Practise Problems-I

1. For the circuit in the below figure 1, $i_s = 30\cos 10^5 t$ A. Find the average power absorbed by the 50Ω resistor.

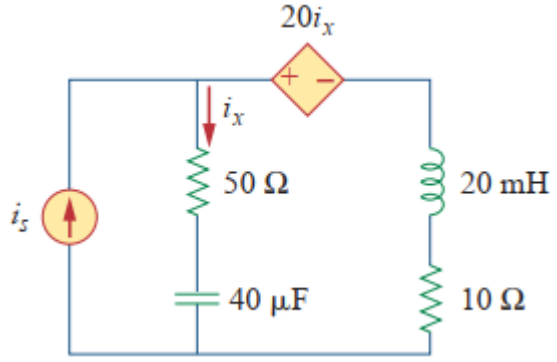

Figure 1

2. For the circuit in the below figure 2, Find the average power absorbed by the 10Ω resistor.

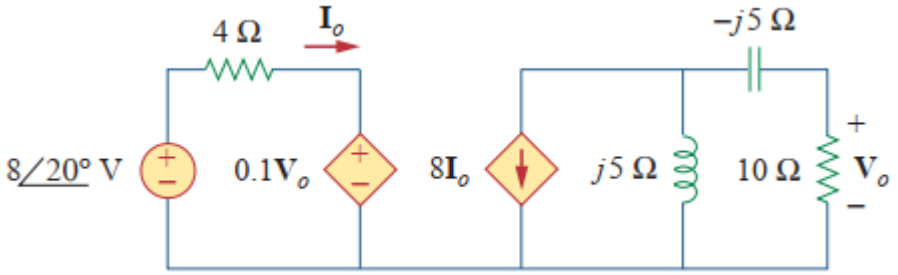

Figure 2

3. Assume the value of $v_s = 16\cos(2t\text{-}40^o)$ V in the below circuit i.e. figure 3, find the average power delivered to each of the passive elements.

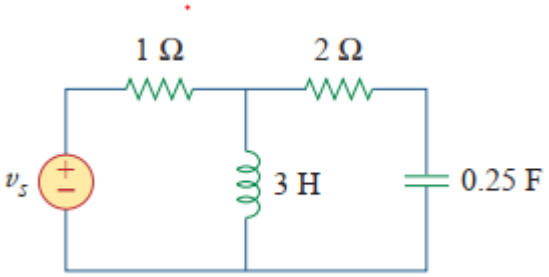

Figure 3

4. Find the value of Z_L in the below figure 4 for maximum power transfer.

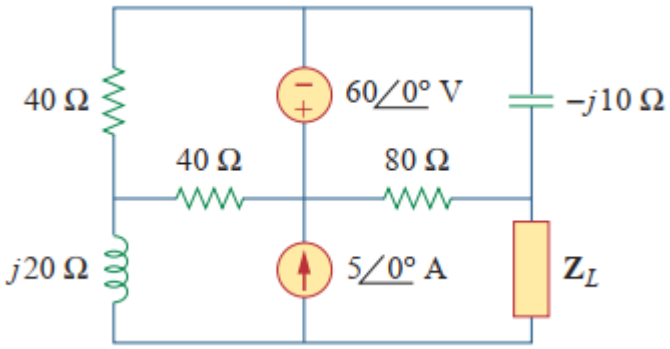

Figure 4

5. Assuming that the load impedance is to be purely resistive, what load should be connected to terminals *a*-*b* of the circuits in figure 5 so that the maximum power is transferred to the load.

