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)

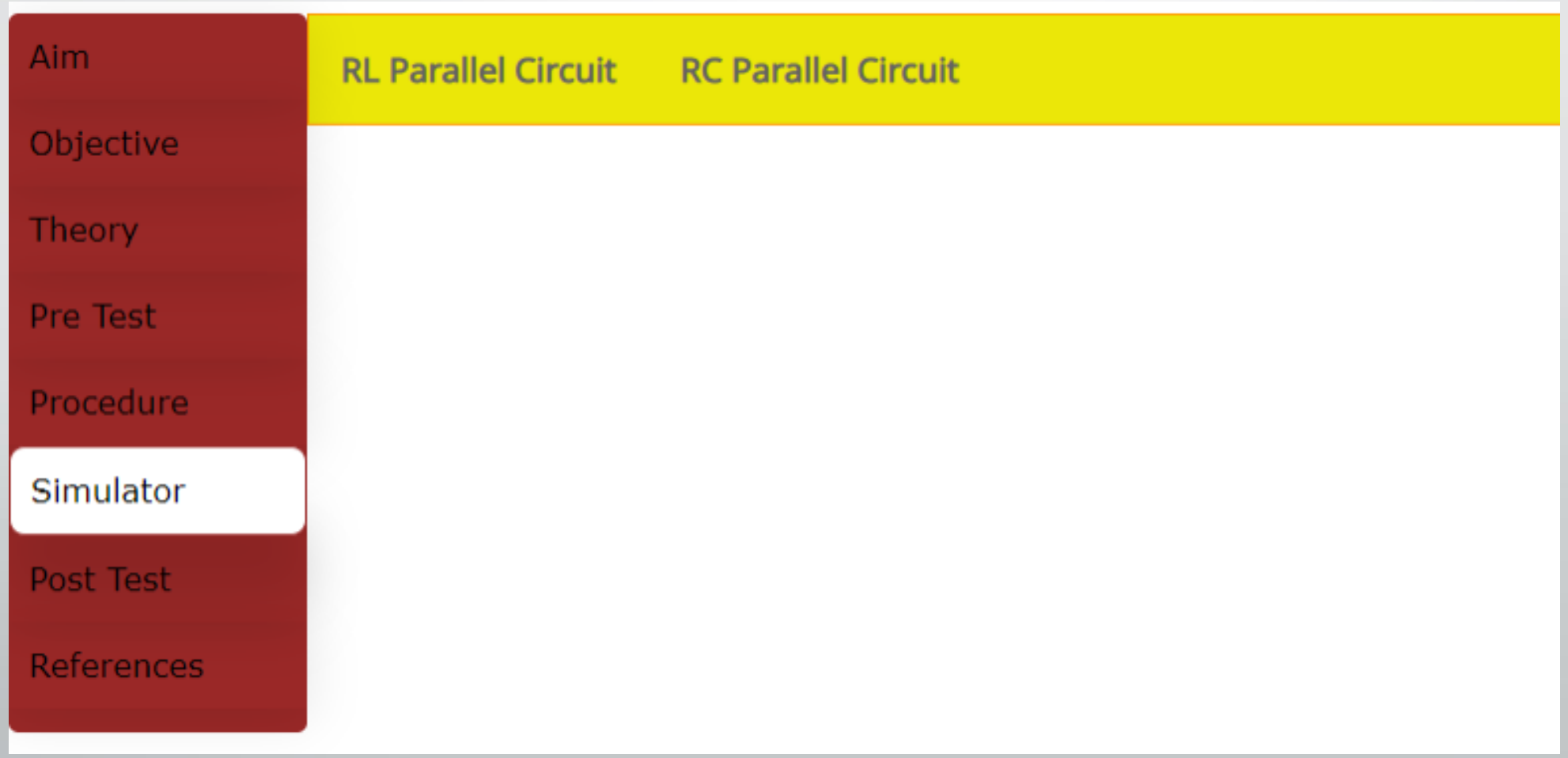
204187: Electrical Circuits Lab

EXPERIMENT 2

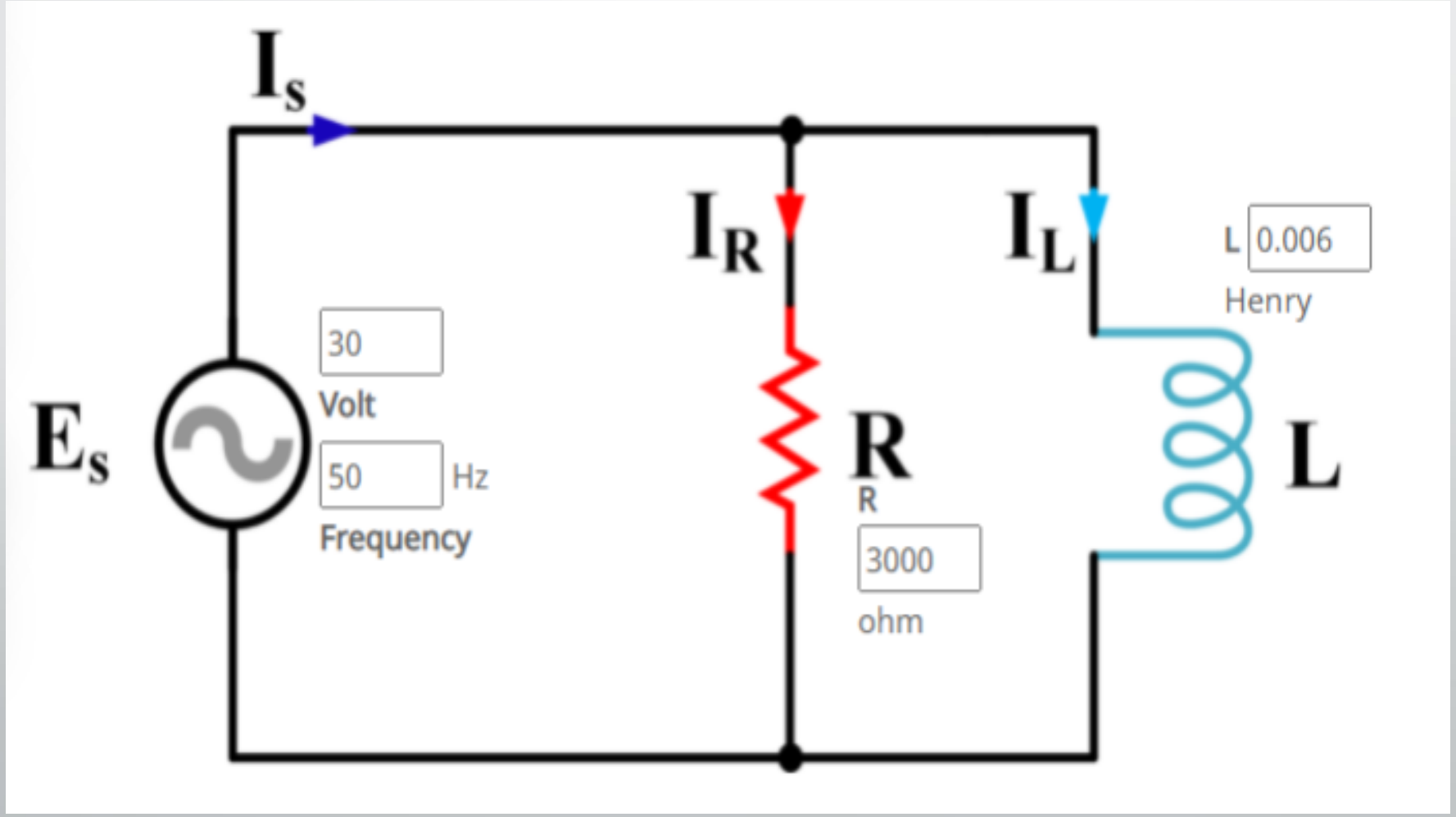
To study and verify parallel RL & RC Circuits

Procedure:

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



2) Set the values of voltage source(Es),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.

