# Department of Higher Education
University of Computer Studies, Yangon
Second Year (B.C.Tech.)
Final Examination
Electrical Circuits I (CT 206)
October, 2018

**Answer all questions.**   **Time allowed: 3 hours**

1. (a) Find the maximum energy stored in the inductor of Figure 1(a), and calculate how much energy is dissipated in the resistor in the time during which the energy is being stored in and then recovered from the inductor.

   (b) Find C_{eq} for the network of Figure 1(b).

Fig. 1(a)   Fig. 1(b)
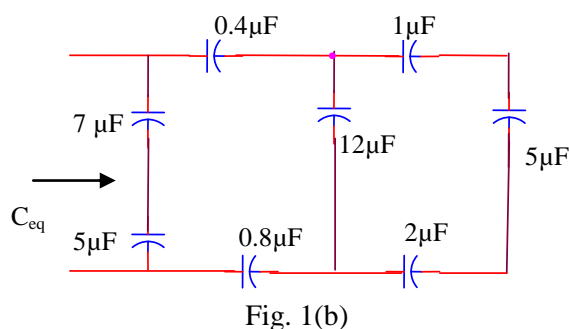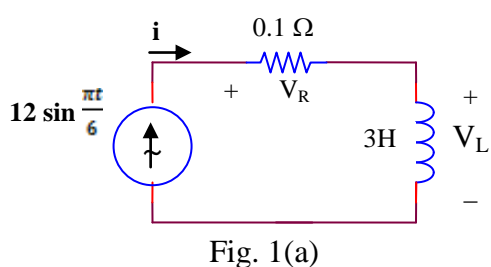
2. (a) Obtain expressions for the time-domain currents i_1 and i_2 in the circuit given as Figure 2(a).

   (b) In Figure 2(b), Find the (a) open circuit voltage V_{ab}, (b) down ward current in a short circuit between a and b (c) Thevenin equivalent impedance $Z_{ab.}$

Fig. 2(a)

Fig. 2(b)
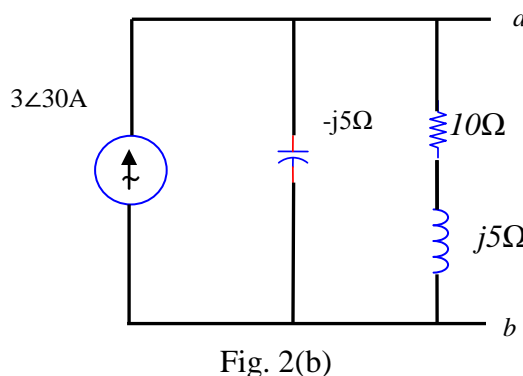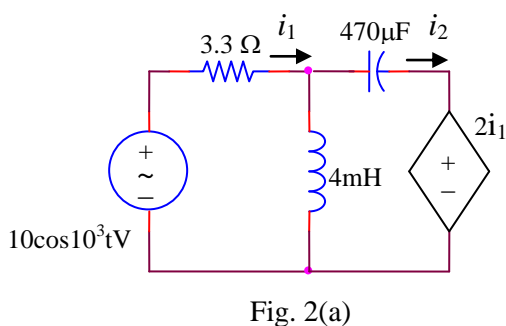
3. (a) A current source of 12 cos 2000tA, a 200 Ω resistor, and a 0.2 H inductor are in parallel. Assume steady-state conditions exist. At t =1ms, find the power being absorbed by the (a) resistor; (b) inductor; (c) sinusoidal source.

