

A decorative graphic on the left side of the slide, consisting of white lines and circles on a blue gradient background, resembling a circuit board or a network diagram.

FINAL PROJECT

MUSTAFA SMAILI

EECT-111

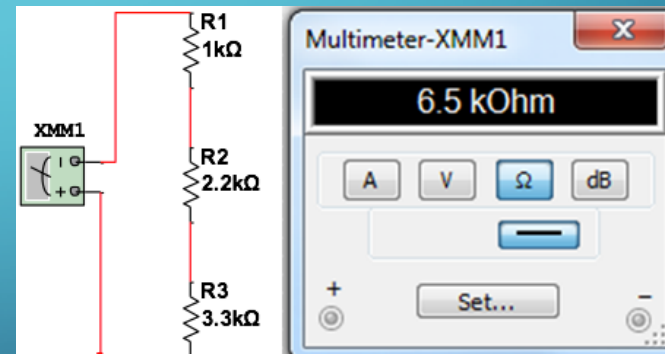
MRS ALBA

RESISTORS IN SERIES

Formula:

$$R_T = R_1 + R_2 + R_3 \dots$$

R1	1kΩ
R2	2.2kΩ
R3	3.3kΩ
R_T	1 kΩ+2.2kΩ+3.3kΩ =6.5
R_T	6.5kΩ

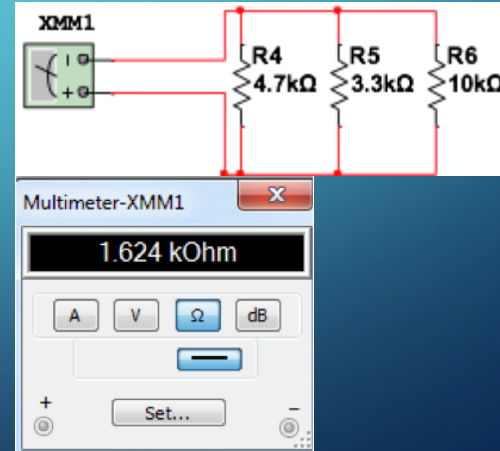


RESISTORS IN PARALLEL

Formula:

$$1 / [(1/R1) + (1/R2) + (1/R3)]$$

R1	4.7kΩ
R2	3.3kΩ
R3	10kΩ
RT	$1 / [(1/4.7) + (1/3.3) + (1/10)]$
RT	1.624



RT IT PT

1	V =	9	V
2	RT =	12.031E+3	KΩ
3	IT =	748.095E-6	μA
4	R1 =	1.000E+3	KΩ
5	R2 =	2.200E+3	KΩ
6	R3 =	3.300E+3	KΩ
7	R4 =	4.700E+3	KΩ
8	R5 =	10.000E+3	KΩ
9	R234 =	1.031E+3	KΩ
10	IR1 =	748.095E-6	μA
11	IR2 =	350.436E-6	μA
12	IR3 =	233.624E-6	μA
13	IR4 =	164.034E-6	μA
14	IR5 =	748.095E-6	μA
15	VB =	8.252E+0	V
16	VC =	7.481E+0	V
17	PR1 =	559.645E-6	uW
18	PR2 =	270.172E-6	uW
19	PR3 =	180.115E-6	uW
20	PR4 =	126.464E-6	uW
21	PR5 =	5.596E-3	mW
22	PT =	6.733E-3	mW

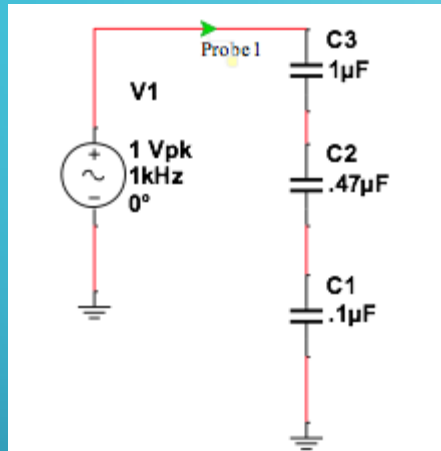
THEVENIN

RT =	100
IT =	1
R1 =	25
R2 =	100
R3 =	100
R4(RL) =	25
R5 =	25
R23 =	50
R15 =	50
R _{TH} =	25
ER1 =	25
ER5 =	25
V _{TH} =	50
I _L =	1
V _L =	25

