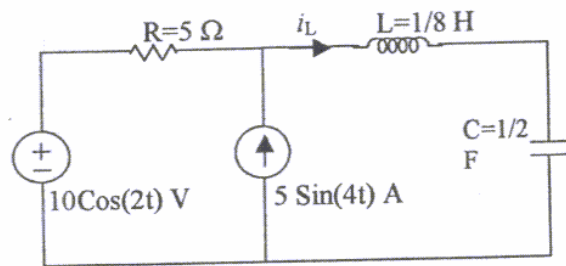
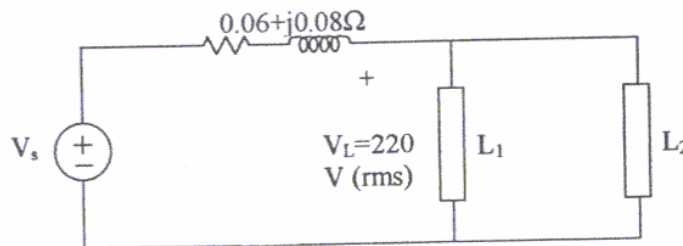


- 1) a) Find $i_L(t)$ in the sinusoidal steady-state (SSS).
 b) Calculate the complex power supplied by the voltage source.
 c) Calculate the average power on the resistor.
 d) Calculate the average stored energy in the inductor.
 e) Calculate the reactive power of the current source.



2)



The load absorb
 L_1 : 10 kW, unity power factor
 L_2 : 20 kVA, 0.8 p.f. lagging.

- a. Find the voltage at the sending end (source side) of the line.
 b. Find the power factor at the source side. Also compute the active and reactive power supplied by the source.

3) Following circuit is given. The information about the loads L_1 , L_2 and the source are as follows.

$$S_{\text{source(supplied)}} = 9 + j7 \text{ (VA)}$$

$$L_2: |S_2| = 5 \text{ (VA)}, \text{ pf}_2 = 0.6 \text{ leading}$$

$$|I|_{\text{rms}} = 2 \text{ (A)}$$

- a. Find the complex power of L_1 , load voltage, $|V_L|_{\text{rms}}$, $|V_s|_{\text{rms}}$ and the pf(power factor) of L_1 , L_2 combination.
 b. Connect an element in parallel with L_1 and L_2 such that overall pf of the load is unity. Assume that $|V_L|$ is the same as in part (a).

