

EXPERIMENT 3 SINUSOIDAL STEADY STATE RESPONSE (PSPICE)

PRELIMINARY WORK

P1 Calculate all node voltages of the circuit given in figure 1 by hand (Both amplitude and phase)

$$V1=10\sin(15000*2*\pi*t)$$

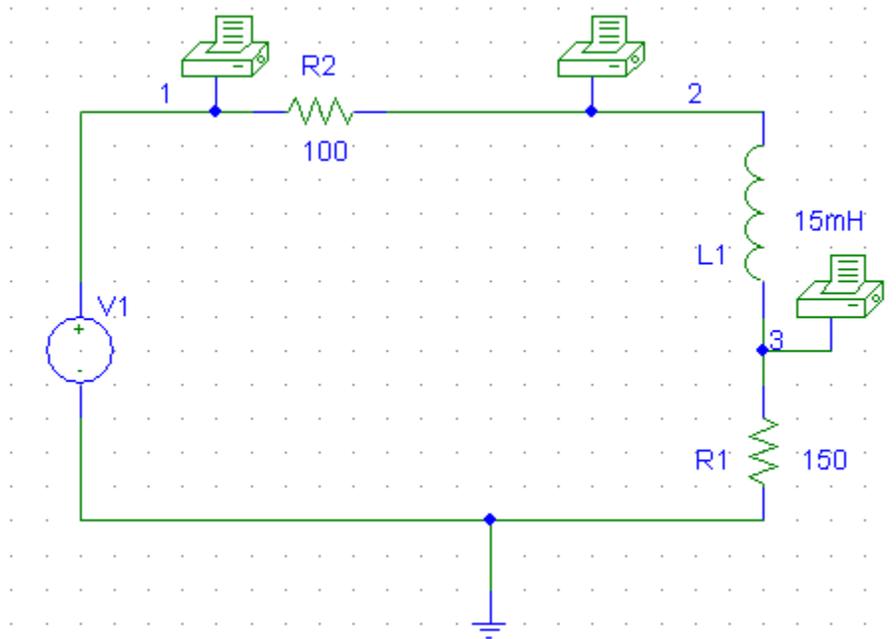


Figure 1

P2 Calculate all node voltages of the circuit given in figure 2 by hand (Both amplitude and phase)

