

REVIEW QUESTIONS

1. Two technicians are discussing electrical and electronic systems as used on the automobile. *Technician A* says that an electrical system may or may not be under the electronic control of a computer depending upon the system and how old the vehicle is. *Technician B* says that modern vehicles use electronic control systems to control virtually every system in the vehicle. Who is correct?

- a. *Technician A* only
- b. *Technician B* only
- c. Both technicians
- d. Neither technician

2. Which of the following has a negative charge?

- a. Neutron
- b. Electron
- c. Proton
- d. All of the above

3. Which of the following best describes the electron layer of an atom that is referred to as the atom's *valence ring*?

- a. The inner shell
- b. The second shell
- c. The third shell
- d. The outer shell

4. Which of the following best describes the electrical pressure that pushes electrons through a circuit?

- a. Resistance
- b. Amperage
- c. Voltage
- d. Capacitance

5. Which of the following best describes the current flow of electrons through a circuit?

- a. Resistance
- b. Amperage
- c. Voltage
- d. Capacitance

6. *Technician A* says that voltage drop always occurs in a circuit, regardless of whether or not current is flowing. *Technician B* says that if the circuit is complete and current is flowing, most of the voltage drop should occur across the load. Who is correct?

- a. *Technician A* only
- b. *Technician B* only
- c. Both technicians
- d. Neither technician

7. Which of the following would increase the resistance of a wire?

- a. A wire of a shorter length
- b. An increase in the temperature of the wire
- c. A larger diameter (lower gauge number) of wire
- d. All of the above

8. Which of the following, while used in most circuits, is not essential to have an operating circuit?

- a. Voltage source
- b. Switch
- c. Load component
- d. Circuitry or current conductors

9. A series circuit is connected to a 12 V battery and is flowing 0.5 A of current. How much resistance is present in the circuit?

- a. 6 V
- b. 12 V
- c. 18 V
- d. 24 V

10. A parallel circuit has two branches. One branch has a load with 10 V of resistance. The other branch has a load with 30 V of resistance. What is the total resistance of the parallel circuit?

- a. 7.5 V
- b. 15 V
- c. 20 V
- d. 40 V

11. A parallel circuit has three branches. One branch has a load with 18 V of resistance. Another branch has a load with 22.5 V of resistance. The third branch has a load with 30 V of resistance. What is the total resistance of the parallel circuit?

- a. 7.5 V
- b. 18 V
- c. 22.5 V

d. 70.5 V

12. A series circuit has two loads. The first load has 10 V of resistance, and the second load has 30 V of resistance. What is the total resistance of this circuit?

- a. 7.5 V
- b. 15 V
- c. 20 V
- d. 40 V

13. Which of the following could affect the ability of an electrical circuit to operate properly?

- a. Open wire or connector
- b. Short to power or ground
- c. Unintended high resistance within the circuit
- d. All of the above

14. If a circuit's current flow is too high, which of the following could be at fault?

- a. An open exists in the circuit.
- b. A short exists in the circuit.
- c. Unintended high resistance exists in the circuit.
- d. The circuit has a loose connection, causing an intermittent open.

15. A diode may be used for all except which of the following?

- a. Switching current flow on and off
- b. AC-to-DC rectification
- c. Voltage spike suppression
- d. Controlling current flow paths in circuits that share a common load

16. What type of component is used by a computer to perform ground side switching of a load component?

- a. Diode
- b. NPN transistor
- c. PNP transistor
- d. Capacitor

17. What does an H-gate consist of?

- a. Two pairs of resistors
- b. Two pairs of diodes
- c. Two pairs of transistors
- d. One pair of transistors

18. *Technician A* says that the terms *AC voltage* and *analog voltage* have the same meaning and are therefore interchangeable. *Technician B* says that the terms *DC voltage* and *digital voltage* have the same meaning and are therefore interchangeable. Who is correct?

- a. *Technician A* only
- b. *Technician B* only
- c. Both technicians
- d. Neither technician

19. Which of the digital pulse trains varies both the on-time and the frequency of the signal?

- a. Binary code (serial data)
- b. Variable digital frequency
- c. Variable duty cycle
- d. Variable pulse-width

20. Why should you, as a student, be familiar and comfortable with *all* the material discussed in this chapter?

- a. Because today's vehicles have many electronic systems on board
- b. Because virtually all systems on modern vehicles are controlled electronically
- c. Because the trend of adding electronic systems on vehicles will continue to escalate in the future
- d. All of the above