



Dr. D. Y. Patil Unitech Society

DR. D. Y. PATIL INSTITUTE OF TECHNOLOGY

(formerly Dr. D. Y. Patil Institute of Engineering and Technology)

Sant Tukaram Nagar, Pimpri, Pune.

DEPARTMENT OF ELECTRONICS & TELECOMMUNICATION

Electrical Circuit Virtual Lab

Savitribai Phule Pune University

Second Year of E & TC Engineering (2019 Course)

204187: Electrical Circuits Lab

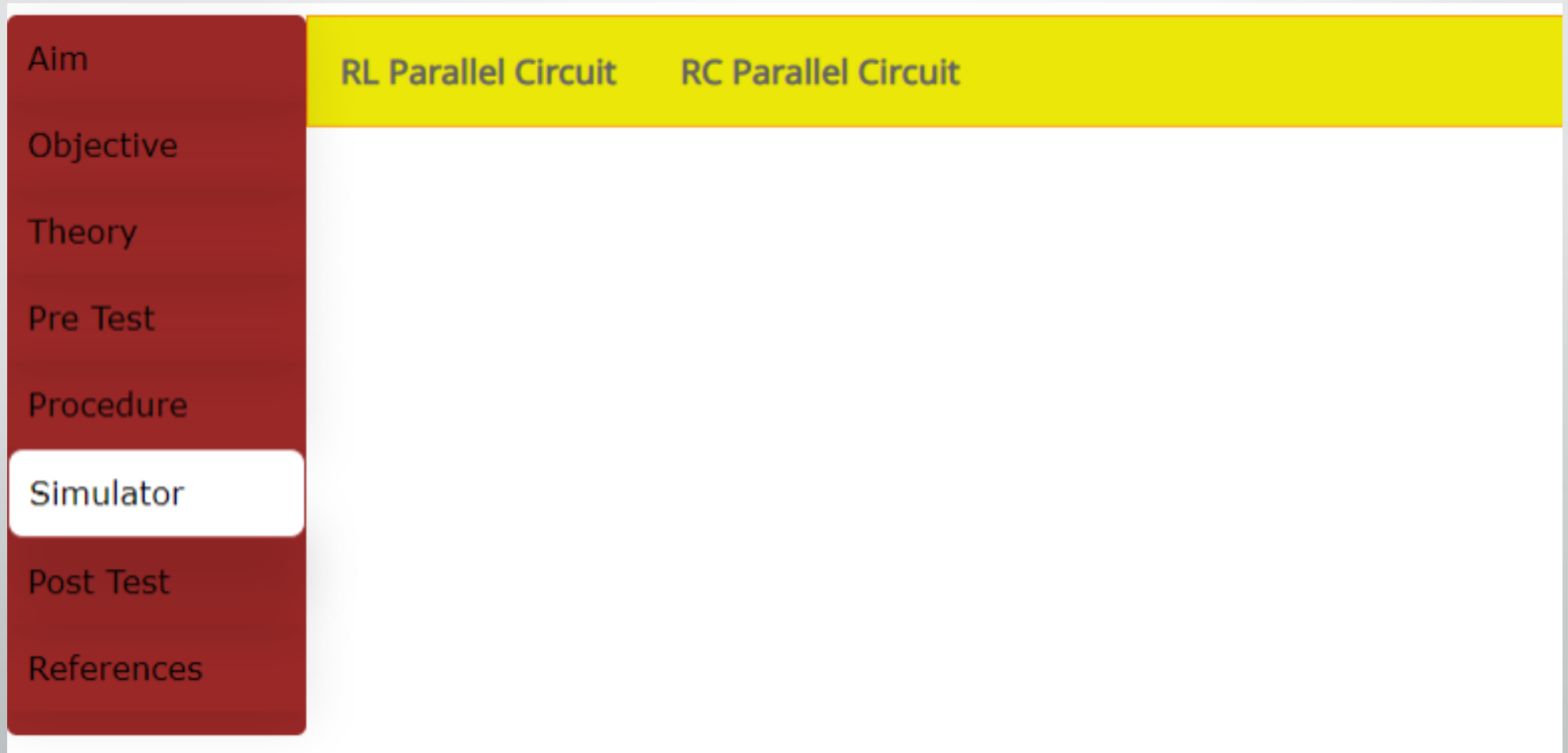


EXPERIMENT 2

To study and verify parallel RL & RC Circuits

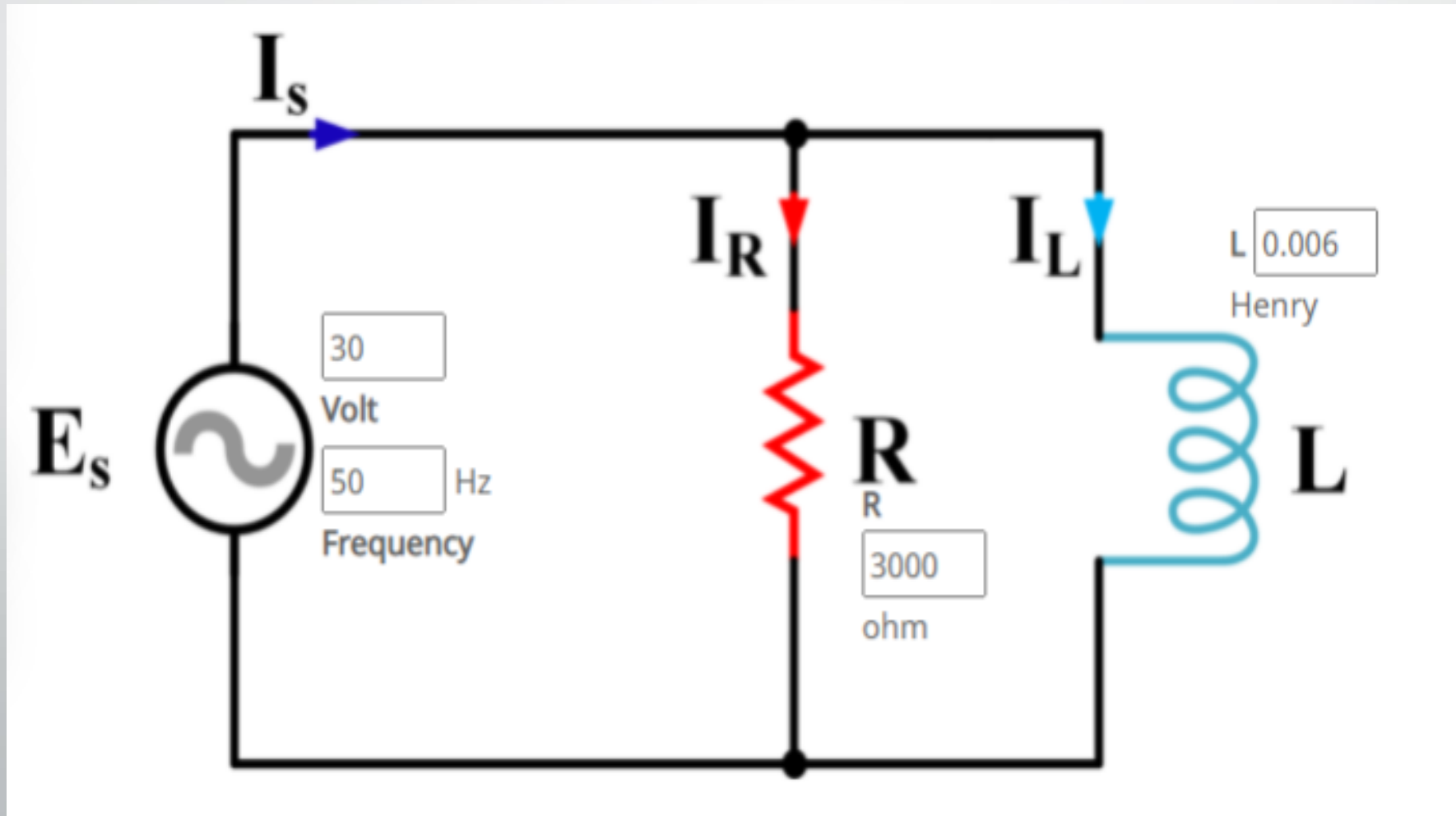
Procedure:

- 1) Go to the Simulator tab and select RL Parallel Circuit / RC Parallel Circuit.



2) Set the values of voltage source(E_s), frequency(f), Resistor(R) and Inductor(L).

(**range:** voltage:1V to 300V ,Frequency:1 Hz to 300Hz,Resistor : 1 ohm to 10k ohm ,Inductor: upto 1000 Henry)



3) Put the values in equations given. Solve the equations to find current(I_L , I_R , I_S), reactance(X_L), impedance(Z), power(P)= $V.I$

Equations:

1) $I_R = E_S / R$

2) $I_L = E_S / X_L$

3) $X_L = 2\pi fL$

4) $Z = E_S / I_S$

5) $I_S = (I_R^2 + I_L^2)^{1/2}$

4) Put the values which you have calculated in tabular form as shown.

NOTE:i) If your answer is less than 1,then round it off upto 5 decimal places.

ii) No need to calculate voltage and resistance as it is given.

	Voltage(in volt)	Current(in amp)	Resistance /Reactance/impedence	Power(in watt)
R	Vin:30	0.01	Rin:3000	0.3
L	Vin:30	16	1.884	477.7
Total	Vin:30	16	1.884	477.7

5) Click on **Verify Reactance/Impedance** ,**Verify Current** ,**Verify Power** buttons to verify your answers.

	Voltage(in volt)	Current(in amp)	Resistance /Reactance/impedence	Power(in watt)
R	Vin:30	0.01	Rin:3000	0.3
L	Vin:30	16	1.884	477.7
Total	Vin:30	16	1.884	477.7

Reactance and Impedance verified.

Current Verified.

Power Verified.