CAPACITORS SERIES

Formula:

$$C1 + C2 + C3$$

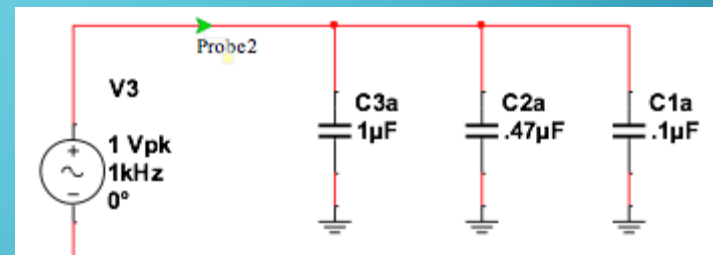


C1	0.1 uF
C2	0.47 uF
C3	1 uF
CT	76.175 uF

CAPACITORS PARALLEL

Formula:

$$1 / [(1/C1) + (1/C2) + 1/C3]$$



C1	0.1 uF
C2	0.47 uF
C3	1 uF
CT	1.57 uF

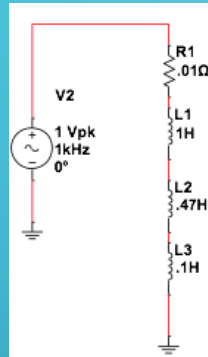
Single Frequency AC Analysis @ 1e+006 Hz

	AC Frequency Analysis	Real	Imaginary
1	$1/(2 \cdot \pi \cdot 1000 \cdot (V(\text{Probe1})/I(\text{Probe1})))$	0.00000	76.17504 u
2	$1/(2 \cdot \pi \cdot 1000 \cdot (V(\text{Probe2})/I(\text{Probe2})))$	0.00000	1.57000 m

INDUCTORS SERIES

Formula:

$$L1+L2+L3$$

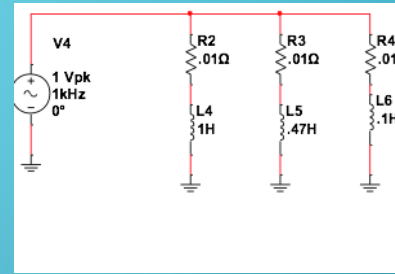


L1	1H
L2	0.47H
L3	0.1H
LT	1.57H

INDUCTORS PARALLEL

Formula:

$$1/[(1/L1)+(1/L2)+(1/L3)]$$



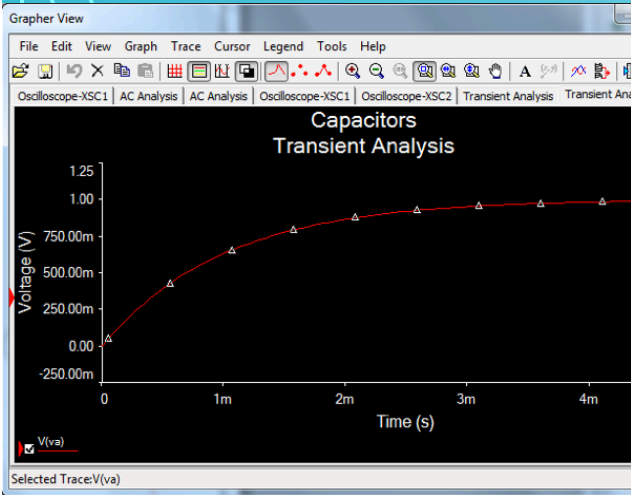
L1	1H
L2	0.47H
L3	0.1H
LT	76.175H

Inductors
Single Frequency AC Analysis @ 1 Hz

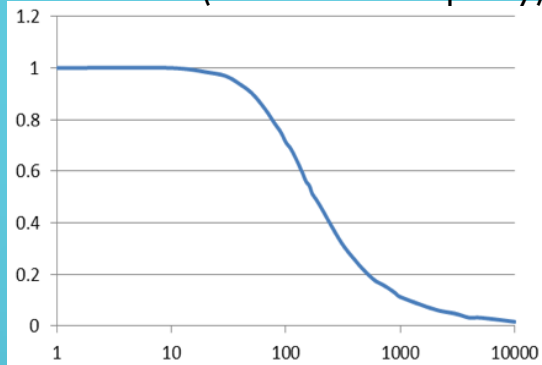
	AC Frequency Analysis	Real	Imaginary
1	@I1[Inductance]+@I2[Inductance]+@I3[Inductance]	1.57000	0.00000
2	1/((1/@I4[Inductance])+(1/@I5[Inductance])+(1/@I6[Inductance]))	76.17504 m	0.00000

QUESTION 6.

