

Answers to selected questions

Chapter 13

Q6. No. Connecting a wire between points A and B would divert most of the current through the connecting wire creating a “short circuit”. The bulb would not light and the battery would quickly die.

Q12. Yes. Since a battery always has some internal resistance, the voltage across its terminals when current is being drawn will be reduced by the voltage drop across the internal resistance.

Q18. Statement (a) is correct. The voltmeter has a large resistance so it will not draw much current, but there will still be a small current flowing through the meter.

Q24. Unless a pump is being used to raise water into a higher reservoir, the initial energy source for hydroelectric power is the sun. Solar energy evaporates water from the seas and land forming clouds. This ultimately produces rain which feeds the streams flowing into the hydroelectric reservoir.

Q30. Heating the bimetallic strip causes one side to expand and lengthen more than the other side due to the different thermal expansion characteristics of the two metals. This causes the strip to bend away from the electrical contact thus breaking the circuit.