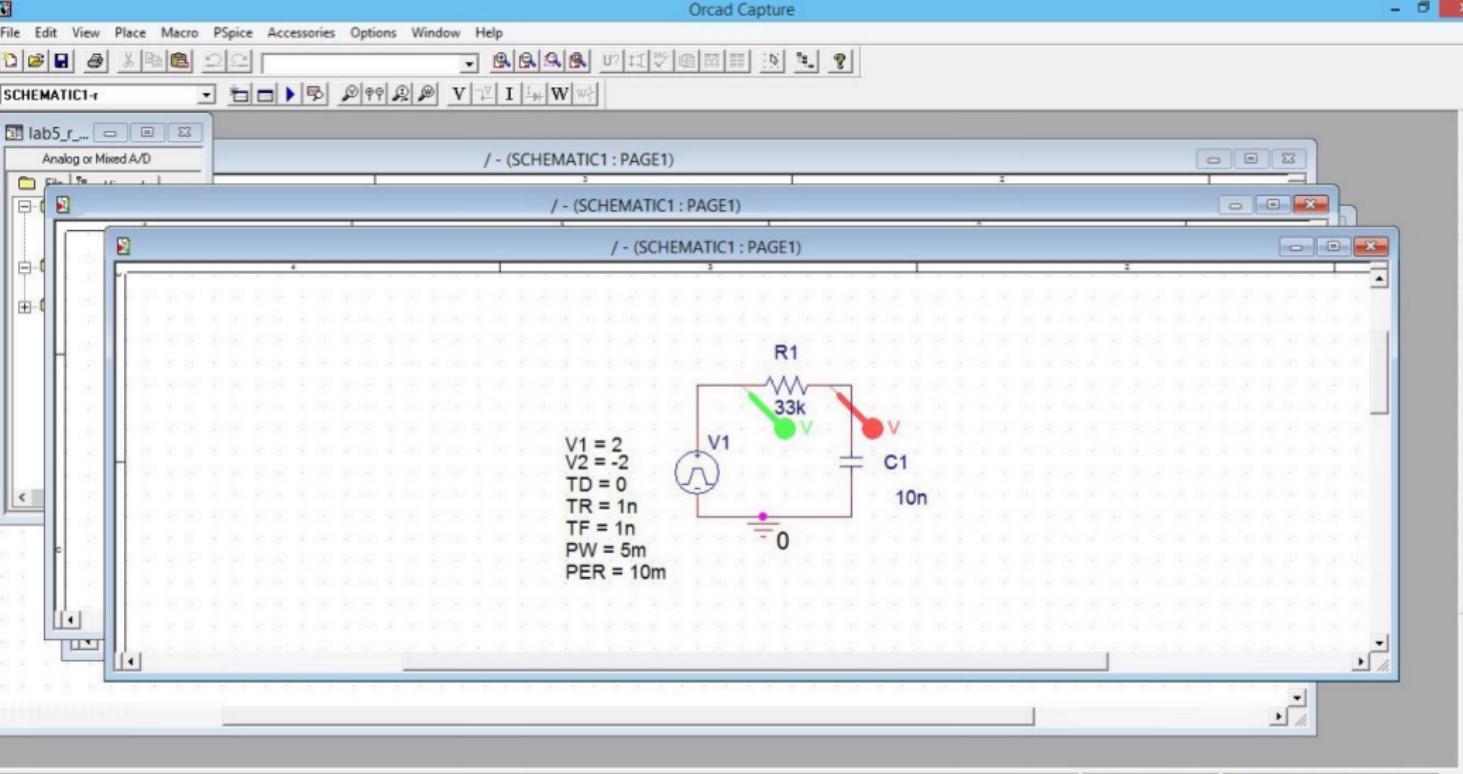
Help, press F1



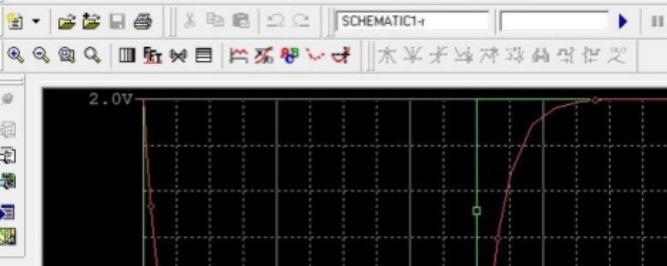
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11:37 PM  
ENG  
11/10/2020

