Automotive Electrical and Engine Performance 9th Edition
Chapter 3 – Electrical Circuits and Ohm's Law
Multiple Choice Questions Quiz B

1. What is the function of a complete electrical circuit?

a) To maintain a constant voltage throughout the components

b) To provide a continuous path for current flow from the power source to ground

c) To ensure resistance is minimized across all components

d) To prevent overloading through current limitation

2. Technician A states that a short-to-ground occurs when a power wire contacts a grounded surface. Technician B states that a short-to-voltage involves contact between two power wires. Who is correct?

a) Technician A only

b) Technician B only

c) Both Technicians A and B

d) Neither Technician A nor B

3. When diagnosing an open circuit, which of the following would be a primary symptom?

a) Intermittent current flow

b) Complete absence of current in the circuit

c) Overheating of wires

d) Reduced circuit voltage

4. If 12 volts are applied across a resistance of 4 ohms, the resulting current flow is:

a) 0.5 amperes

b) 2 amperes

c) 3 amperes

d) 4 amperes

5. What component in a circuit typically serves to protect against excessive current?

a) Resistor

b) Load

c) Fuse

d) Switch

6. A circuit with high resistance due to corrosion may result in:

a) Short-circuits in connected components

b) No effect on circuit operation

c) Increased amperage through the system

d) Reduced current flow and potential dimming of lights

7. When the resistance in a circuit is doubled while voltage remains constant, the current will:

a) Increase

b) Decrease

c) Remain unchanged

d) Vary based on load

8. Watt's Law can be used to calculate:

a) Voltage when current and resistance are known

b) Power when voltage and current are known

c) Current when only resistance is known

d) Resistance in an open circuit

9. The purpose of the return path (ground) in an automotive circuit is to:

a) Provide a path for current to return to the battery

b) Increase voltage across the load

c) Limit the amperage flowing through the system

d) Directly connect to the vehicle's fuse panel

10. If a circuit's power source has a potential of 10 volts and consumes 5 watts, the current flowing through the circuit is:

a) 2 amperes

b) 0.5 amperes

c) 5 amperes

d) 10 amperes

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Answer Key Quiz B

Correct Answers:

1. b

2. c

3. b

4. c

5. c

6. d

7. b

8. a

9. b

10. a