

- 1) Find the Thevenin and Norton equivalents of the network of Fig.1. (15%)
- 2) For the balanced 2400V three-phase system shown in Fig. 2, let  $V_{ab}$  be the reference; that is, let  $V_{ab} = 2400 \angle 0^\circ$  V. Assume a positive (abc) phase sequence.
  - (a) Calculate currents  $I_{AA1}$ ,  $I_{AA2}$ ,  $I_{A2B2}$ , and  $I_{aA}$ . (10%)
  - (b) Determine the complex power absorbed by each load and the combined load. (10%)
- 3) Two sinusoidal sources that have different frequencies have been driving the RL network of Fig.3 for a long time (that is, since  $t = -\infty$ ). Determine  $v(t)$ . (15%)

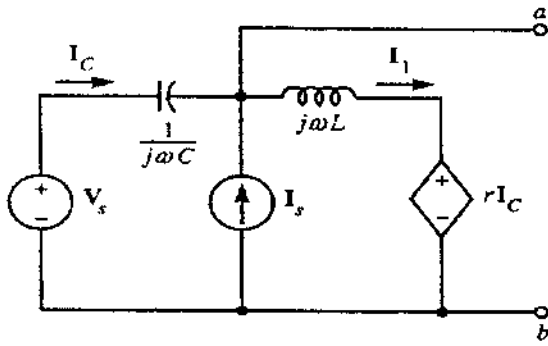


Figure 1

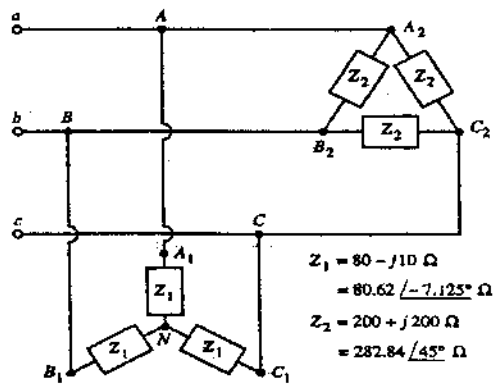


Figure 2

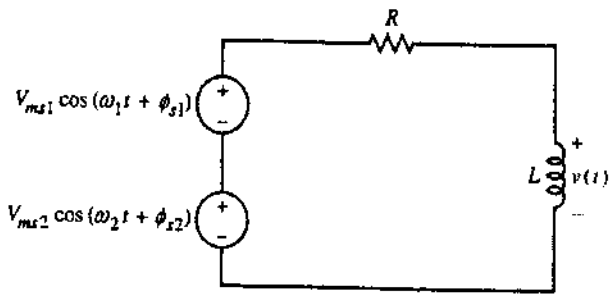


Figure 3

(背面仍有題目,請繼續作答)

4. With the adjustment of the resistor  $R_L$  in the circuit of Fig. 4, the maximum power delivered to  $R_L$  can be achieved. Please calculate the maximum power transferred to  $R_L$ ? (20 %)

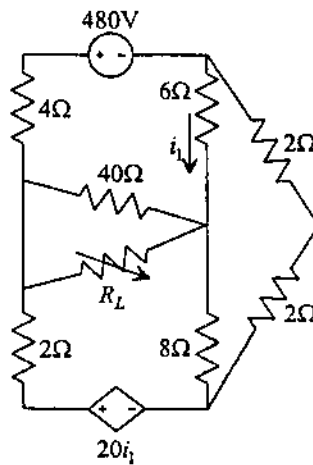


Fig. 4

5. In Fig. 5, the circuit is assumed in steady state at  $t=0^-$ . Find  $v(t)$ , for  $t \geq 0$ . (15 %)

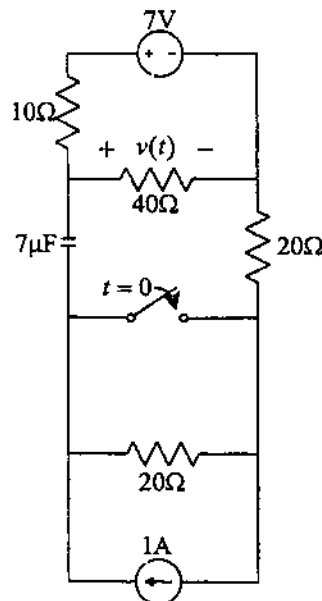


Fig. 5

6. Find the current  $i_1$  flowing through the 18Ω resistor. (15 %)

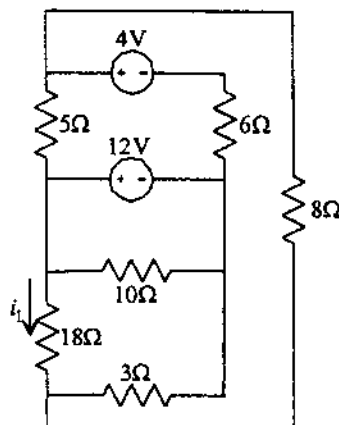


Fig. 6