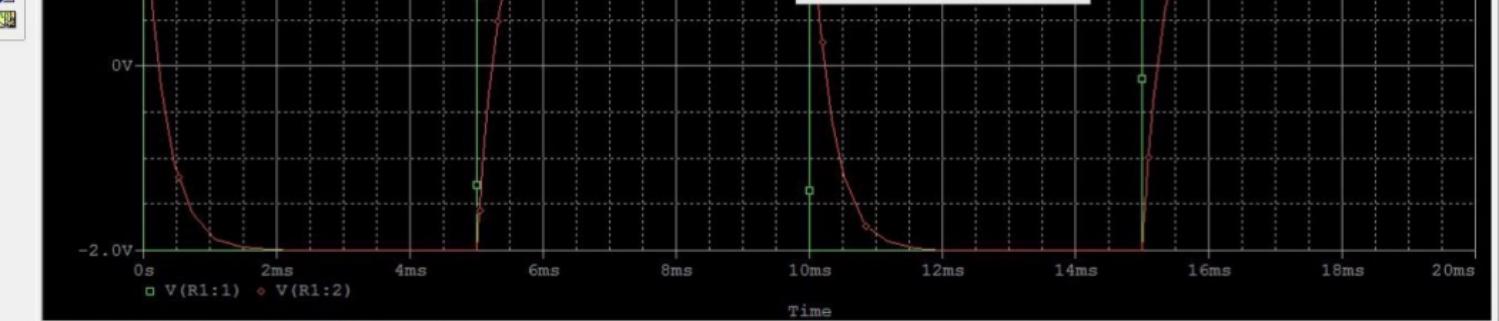


File Edit View Simulation Trace Plot Tools Window Help



Probe Cursor

A1 = 15.042m,	2.0000
A2 = 0.000,	2.0000
dif= 15.042m,	0.000
F1 = 2.5000m,	-1.9999
F2 = 0.000,	2.0000
dif= 2.5000m,	-3.9999



(A) lab5part... (D) lab5meg (F) lab5\_r\_2... (H) lab5\_r\_3...

```
-- Profile: "SCHEMATIC1.r" [ C:\ORCAD_PROJECTS\lab5_r_33k-SCHEMATIC1.r.sim ]
Reading and checking circuit
Circuit read in and checked, no errors
Calculating bias point for Transient Analysis
Bias point calculated
Transient Analysis
Transient Analysis finished
Simulation complete
```

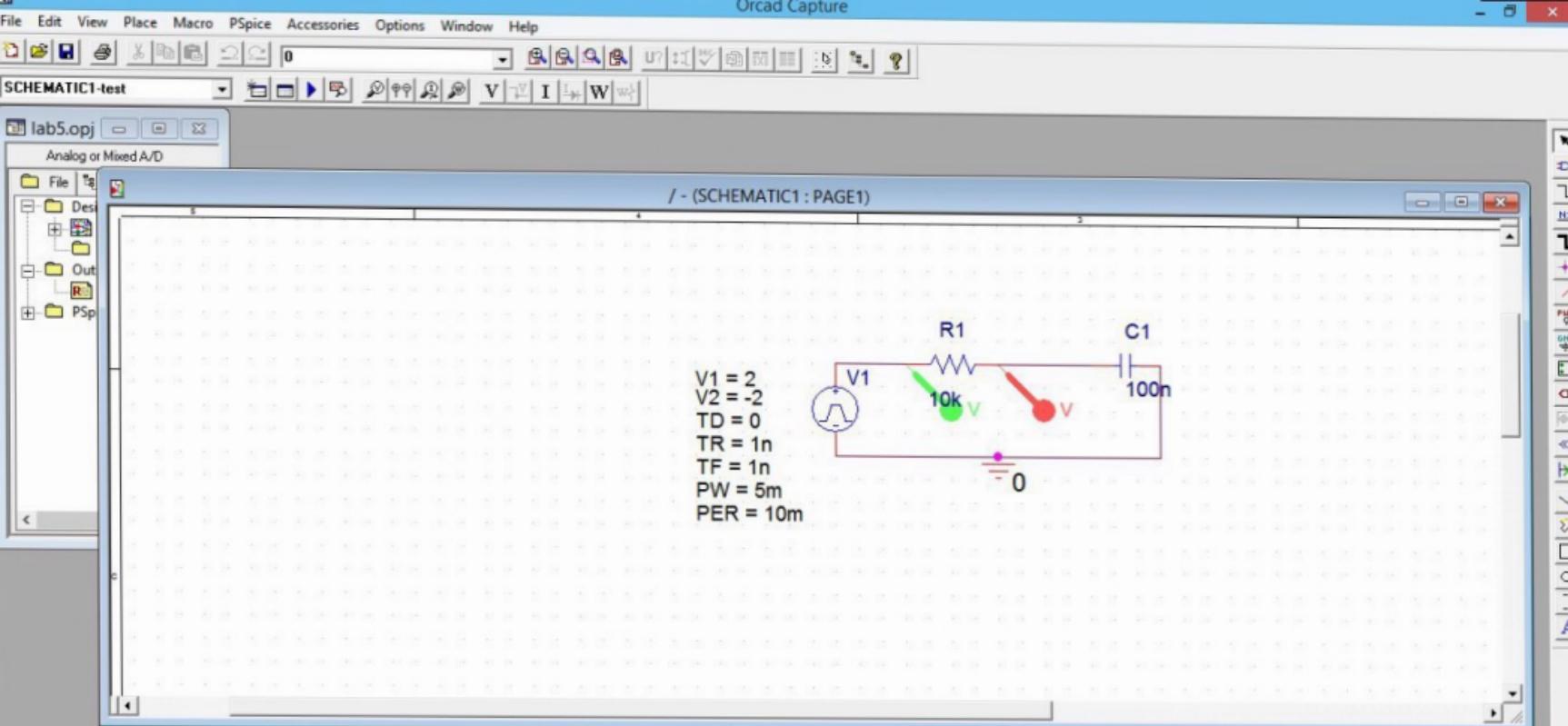
Capacitors:	1
Resistors:	1
Voltage Sour...	1

