**Circuit Assignment**

**A)** Use both of analytical method and suitable software package to verify the superposition theorem in the circuit shown in figure (1). [By finding I in R2 and L1 by both analytical and Multisim] The frequency is 1 kHz

**{Choose certain values for you}**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Vs1** | **Vs2** | **R1** | **R2** | **R3** | **C1** | **C2** | **L1** |
|  |  |  |  |  |  |  |  |



Figure (1)

**B)**

Design low pass filter using RC circuit at Fc = 1kHz.

Design high pass filter using RC circuit at Fc = 1kHz.

Using your simulation software package the resonant frequency.

* + Put supply 10 V.
	+ Change the frequency of the source from 0 Hz to 5 kHz (Step 250 Hz).
	+ Measure the output voltage each time.
	+ Put your results into a table like:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **F** |  |  |  |  |
| **Vo** |  |  |  |  |

* + Plot Vout versus f.

**C)**

1. In the following circuit find:
* The current in 10mH coil.
* The voltage drop across 20Ω resistor.



Figure (2)

B) In the following circuit find:

* The current of each branch.
* The voltage drop across each component in the circuit.



Figure (3)

**Simulate the circuit shown in figure (2) and figure (3) and validate the results by comparing the simulated one by the calculated results.**