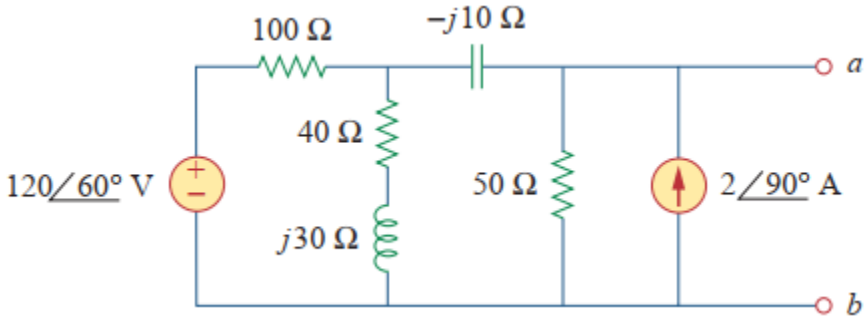

Figure 5

6. Find the complex power delivered by to the network in figure 6. Let $v_s = 160\cos(2000t)$ V.

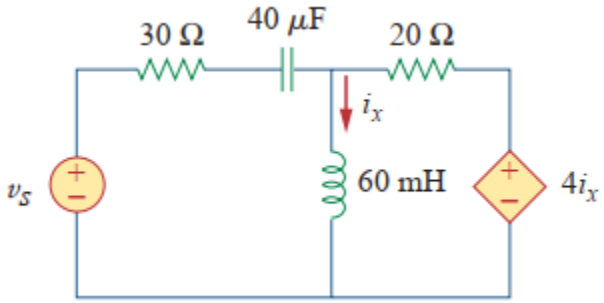

Figure 6

7. For the entire circuit in below figure 7. Calculate

(a) Power factor
(b) Average power delivered by the source.
(c) Reactive power
(d) Apparent power
(e) Complex power

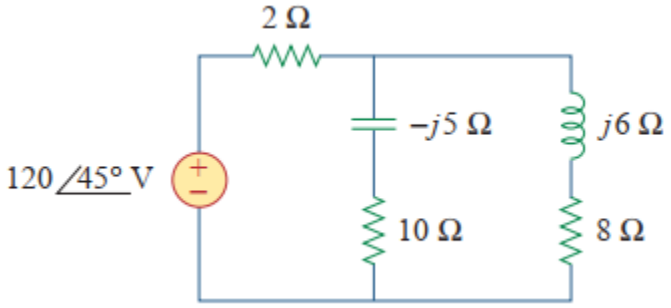

Figure 7

8. Obtain the complex power delivered to the 10kΩ resistor which is shown below in figure 8

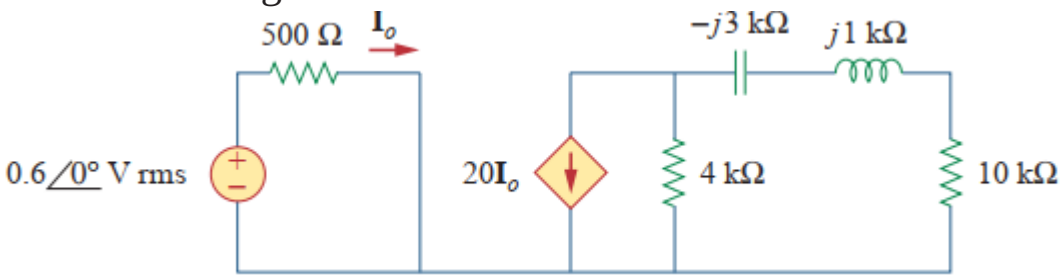

Figure 8

9. Calculate the reactive power in the inductor and capacitor in the circuit of Figure 9.

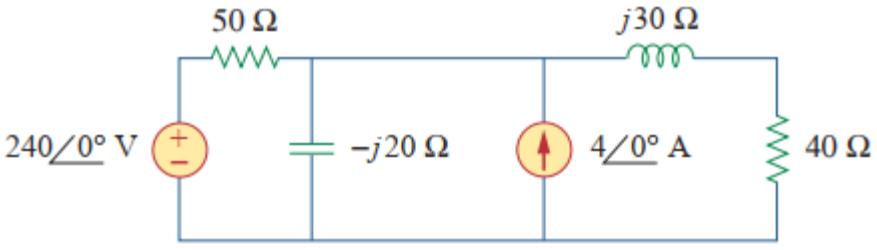

Figure 9