Resonance in LCR circuit

Illustration of components:

Series circuit

Inductance Box

Capacitace Box

Resistance Box

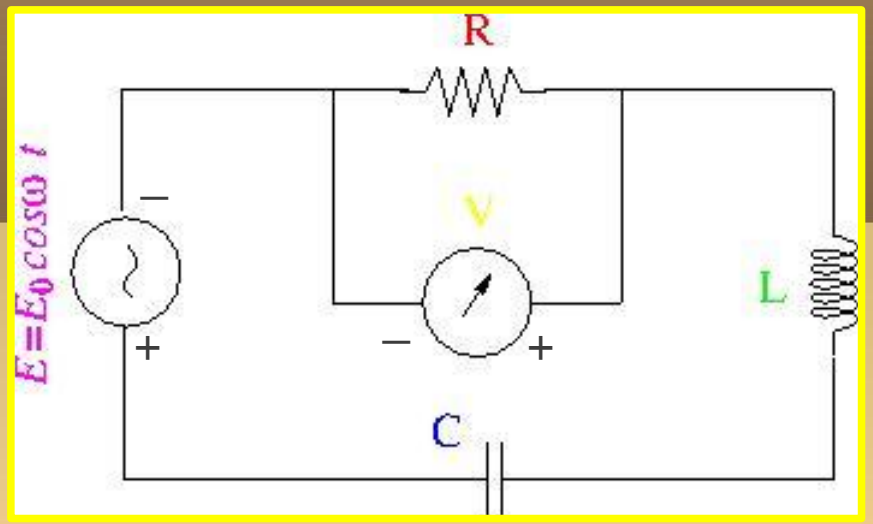
Function Generator

Alternate Function Generator

Voltmeter

Parallel circuit

Series LCR circuit

