(1)　Find　*Rab*　for the circuit in Fig. 1.　　　　　　　　　(20%)

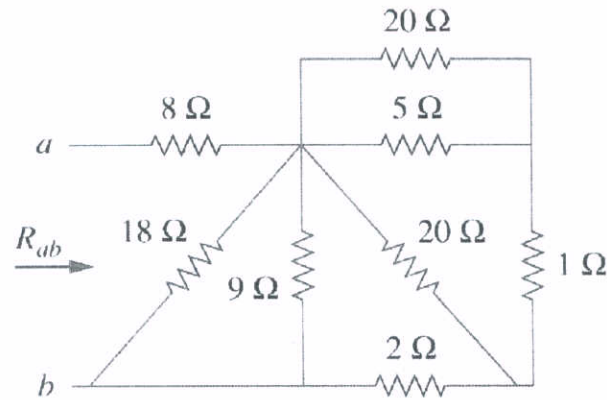**Figure 1**

(2)　The voltage waveform in Fig. 2 is applied across a 30-μF capacitor. Draw the current waveform through it.　　　　(20%)
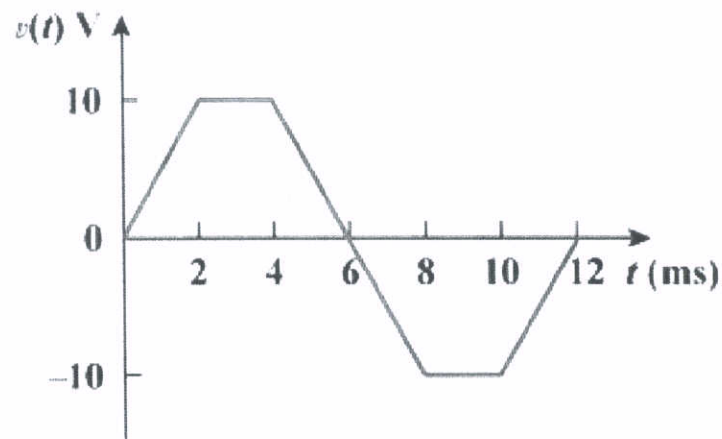

Figure 2

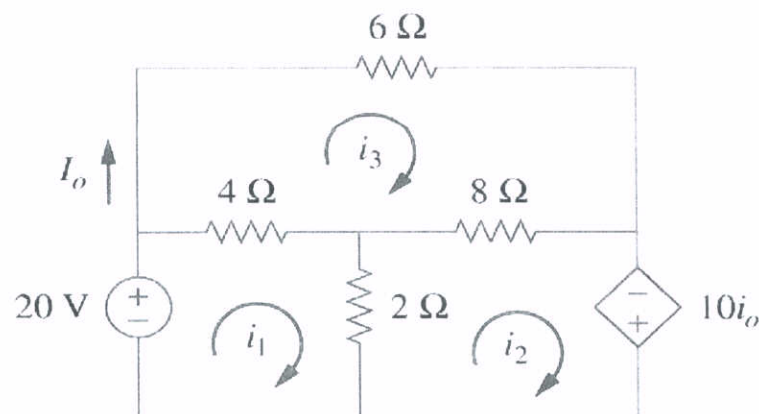**(3)　Using mesh analysis, find *Io* in the circuit of Fig. 2.　　(20%)**

Figure 3

(4)　An ideal transformer is rated at 2400/120 V, 9.6 kVA, and has 50 turns
　　　on the secondary side. Calculus:　　　　　　　　　　　　　(20%)
　　　(a) the turns ratio,
　　　(b) the number of turns on the primary side, and
　　　(c) the current rating for the primary and secondary windings

(5)　Find the value of RL for maximum power transfer in the circuit of Fig. 4.
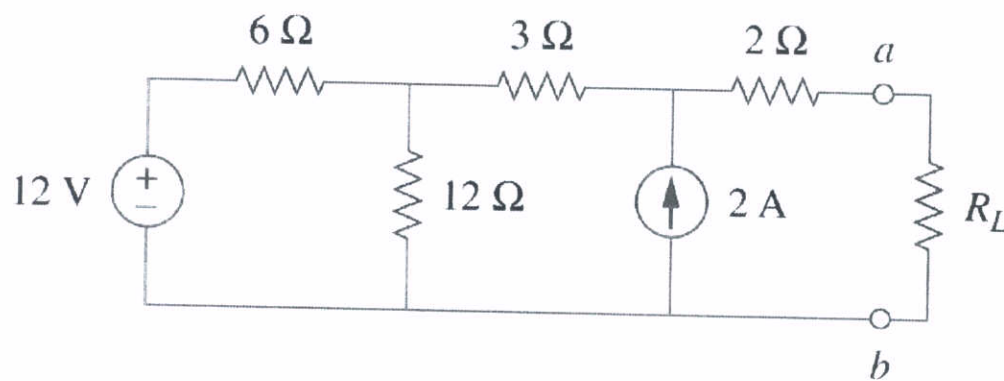　　　**Find the maximum power.**　　　　　　　　　　　　　　　(20%)

Figure 4