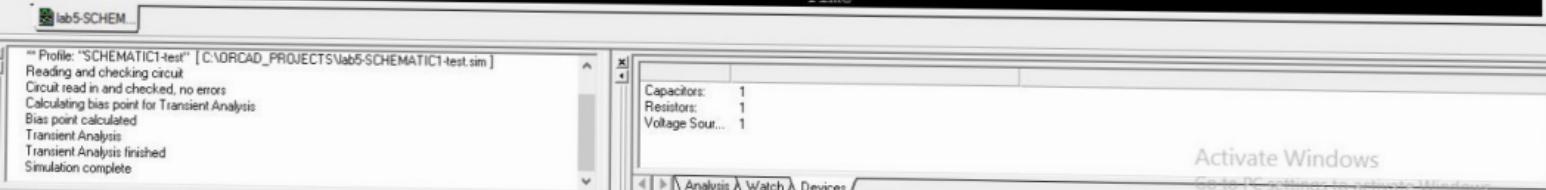
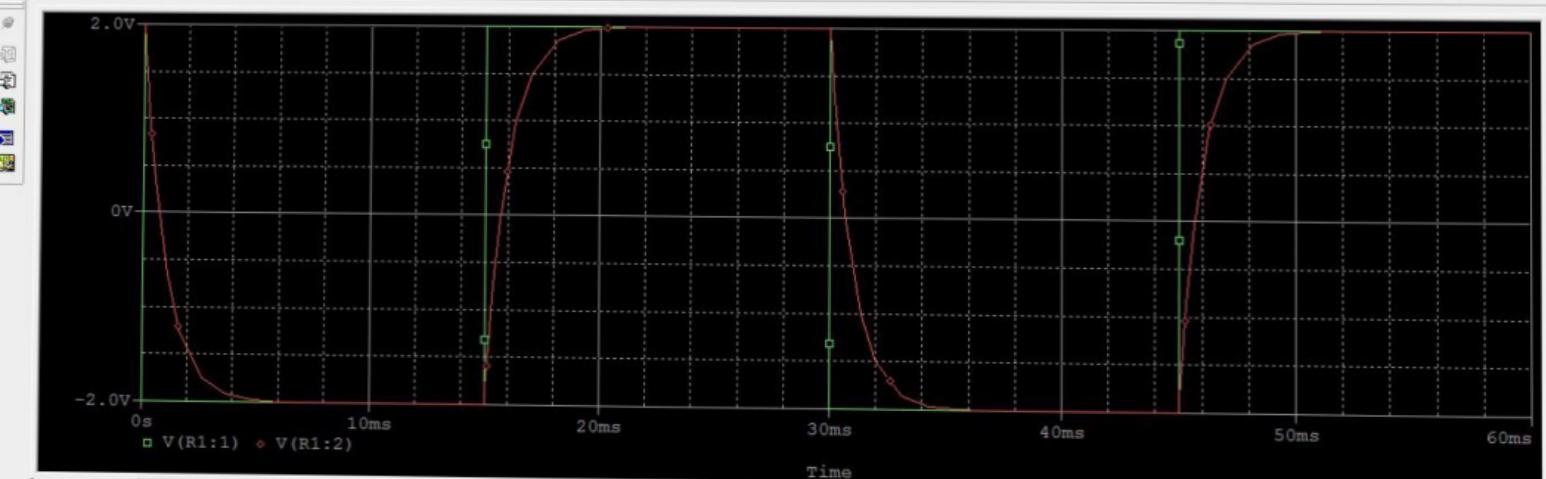
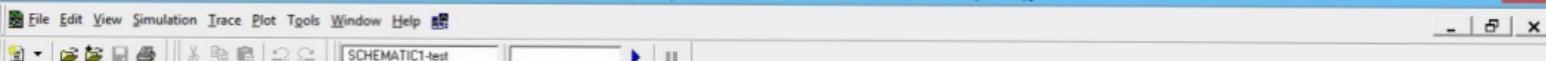
Analysis Watch Devices

