the current is a sine or a cosine function the derivative is the opposite. Since sine and cosine have a 90^0 phase difference between them the voltage across inductor and resistor also do.

MOTIVATION: The analysis of systems with sinusoidal waveform variables is very important in a large number of disciplines of science. Systems with non-sinusoidal variables are also analysed by breaking it into sinusoidal waveforms. Hence the study of response of sinusoidal waveforms in electric circuits can help solve a lot of problems.

OBJECTIVE: To draw the phasor diagrams of a series RLC circuit and compare the theoretical and experimental results.

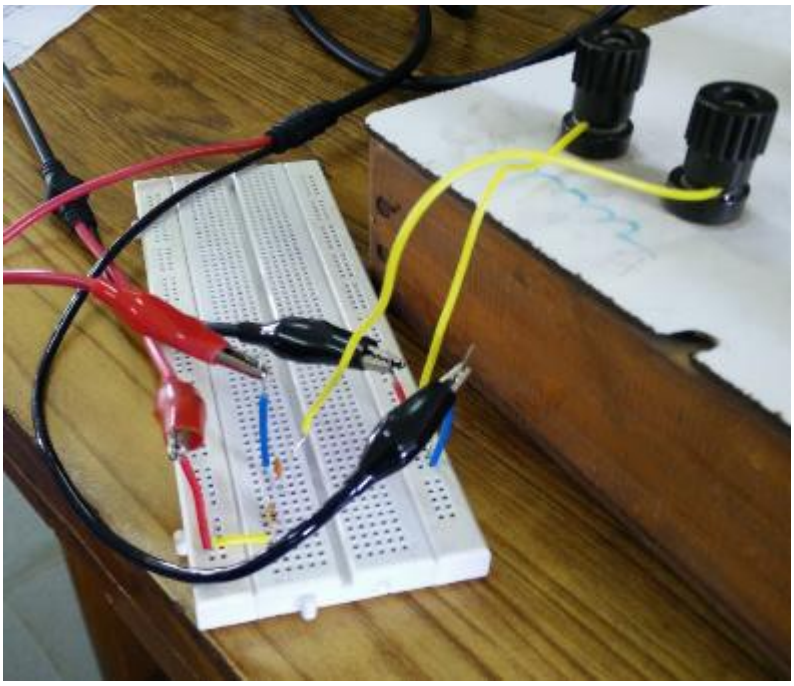
APPARTUS REQUIRED:

1) Signal Generator
2) Multimeter
3) Cathode ray oscilloscope
4) Resistors
5) Inductors
6) Capacitors
7) Bread-board
8) Connecting wires and alligator clips.

EXPERIMENTAL PROCEDURE:

1) On the earthing terminal of breadboard the positive terminal of the signal generator is connected.
2) In series with the above a resistor is connected in series.
3) In series with the above resistor a capacitor is also connected.

The corresponding breadboard layout is the following:



Here red alligator clips are positive terminals and black are negative.

Connecting wires- Red → power source

Yellow → connectors in circuit

Blue → A.R.O connection