Fig. 3(a)
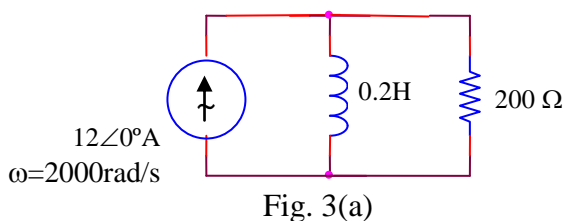
(b) Find the average power absorbed by each of the three passive elements in Figure 3(b), as well as the average power supplied by each source.
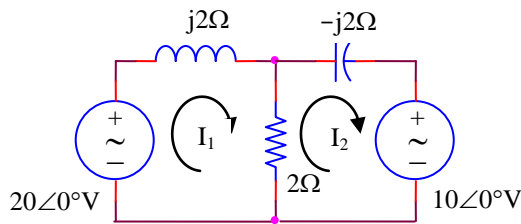

Fig. 3(b)

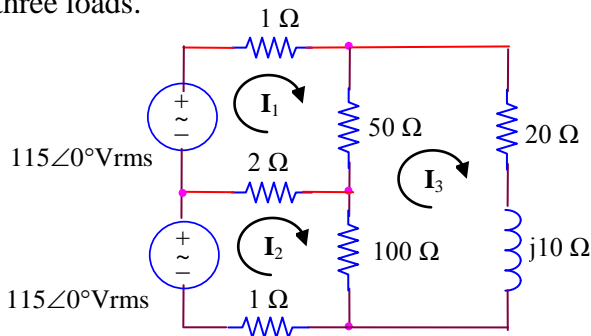4(a) Analyze the system shown in Figure 4(a) and determine the power delivered to each of the three loads.

Fig. 4(a)

(b) For the circuit of Figure 4 (b), find the indicated currents and voltages throughout the circuit and calculate the total power dissipated in the load.
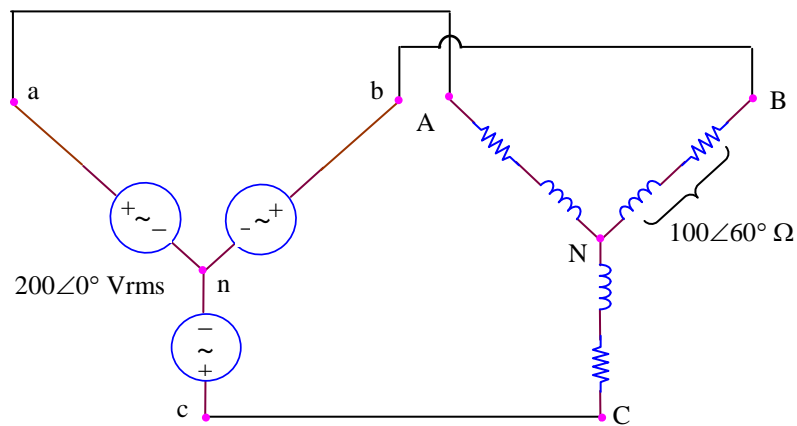

Fig. 4(b)

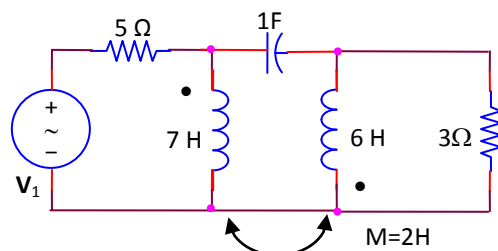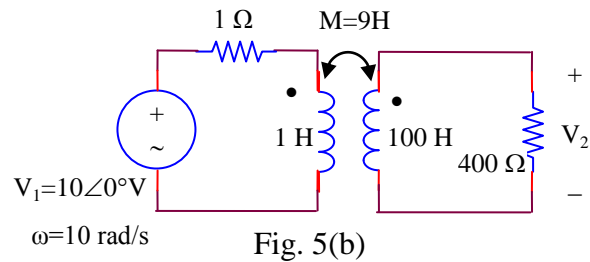5. (a) Write a correct set of equations for the circuit of figure 5(a).

Fig. 5(a)

(b) For the circuit shown in Fig 5(b), find the ratio of the output voltage across the 400 Ω resistor to the source voltage.

Fig. 5(b)

1 Ω   M=9H

1 H   100 H   400 Ω   V₂

V₁=10∠0°V

ω=10 rad/s

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