or Help, press F1

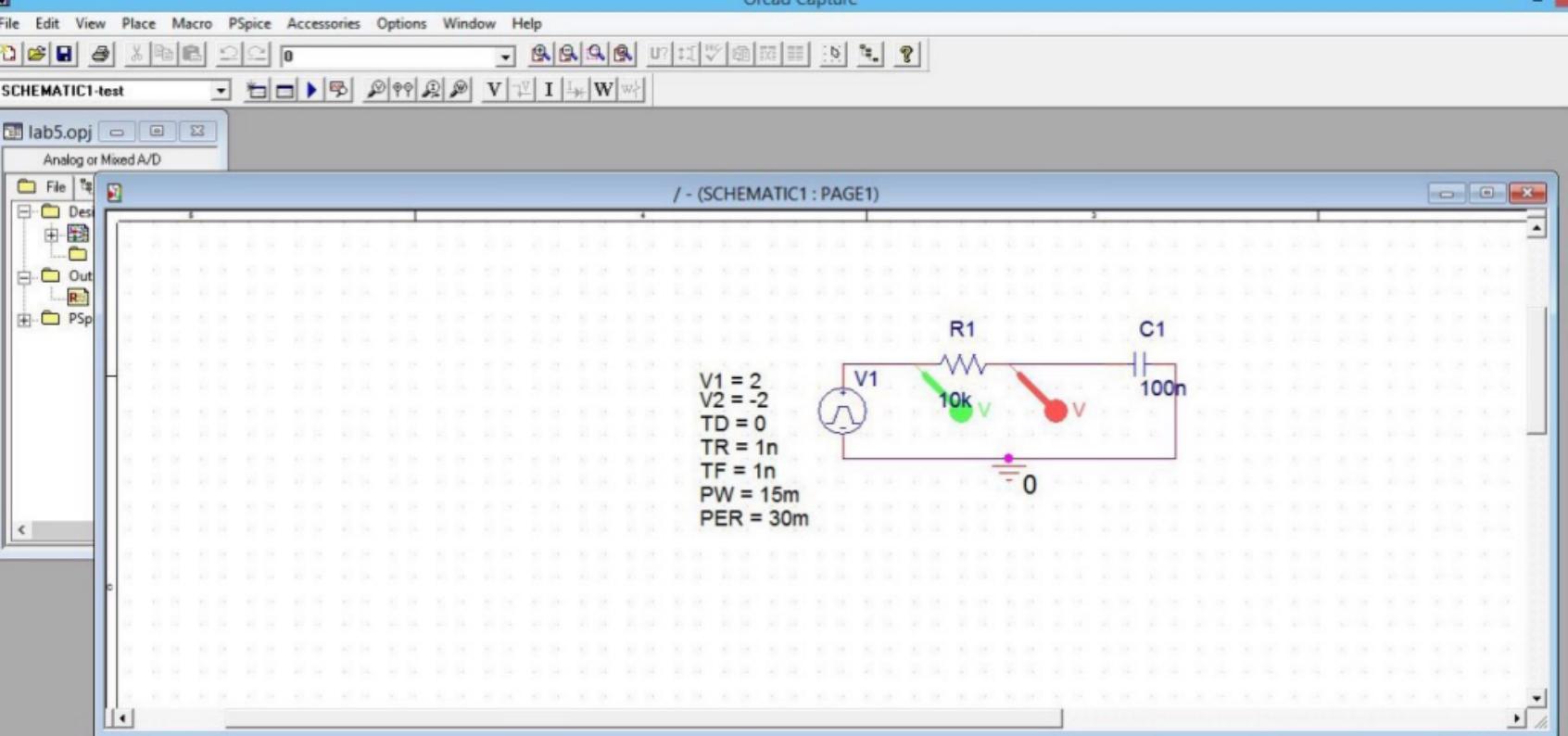
Time=.02 100% 11:50 PM ENG 11/10/2020

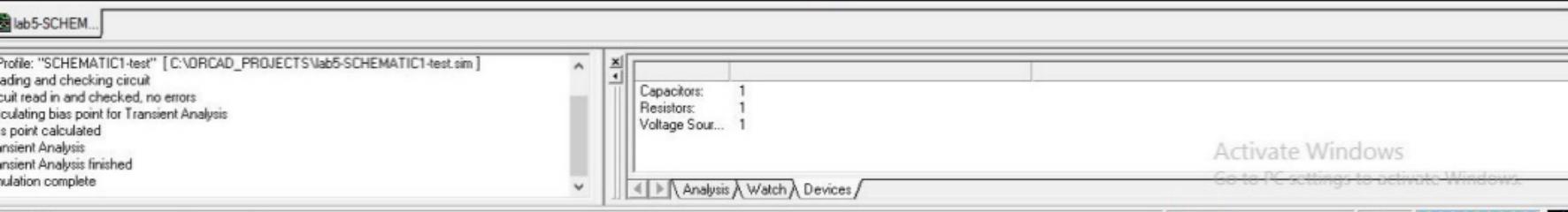
