Electrical and Electronics Engineering

EEE2102

Circuit Theory II

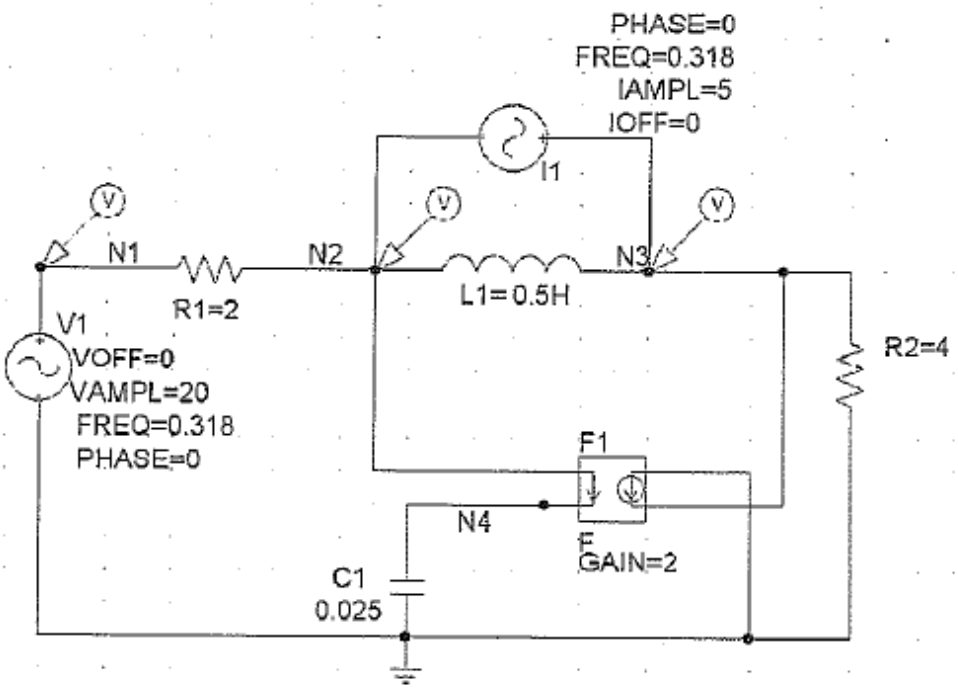
Experiment 1: AC Analysis Using PSPICE

Objective: To introduce PSPICE package program, view the magnitudes and phase relationships of sinusoidal voltage and current waveforms in an AC circuit.

Description

Phase relationships between the node voltages.

a. Construct the PSPICE schematics diagram given circuit below
b. For the independent sources, use source type VSIN and ISIN
c. Go to ANALYSIS and choose from the SETUP section the TRANSIENT analysis. Then set Print Step = 0.001 and Final Time = 16
d. Insert the voltage probes to the three nodes
e. Observe the voltage waveforms magnitudes of V_1, V_2 and V_3 and phase difference
f. Check to see whether V_2 and V_3 are leading or lagging V_1



Part II: Phase relationships between the branch currents

a. Construct the PSPICE schematics diagram given circuit below
b. For the independent sources, use source type VSIN and ISIN
c. Insert the current probes to observe the circuit currents
d. Find the period T and calculate the frequency
e. Between I(I1) and I(L1) which is leading?