$$V2=10\sin(15000*2*\pi*t)$$

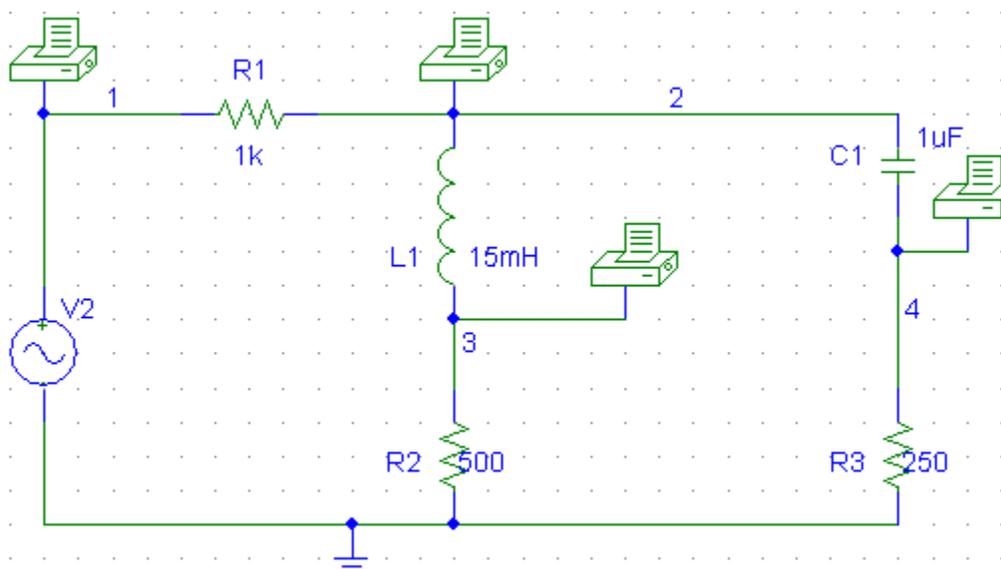


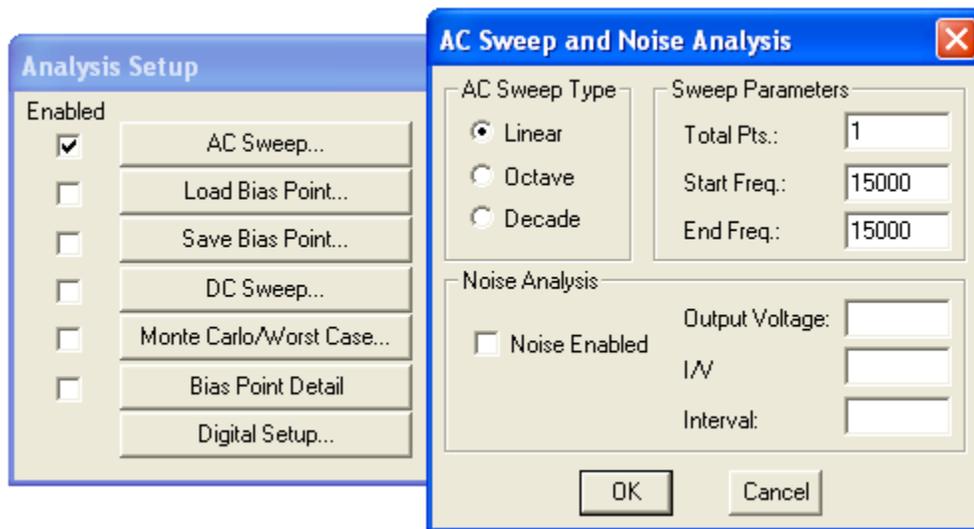
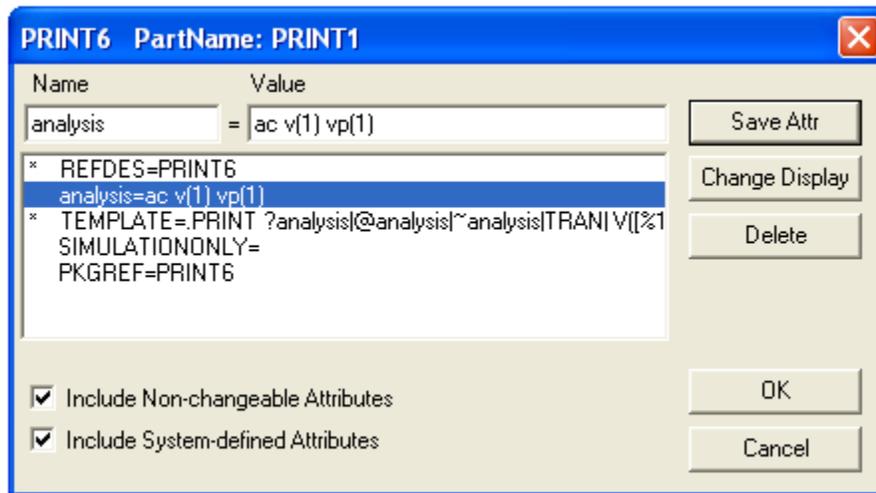
Figure 2

EXPERIMENTAL WORK

E1 Setup the circuit given in Figure 1. Choose **VSRC** as voltage source and set its amplitude as 10V. Choose **GND_EARTH** as ground. Simulate the circuit. Record the voltage and phase values of the circuit by viewing the output file **View>Output File**.

Do not forget the label the nodes as in Figure 1

Analysis tab in PRINT1 box should be set like below “ac v(1) vp(1)”



Simulation parameters for circuit given in Figure1

E2 Repeat the same procedure for Figure 2

CONCLUSION

C1 How would the voltages across the inductor and the capacitor be affected if the operating frequency was doubled? Why?

C2 In Figure 1, if the resistor R2 is short-circuited, how would the phase angle of the total current be affected?