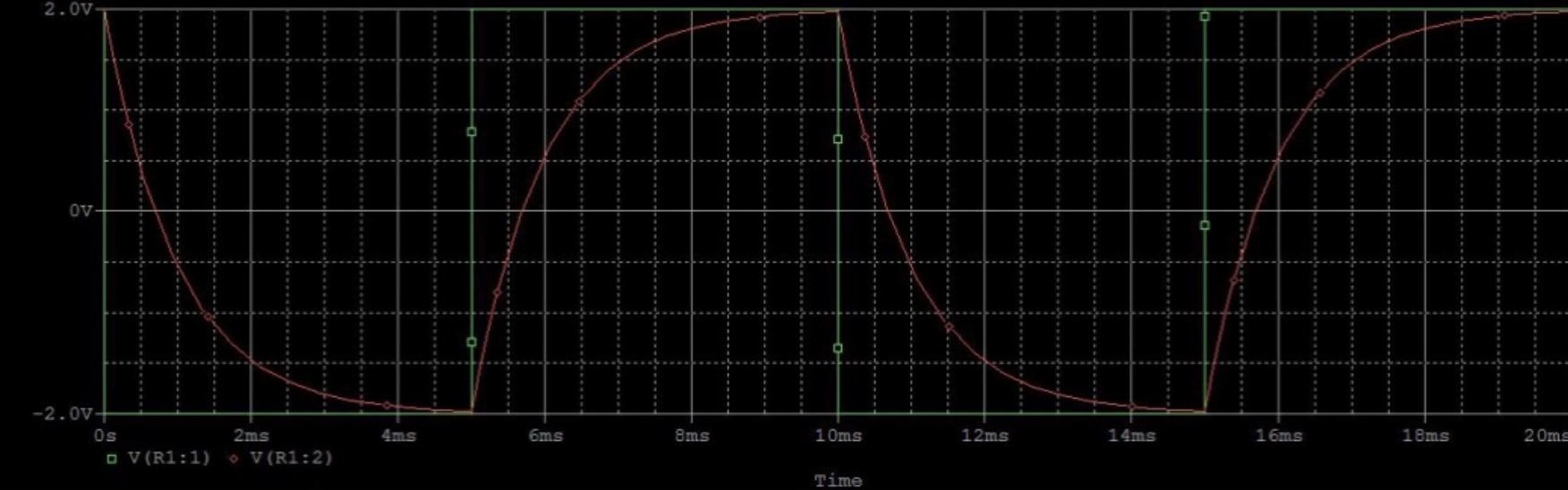






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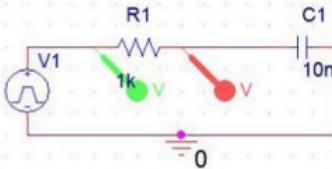


