CSU11031

Problem Sheet 1

Electrical Quantities and Simple Resistor Circuits

1. How long will it take 12 C of charge to pass through a TV game power supply if the current is constant at 250 mA?
   48s

2. If a 12-volt battery delivers 120 mJ of energy in 1 ms (at a constant rate). Find (a) the amount of charge delivered by the battery in 1ms, and (b) the current produced.
   10mC, 10A

3. Determine the time required for a 24-A battery charger to deliver 1200 C.
   50s

4. A battery supplies 100mA to a radio. How much charge does the battery deliver in four hours?
   1440C

5. In an electric heater, 530 J of energy is converted when the voltage drop across the terminals is 440 V. How much electric charge moves from one terminal to the other?
   1.2C

6. An electric generator delivers 5kW of electric power at a voltage of 100 V. What is the current flowing through the generator? How much energy is generated in an hour?
   50A, 18MJ

7. Using the circuit in the Figure 1, calculate

   - The current flowing in the circuit
   - The voltage drop across each resistor

   1.25A, 62.5V, 25V, 12.5V

8. Using the circuit in Figure 2, calculate the current flowing through each resistor in the circuit. What is the total current, I_T, flowing in the circuit?
   12A

9. Using the circuit in Figure 3, calculate the current flowing through the 10 Ω resistor and the voltage across each resistor.
   1A, 10V, 10V

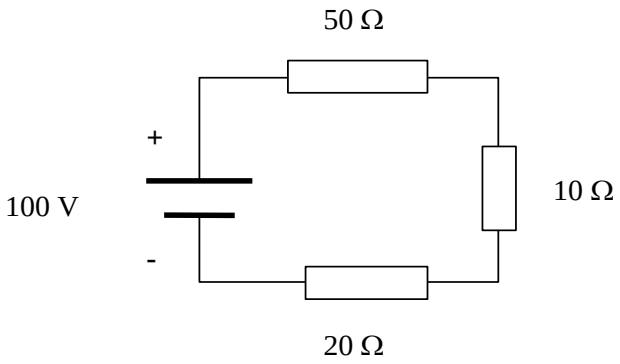

Figure 1

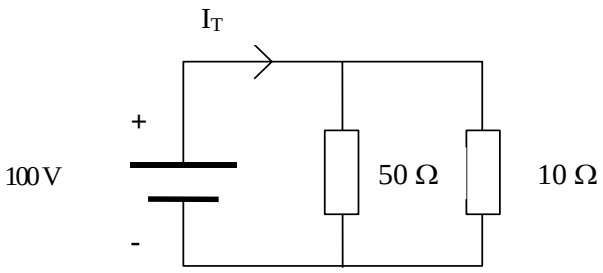

Figure 2

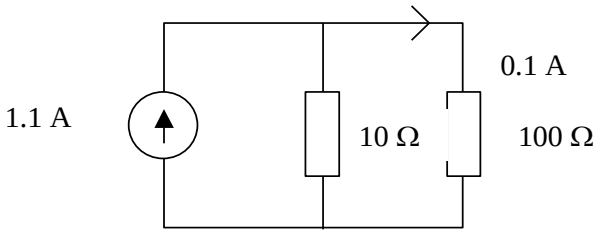

Figure 3