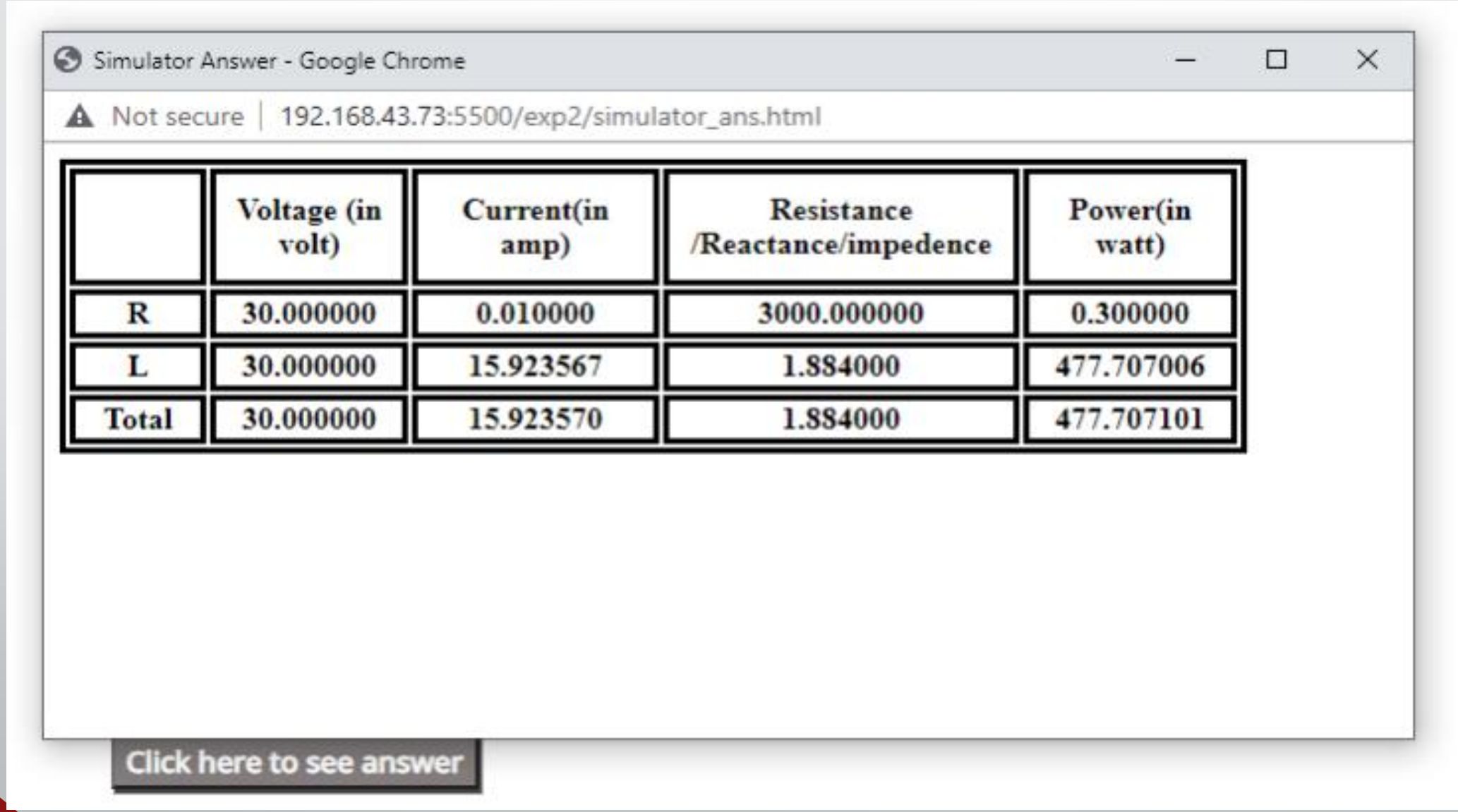
Current Verified.

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.



	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

7) Repeat the same procedure for RC parallel circuit.