

Homework 11

Due November 20, 2009

272:

1.- A 200 Ohm resistor and a 1 microfarad capacitor are connected in series across a 120 Volt (rms) 60 Hz line.

- a) What is the impedance of the capacitor?
- b) What is the total impedance of the circuit?
- c) What is the power dissipated in the circuit?
- d) What is the rms voltage across the capacitor?
- e) What is the rms voltage across the resistor?

272H (the previous problems and the following):

2.- In a resonant circuit a resistor of value  $R$ , an inductor of value  $L$  and a capacitor of value  $C$  are connected in parallel

- a) Find the equivalent impedance of this circuit.
- b) Find the resonant frequency of this circuit.
- c) Find the  $Q$  of the circuit.