Name: _____   **ID#** _____   **Lab Section:** _____
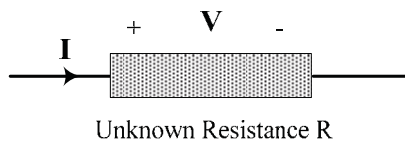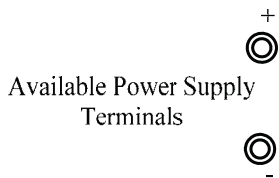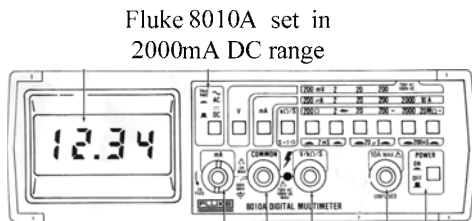
PRE-LAB [To be completed and submitted before performing Lab#1]
 (Weight: 20%)

Question#1   (a) Physical representations of the digital multimeters used in the lab (Fluke Model 8010A & Agilent Model 34405A) and a resistance element of unknown value are shown below.Also shown are power-supply terminals from which a voltage supply is available. Show (by drawing lines) how you would connect the DMMs and the resistance R to the available power supply terminals, to measure the voltage V across the resistance and the current I through it.

Fluke 8010A set in
2000mA DC range

Agilent 34405A set
DCV-Auto mode

Available Power Supply
Terminals

$+$

$-$

I

$+$ **V** $-$

Unknown Resistance R

(b) Assuming that you have made the proper connections and that the Fluke 8010A and Agilent
    34405A read

   ………. mA* and ………… volts* , respectively, determine the following:

Value of the   resistance , R = ………………………………….Ohms/ kΩ

Power dissipated in R , P_R = …………………………………Watts / mW

* Fill in values of your choice for I & V

Question #2

(a) Physical representations of the Instek GFG-8216A Function Generator (FG) and the Tektronix TDS-320 Oscilloscope (DSO) are shown below. The test circuit shown at the lower left is to be implemented using the RLC-chassis, the FG and the DSO. Show (draw) the necessary connections to be made between the three units.

OSCILLOSCOPE(DSO)

BNC adapter

FUNCTION GENERATOR

Red   Blk

(Note Red/Blk terminal reference)

TEST CIRCUIT

Input   R   L   Output V_c C

RLC Chassis
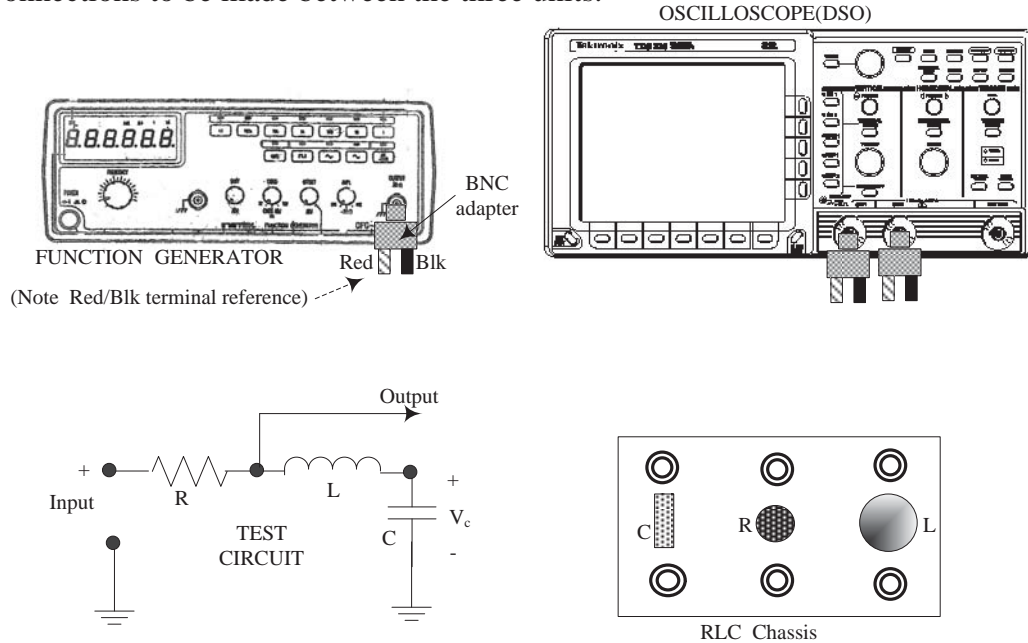
(b) Assume that you have made the proper connections for (a) above and that you next wish to change the test circuit to have only R and C in series, with V_C as the output.

Using a dashed line, show the (single) additional connection required which will accomplish the change.

(c) Two sinusoidal waveforms of the same frequency, f, are displayed on the oscilloscope.

The waveforms are not in phase and the cursors were used to measure the following values:

Time between two adjacent peaks of the same waveform   =   ……… μs

(choose between 200 to 400 μs)

Time between adjacent peaks of the first and second waveform   =   ……… μs

(choose between 10 to 40 μs)

With the values that you have chosen, the frequency is   f = ……………. Hz

and the phase-shift between the two waveforms is ϕ = ………… degrees.