SCHEMATIC1-test

lab5\_3... Analog or Mixed A/D

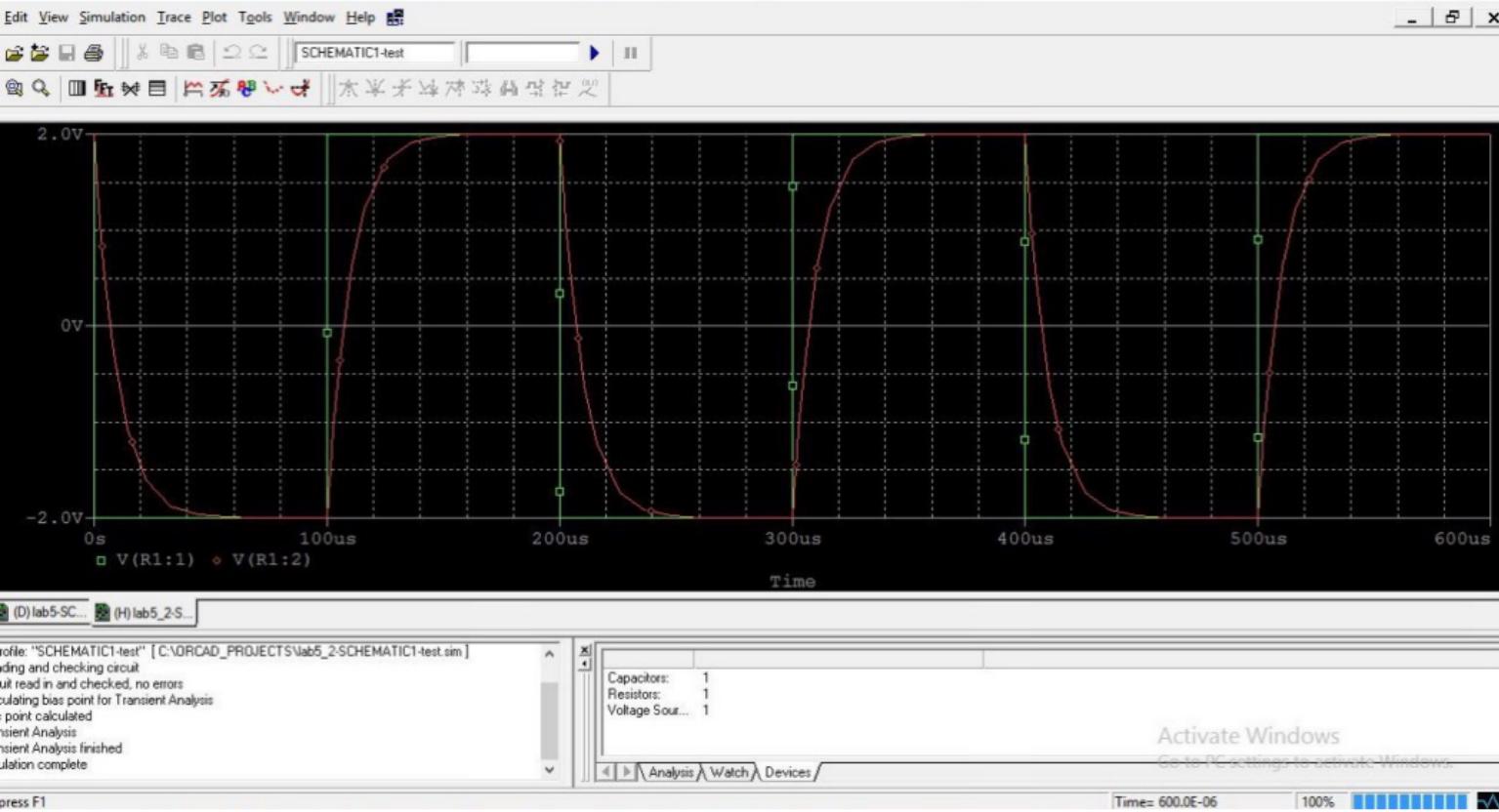
/- (SCHEMATIC1 : PAGE1)

