CHAPTER 18 Review

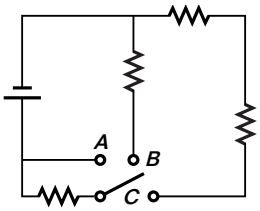
SCHEMATIC DIAGRAMS AND CIRCUITS

Review Questions

1. Why are schematic diagrams useful?

2. Draw a circuit diagram for a circuit containing three 5.0 Ω resistors, a 6.0 V battery, and a switch.

3. The switch in the circuit shown at right can be set to connect to points *A*, *B*, or *C*. Which of these connections will provide a complete circuit?



4. If the batteries in a cassette recorder provide a terminal voltage of 12.0 V, what is the potential difference across the entire recorder?

5. In a case in which the internal resistance of a battery is significant, which is greater?

a. the terminal voltage
b. the emf of the battery

Conceptual Questions

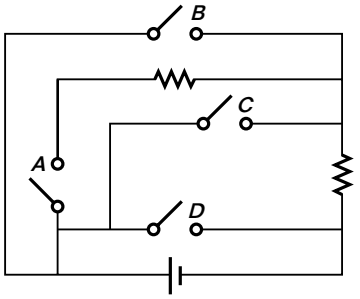
6. Do charges move from a source of potential difference into a load or through both the source and the load?

7. Assuming that you want to create a circuit that has current in it, why should there be no openings in the circuit?

8. Suppose a 9 V battery is connected across a light bulb. In what form is the electrical energy supplied by the battery dissipated by the light bulb?

9. Why is it dangerous to use an electrical appliance when you are in the bathtub?

10. Which of the switches in the circuit below will complete a circuit when closed? Which will cause a short circuit?



RESISTORS IN SERIES OR IN PARALLEL

Review Questions

11. If four resistors in a circuit are connected in series, which of the following is the same for the resistors in the circuit?

a. potential difference across the resistors
b. current in the resistors

12. If four resistors in a circuit are in parallel, which of the following is the same for the resistors in the circuit?

a. potential difference across the resistors
b. current in the resistors

Conceptual Questions

13. A short circuit is a circuit containing a path of very low resistance in parallel with some other part of the circuit. Discuss the effect of a short circuit on the current within the portion of the circuit that has very low resistance.

14. Fuses protect electrical devices by opening a circuit if the current in the circuit is too high. Would a fuse work successfully if it were connected in parallel with the device that it is supposed to protect?