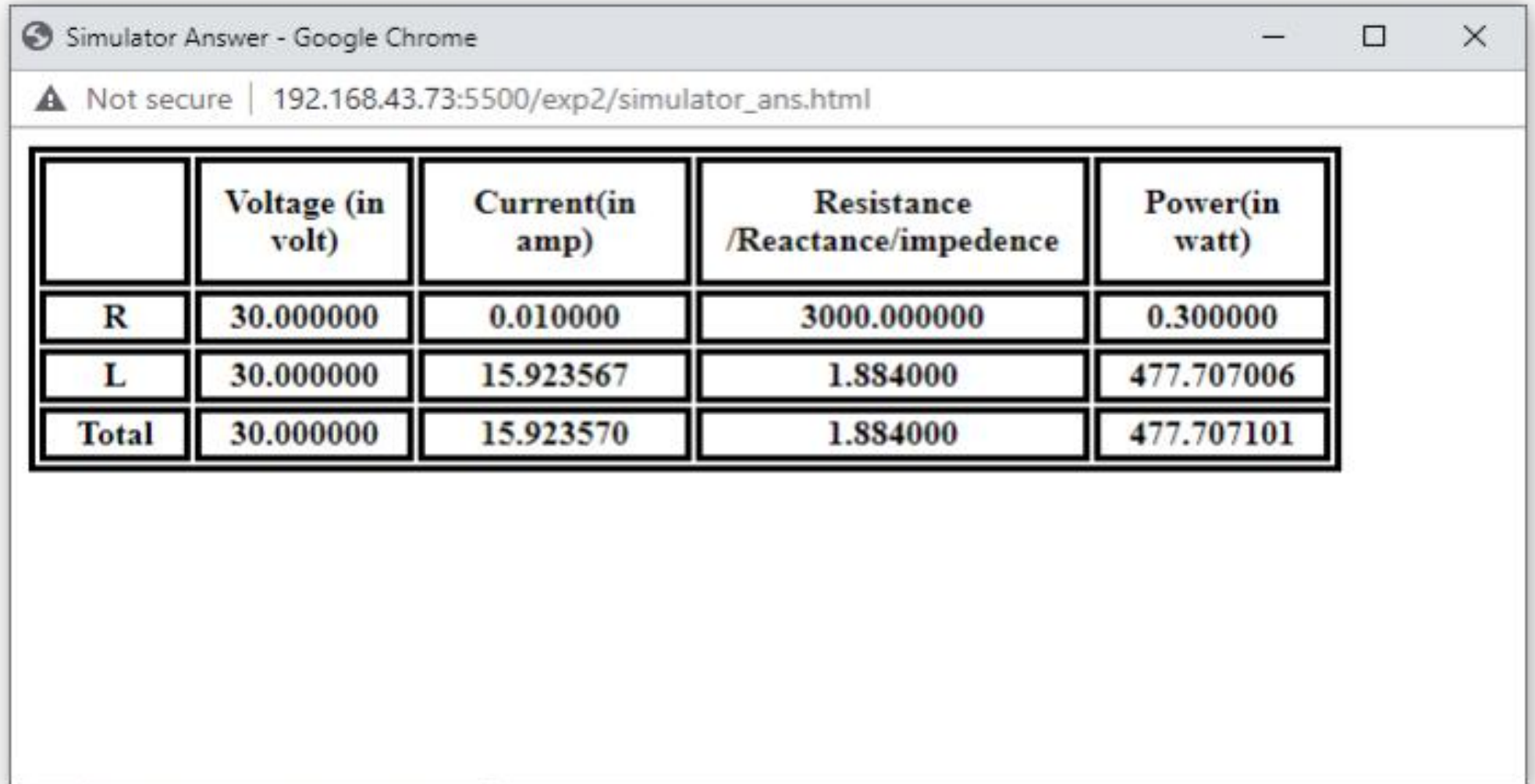
Verify Reactance/Impedance

Verify Current

Verify Power

Click here to see answer

6) Click on the **Click here to see answer** button to see correct answers if you want. Answers will be displayed in the table.



Simulator Answer - Google Chrome

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	Voltage (in volt)	Current(in amp)	Resistance /Reactance/impedence	Power(in watt)
R	30.000000	0.010000	3000.000000	0.300000
L	30.000000	15.923567	1.884000	477.707006
Total	30.000000	15.923570	1.884000	477.707101

[Click here to see answer](#)

7) Repeat the same procedure for RC parallel circuit.

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Post Test

References

Procedure

E: 30
R: 3
C: 6
f: 50

	Voltage(in volt)	Current(in amp)	Resistance /Reactance/impedence	Power(in watt)
R	Vin:	Enter Current	Rin:	Enter Power
C	Vin:	Enter Current	Enter reactance	Enter Power
Total	Vin:	Enter Current	Enter impedance	Enter Power

Equations:

- 1) $I_R = E_s / R$
- 2) $I_C = E_s / X_C$
- 3) $X_C = 1 / 2\pi f C$
- 4) $Z = E_s / I_s$
- 5) $I_s = (I_R^2 + I_C^2)^{1/2}$