V1 = 2  
V2 = -2  
TD = 0  
TR = 1n  
TF = 1n  
PW = 0.1m  
PER = 0.2m

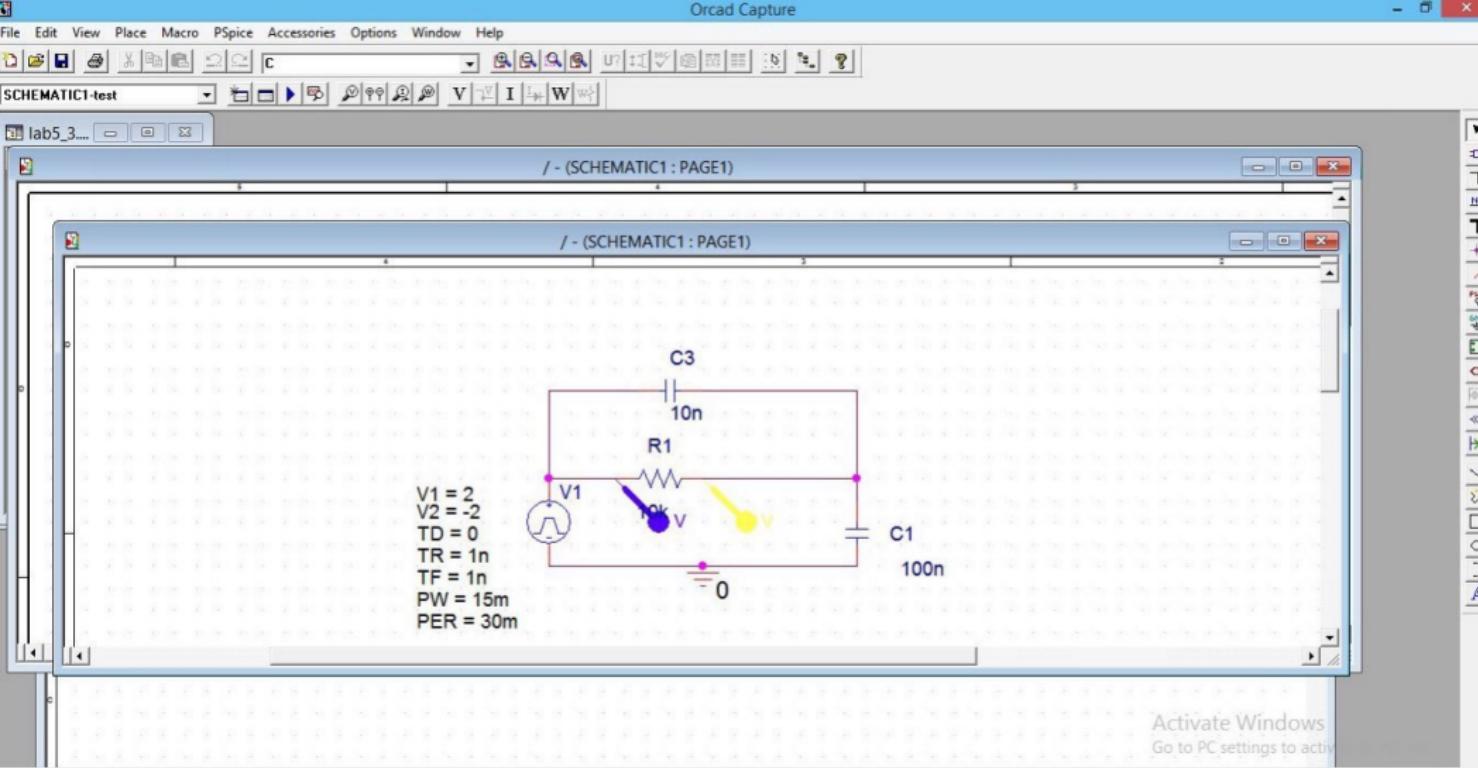


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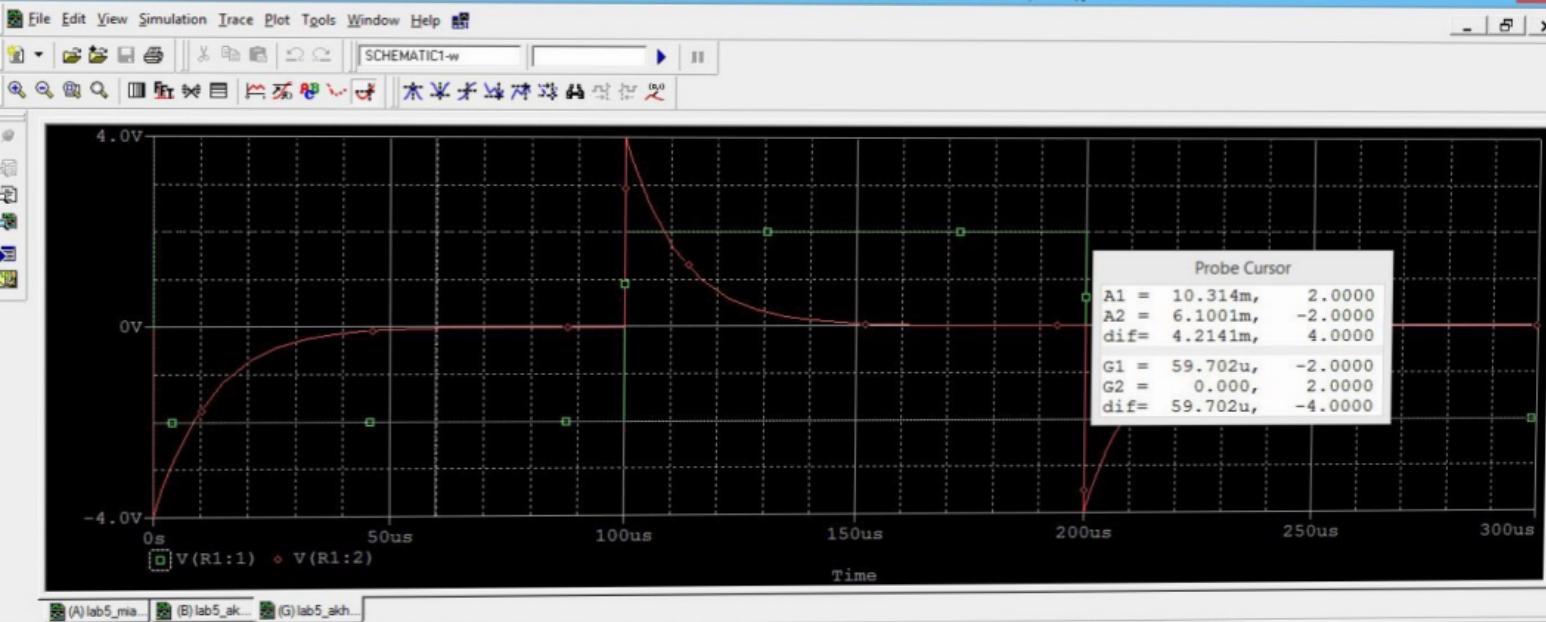
11:46 PM  
11/9/2020



