Problems to solve:

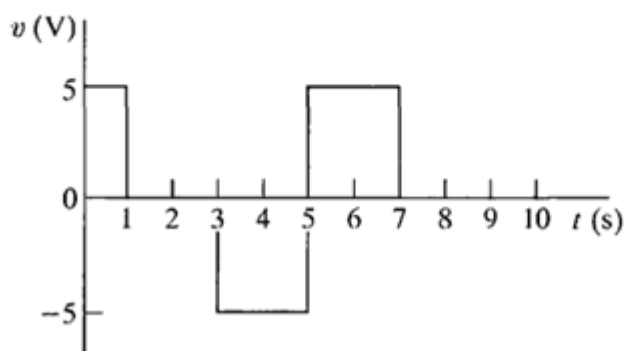1. The voltage and current at the terminals of a circuit element are shown in Fig below.   **[10]**
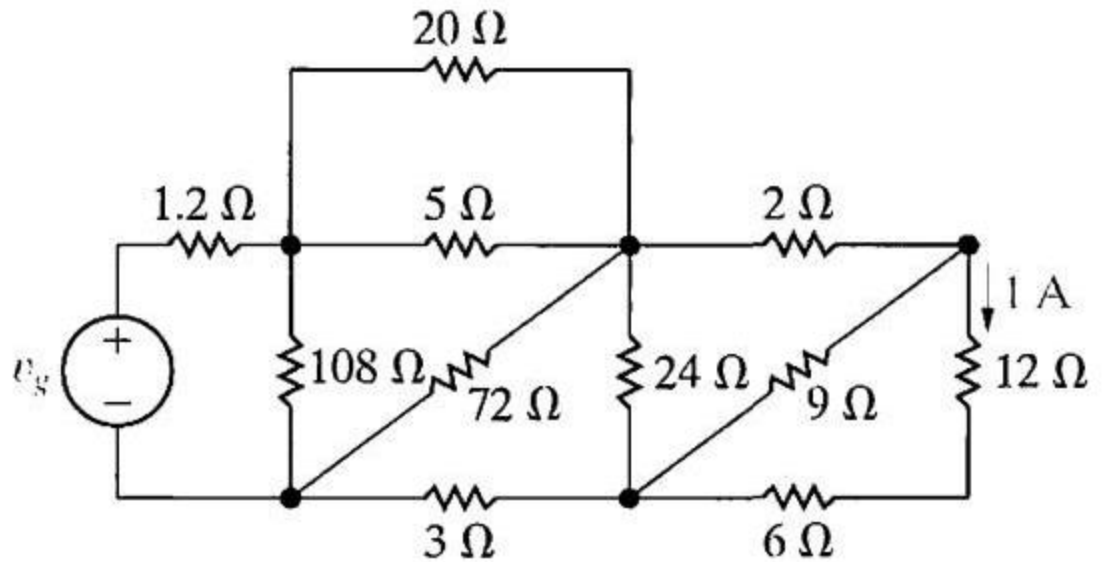
   a) Sketch the power versus time plot for $0 < t < 10$ s.

