K L E Society 's
KLE Technological University, Hubli

9.STUDY OF FREQUENCY RESPONSE OF PASSIVE COMPONENTS

Date submitted : 11-11-2019 15:38:42

USN : 01FE19BEC258
Name : VISHWAS RAJU BANAGAR
Department : Physics
Roll Number : 1442
Subject Name : Engineering Physics Lab

Number of Observations : 10

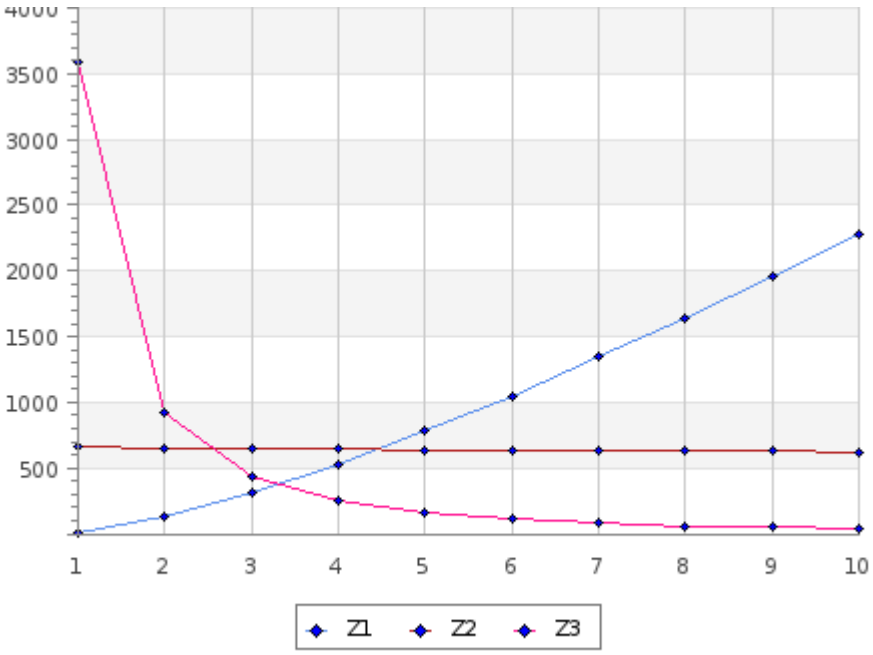
Sl No	Record of Observations	Values	Units
1	Vi	1	volt
2	Load resistance	1	K Ω

TABULATION

FREQUENCY 'F' IN KHz	Z1		Z2		Z3	
	GAIN AV= Vo/Vi	IMPEDANCE Z1= RL(1-Av)/Av	GAIN AV= Vo/Vi	IMPEDANCE Z2= RL(1-Av)/Av	GAIN AV= Vo/Vi	IMPEDANCE Z3= RL(1-Av)/Av
1	0.994	6.04	0.6	666.67	0.218	3587.16
2	0.885	129.94	0.606	650.17	0.522	915.71
3	0.764	308.9	0.607	647.45	0.699	430.62
4	0.653	531.39	0.609	642.04	0.801	248.44
5	0.562	779.36	0.61	639.34	0.864	157.41
6	0.488	1049.18	0.612	633.99	0.901	109.88
7	0.427	1341.92	0.613	631.32	0.925	81.08
8	0.38	1631.58	0.613	631.32	0.943	60.45
9	0.338	1958.58	0.614	628.66	0.954	48.22
10	0.305	2278.69	0.616	623.38	0.964	37.34

9.STUDY OF FREQUENCY RESPONSE OF PASSIVE COMPONENTS

Graph :



Impedence (Z_x)

Frequency 'f' KH $_z$

Calculation From Graph

1. At 2 KHz Z_L = 129 Ω
   Therefore, Inductance(L) = Z_L / 2π f
   = 10.2642 mH

2. At 2 KHz Z_C = 840 Ω
   Therefore, Capacitance (C) = 1 / 2 π f Z_C
   = 0.1 μF

3. Resistance (R) = 0.6 Ω

Conclusion

frequency is directly proportional to inductive reactance and inversely proportional to capacitive reactance