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(A) lab5\_mia... (B) lab5\_akh... (G) lab5\_akh...

Profile: "SCHEMATIC1-w" [C:\ORCAD\_PROJECTS\lab5\_akhari-SCHEMATIC1-w.ssm]  
Reading and checking circuit  
Circuit read and checked, no errors  
Calculating bias point for Transient Analysis  
Bias point calculated  
Transient Analysis  
Transient Analysis finished  
Simulation complete

Inductors: 1  
Resistors: 1  
Voltage Sour... 1

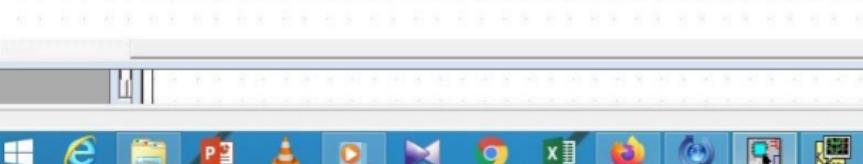
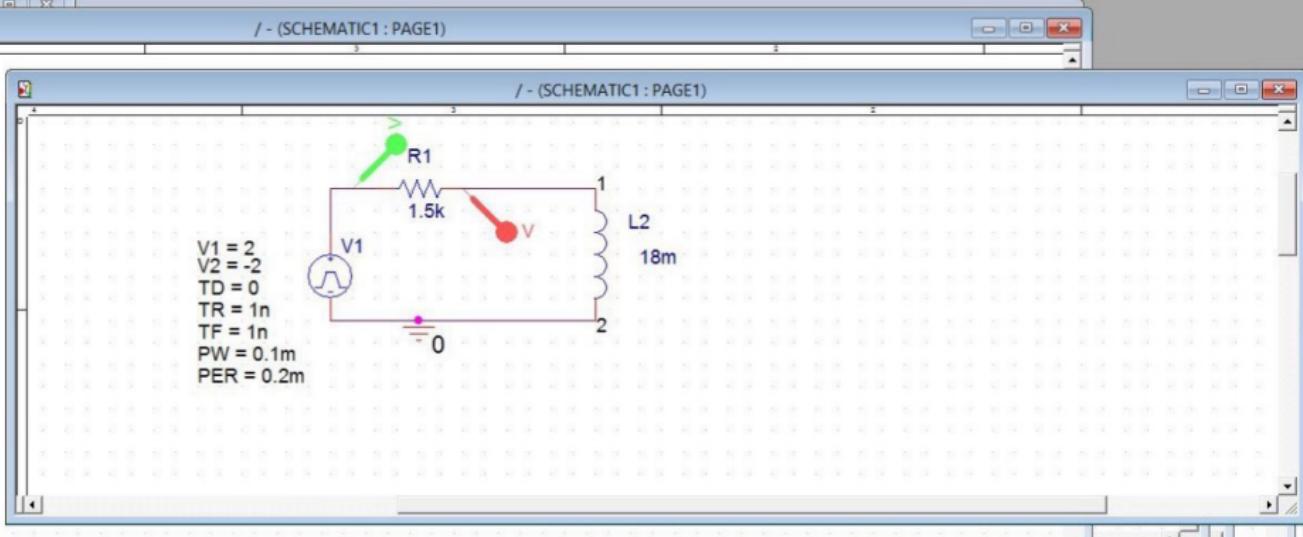
Analysis Watch Devices

Time= 300.0E-06 100% 1:04 AM 11/11/2020



SCHEMATIC1-w

Lab5.sch



0 items selected Scale=200% X=5.90 Y=1.90

1:04 AM  
11/11/2020  
ENG