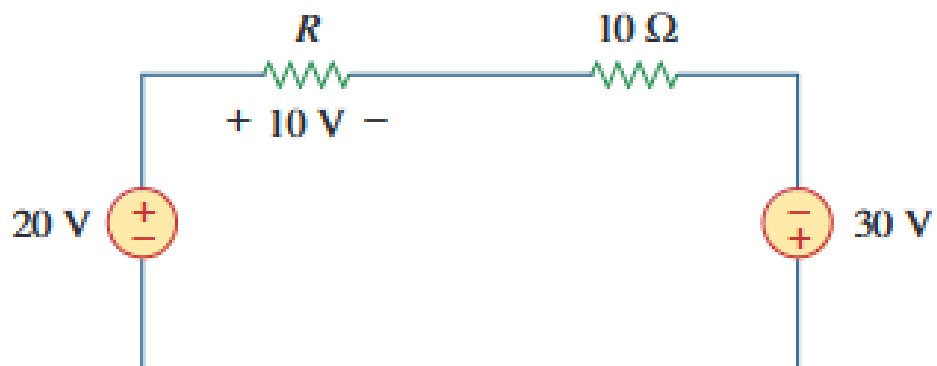   b) Calculate the energy delivered to the circuit element at $t = 1$, 6, and 10 s.
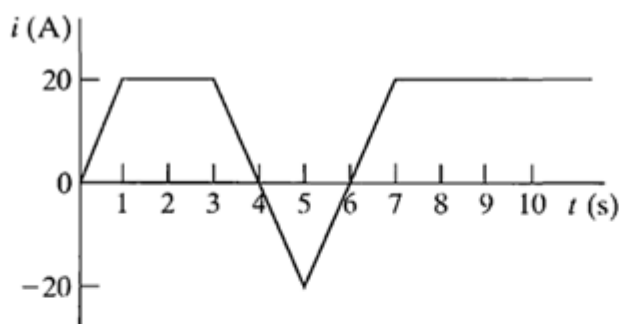
(a)

2. The current in the 12 ohm resistor in the circuit in Fig. below is 1 A, as shown.

   a) Find $\mathbf{v_g}$. **[5]**
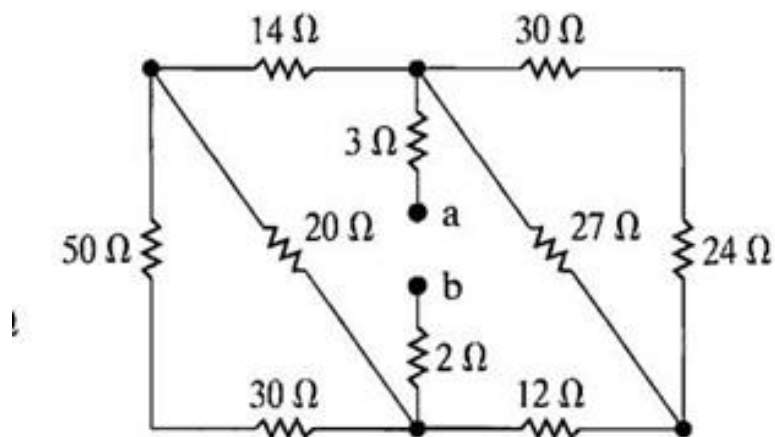
   b) Find the power dissipated in the 20 ohm resistor.**[5]**

3. Find R for the circuit in Figure below   [5]

4. Find equivalent resistance between a-b terminal   [10]

a   14 Ω   2.5 Ω   4 Ω

5 A   60 Ω   15 Ω   12 Ω   144 Ω   25 Ω

b   10 Ω   5.6 Ω   12 Ω
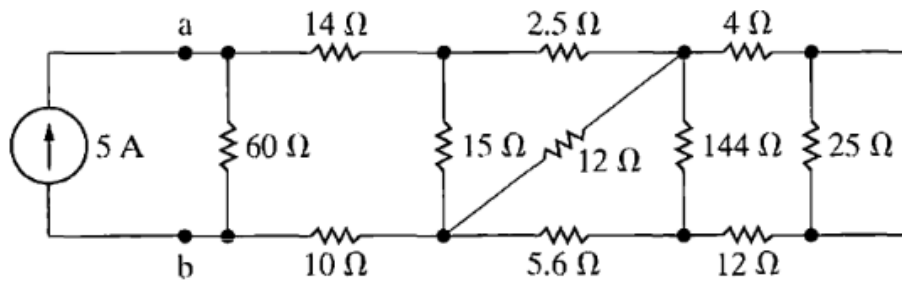
5. Use nodal analysis to find v_1, v_2, v_3 and i_0 **[15]**

4 S

$3i_o$

v_1 1 S v_2 1 S v_3

i_o

2 A   2 S   4 S   2 S   4 A