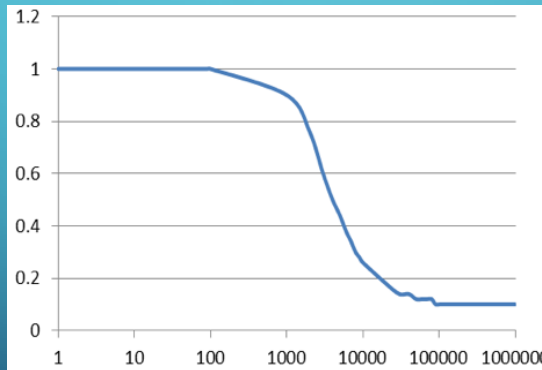
Time Constant



Parallel: (Function Of Frequency)



Series: (Function Of Frequency)



Parallel

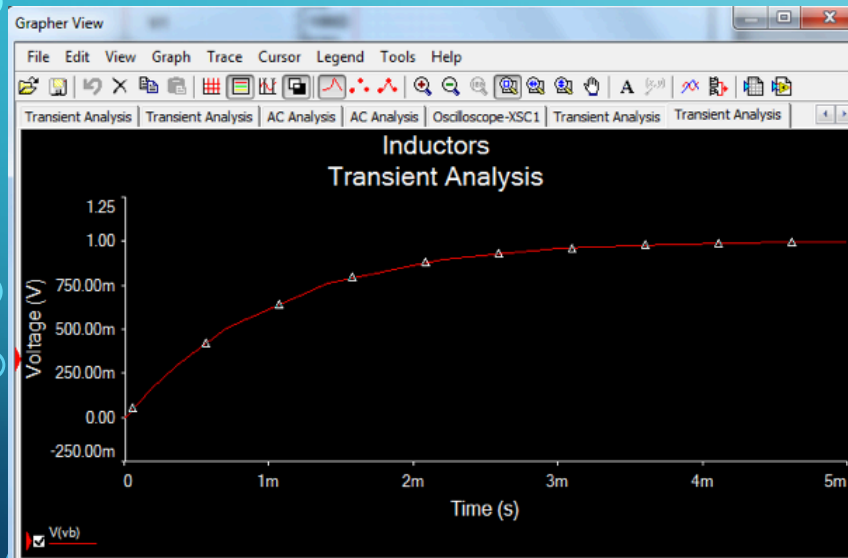
freq	Vin	Vout(VA)	DB
1	1	1	0
10	1	1	0
20	1	0.984	-0.140098031
30	1	0.968	-0.282492854
40	1	0.936	-0.574483025
50	1	0.904	-0.87663139
60	1	0.864	-1.26972515
70	1	0.824	-1.681455766
80	1	0.784	-2.113678746
90	1	0.752	-2.475643188
100	1	0.712	-2.950400127
110	1	0.688	-3.248231235
120	1	0.656	-3.661923212
130	1	0.624	-4.096308206
140	1	0.592	-4.553565866
150	1	0.560	-5.03623946
160	1	0.544	-5.288022006
170	1	0.512	-5.81460078
175	1	0.504	-5.951389271
177	1	0.500	-6.020599913
180	1	0.496	-6.09036647
190	1	0.480	-6.375175252
200	1	0.464	-6.669640389
300	1	0.328	-9.682523126
400	1	0.256	-11.83520069
500	1	0.208	-13.6387333
600	1	0.176	-15.08974664
700	1	0.160	-15.91760035
800	1	0.144	-16.83275016
900	1	0.128	-17.85580061
1000	1	0.112	-19.01563955
2000	1	0.064	-23.87640052
3000	1	0.048	-26.37517525
4000	1	0.032	-29.89700043
5000	1	0.032	-29.89700043
10000	1	0.016	-35.91760035

Series

freq	Vin	Va	DB
1	1	1	0
10	1	1	0
20	1	1	0
30	1	1	0
40	1	1	0
50	1	1	0
60	1	1	0
70	1	1	0
80	1	1	0
90	1	1	0
100	1	1	0
1000	1	0.9	-0.91515
2000	1	0.76	-2.38373
3000	1	0.6	-4.43697
4000	1	0.5	-6.0206
5000	1	0.44	-7.13095
6000	1	0.38	-8.40433
7000	1	0.34	-9.37042
8000	1	0.3	-10.4576
9000	1	0.28	-11.0568
10000	1	0.26	-11.7005
20000	1	0.18	-14.8945
30000	1	0.14	-17.0774
40000	1	0.14	-17.0774
50000	1	0.12	-18.4164
60000	1	0.12	-18.4164
70000	1	0.12	-18.4164
80000	1	0.12	-18.4164
90000	1	0.1	-20
100000	1	0.1	-20
1000000	1	0.1	-20

QUESTION 7

Time Constant



Frequency Function

