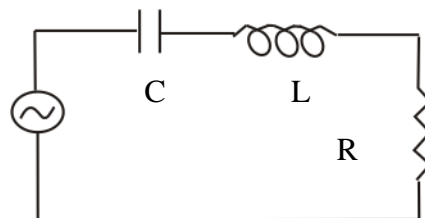


Physics 112 Data Sheet 9

Exp.#9: Impedance and Reactance

A. Connect RLC-series circuit shown ($R=1\text{K}\Omega$, $C=0.1\mu\text{F}$ and $L=10\text{ mH}$).

Display V_R and the input voltage on the DSO screen and fill the table below:



Frequency, f (KHz)	Time shifting Δt (ms)	Phase shift Φ , (rad.)
0.1		
0.4		
0.8		
1.0		
2.0		
3.0		
4.0		
4.5		
5		
5.5		
6.0		
8		
10		
20		
40		
70		
100		

Draw the phase shift between the driving voltage and the current as a function of the frequency. Define the resonant frequency.

B. At the resonant frequency using XY mode measure the phase shift between V_C and the current and between V_L and the current. Draw V_C , V_L and V_R as functions of time on the same graph.