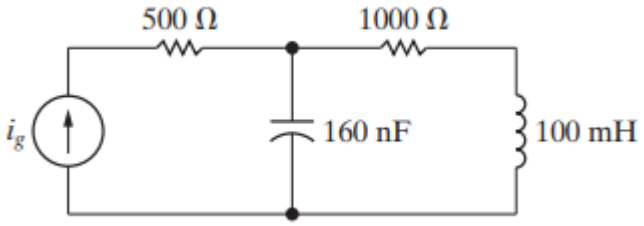
Homework-02 ENGR 117 Due date 02/21/2022

5 Questions 20 points each

Q-1 Find the average power delivered by the ideal current source in the circuit

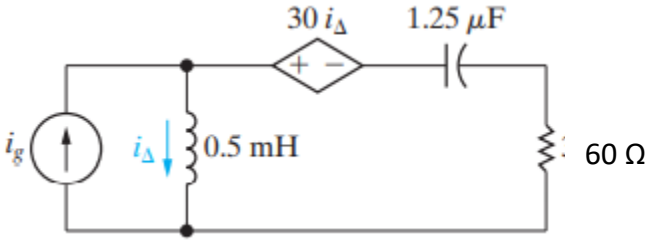
$i_g = 8\cos 5000t$ A

Here 8 is max value



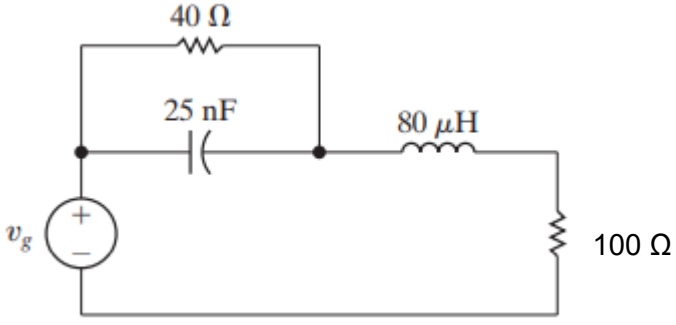
Q-2 Find the average power dissipated in the 60 Ω resistor in the circuit
$i_g = 6\cos 20{,}000t$ A.

Here 6 is max value



Q-3 Find the average power, the reactive power, and the apparent power supplied by the voltage source in the circuit
$v_g = 40\cos 10^6 t$ V.

Here 40 is max value



Q- 4 A single-phase source is applied to a two-terminal, passive circuit with equivalent impedance $Z = 2.0\angle -45^\circ\ \Omega$ measured from the terminals. The source current is $i(t) = 4\sqrt{2}\cos(\omega t)$ kA. Determine the (a) instantaneous power, (b) real power, and (c) reactive power delivered by the source. (d) Also determine the source power factor.

Here current is max value representation.

Q-5 The real power delivered by a source to two impedances, $Z_1 = 3 + j4\ \Omega$ and $Z_2 = 10\ \Omega$, connected in parallel, is 1100 W. Determine (a) the real power absorbed by each of the impedances and (b) the source current.

Here V is RMS value representation