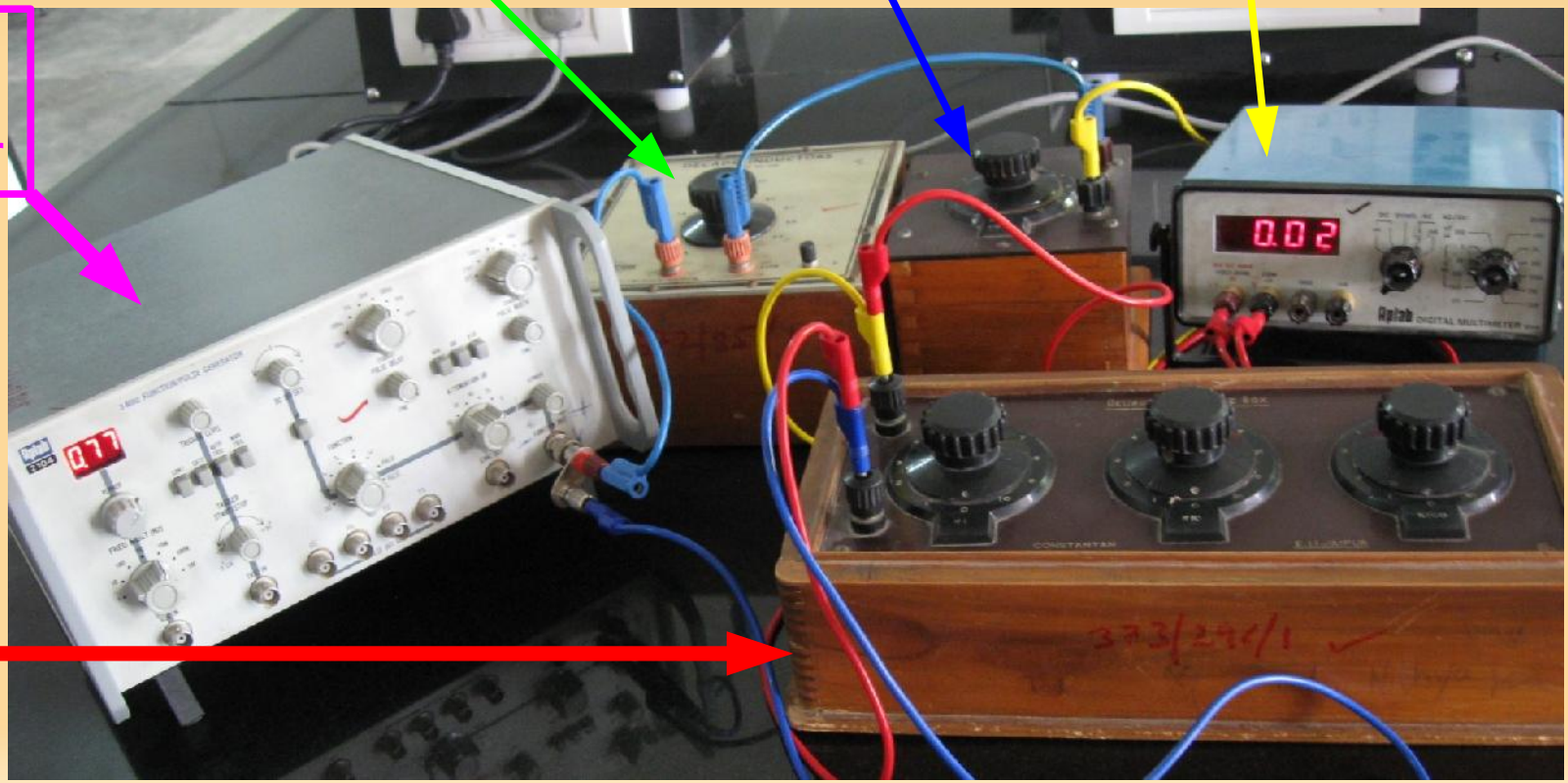


V: Voltmeter (reading AC voltage)

L: Inductor

C: Capacitor

E : Sinusoidal EMF through Function Generator



R: Resistance

Inductor

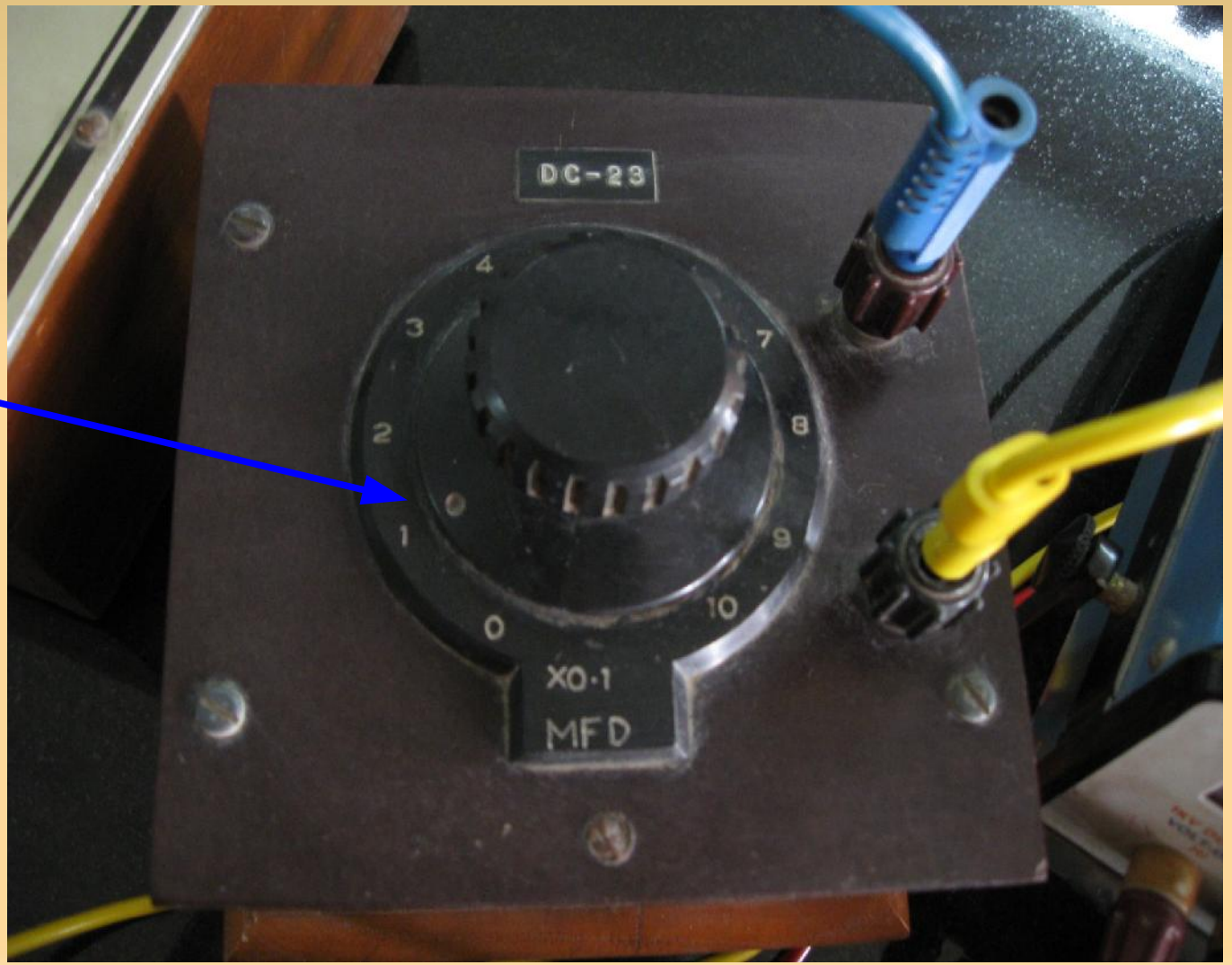
Dial of Inductance Box adjusted to 10:

L = 10 x 0.001 H

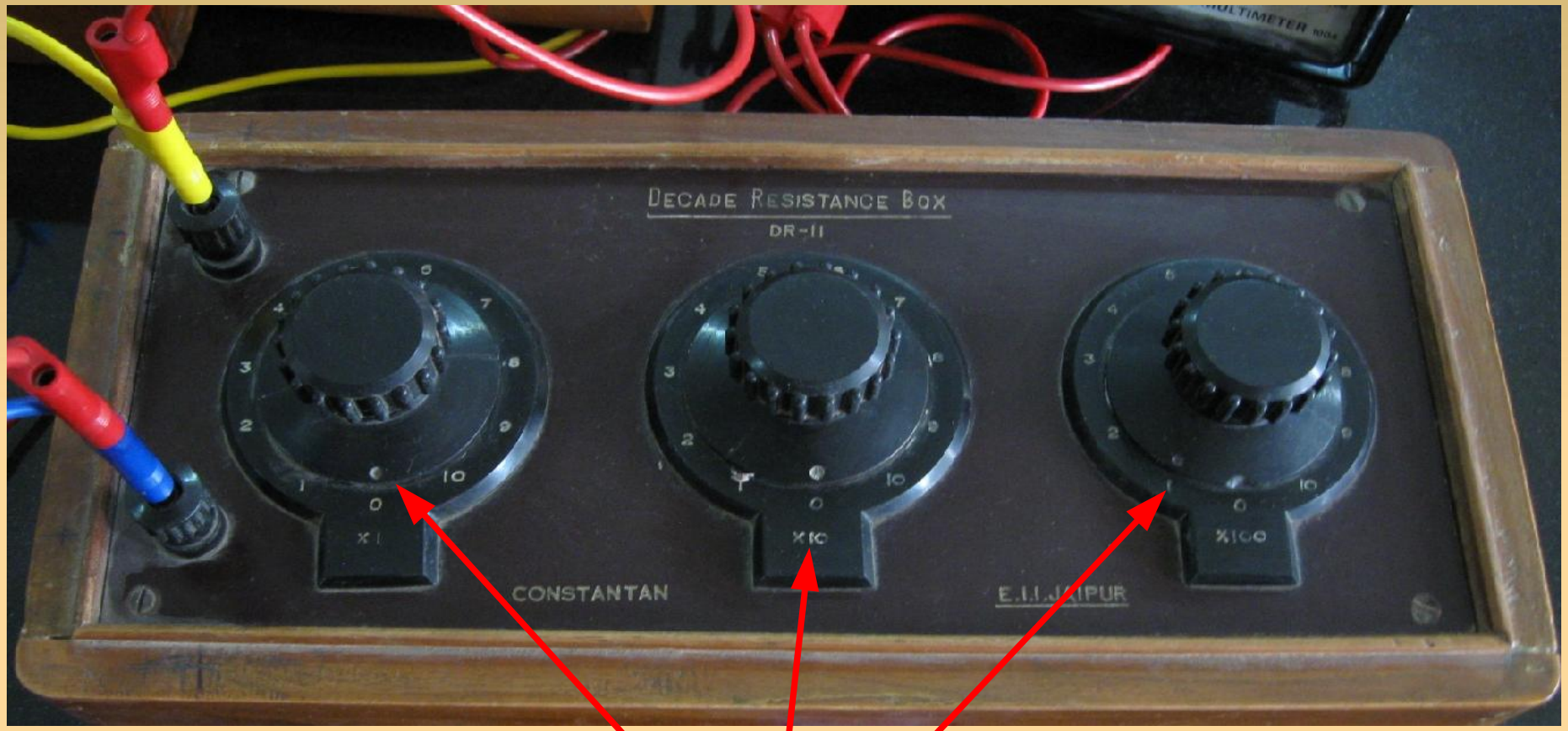
Capacitor

Dial of Capacitance Box adjusted to 1:

C = 1 x 0.1 micro-Farad

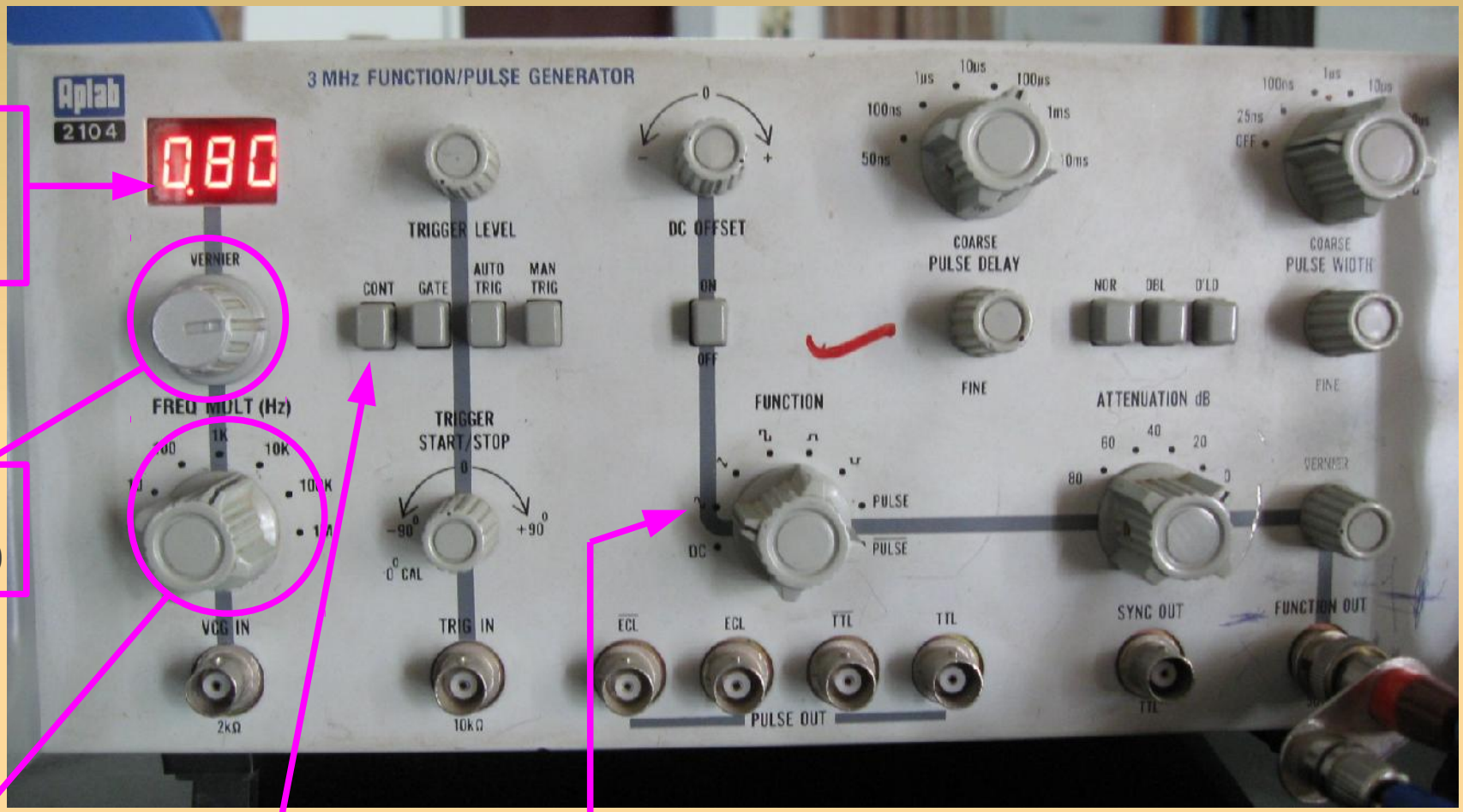


Resistance



Dials of Resistance Box adjusted to 0, 0, 1: **R = 0x1 + 0x10 + 1x100 = 100 ohm**

Function Generator



Frequency:
f **= 0.8x10 kHz**
= 8 kHz

Vernier dial rotated to 0.80

Frequency Range set to 10 kHz

Function type adjusted to sinusoid

Continuous mode requires to be used

Alternate Function Generator

Frequency range to be selected

Sinusoid to be selected

Vernier dial

Frequency *f* = Value on vernier dial x Value of frequency multiplier

Voltmeter

(multimeter used as voltmeter)

Voltage across the resistance V = 1.23 volt

Precision Adjustmet

To be connected to the two ends of the Resistance box

Dial indicates measurement of AC voltage

Numbers indicate maximum voltage that can be read: set to 20 volt

Parallel LCR circuit

Using the same components the *SERIES* circuit can be changed into *PARALLEL* by rearranging the connecting wires.