

TEST YOUR AUTOMOTIVE TECHNICAL KNOWLEDGE

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This self-test can help you determine how much you really know about this subject. Questions are written in the ASE style format and are multiple choice.

The answer key is on the last page.

There are also links to related articles on the <https://www.AA1Car.com> website. Good luck!

BASIC ELECTRICAL SELF-TEST

1. All modern internal combustion engine powered cars and light truck have what kind of basic electrical system?

- A. Positive ground 12 volt
- B. Positive ground 5 volt
- C. Negative ground 12 volt
- D. Negative ground 12 volt

2. VOLTAGE is what?:

- a. The volume or amount of electricity flowing through a wire or circuit
- b. The force that pushes electricity through a wire or circuit
- c. The magnetic field around electricity moving through a wire or circuit
- d. The power produced by electricity moving through a wire or circuit

3. CURRENT is what?

- a. The volume or amount of electricity flowing through a wire or circuit
- b. The force that pushes electricity through a wire or circuit
- c. The magnetic field around electricity moving through a wire or circuit
- d. The power produced by electricity moving through a wire or circuit

4. RESISTANCE is what?

- a. An electrical property that slows the flow of electricity through a wire or circuit
- b. The power consumed by a component in an electrical circuit
- c. A force that repels or stops the flow of electricity in a wire or circuit
- d. A force that increases the flow of electricity in a wire or circuit

5. Technician A says "OHMS LAW" explains the basic relationship between VOLTS, AMPS and OHMS.

Technician B says the CURRENT (AMPS) equals COLTAGE divided by RESISTANCE.

Who is right?

- a. Technician A only
- b. Technician B only
- c. BOTH Technician A and B
- d. Neither Technician A nor B

6. If a wire or circuit has **HIGH RESISTANCE**, how will that affect **CURRENT**?
 - a. No effect on current
 - b. Increased current
 - c. Reduced current
 - d. No current

7. If a wiring connector or battery cable is loose or corroded and is making poor contact, what effect would it have on that circuit?
 - a. It would reduce **CURRENT**
 - b. It would increase **RESISTANCE**
 - c. It would reduce **VOLTAGE**
 - d. All of the above

8. **RESISTANCE** is measured in what units of measure?
 - a. Watts
 - b. Volts
 - c. Ohms
 - d. Amps

9. **CURRENT** is measured in what units of measure?
 - a. Watts
 - b. Volts
 - c. Ohms
 - d. Amps

10. Electrical **POWER** is measured in what units of measure?
 - a. Watts
 - b. Volts
 - c. Ohms
 - d. Amps

11. If an **OHM** meter measures **ZERO** resistance in a circuit, what does it mean?
 - a. There is an **OPEN** in the circuit
 - b. There is a **SHORT** circuit
 - c. There is no **CURRENT** in the circuit
 - d. There is no **VOLTAGE** in the circuit

12. If an **OHM** meter measures **INFINITE** resistance in a circuit, what does it mean?
 - a. There is an **OPEN** in the circuit
 - b. There is a **SHORT** circuit
 - c. There is no **CURRENT** in the circuit
 - d. There is no **VOLTAGE** in the circuit

13. A basic **DVOM** can usually measure what?
 - a. Digital signals, Volts, Ohms and Mass airflow
 - b. AC & DC Volts, Ohms, Amps
 - c. Dwell, Voltage, Ohms, OBD2 Monitors
 - d. Sensor waveforms, OBD2 status, Fault Codes and More

14. A 12V Test Light is used for what?
- To measure battery voltage
 - To check circuit continuity
 - To measure circuit current
 - To measure circuit resistance
15. An Ohm Meter should NEVER be connected to:
- The positive and negative terminals on a car battery
 - A "live" circuit with power on
 - Terminals on a control module or engine computer
 - All of the above
16. Technician A says a 12 volt car battery or electrical circuit cannot shock you.
Technician B says high voltage hybrid batteries, electrical components or wiring can produce a dangerous and possibly deadly shock.
Who is right?
- Technician A only
 - Technician B only
 - Both Technician A and B
 - Neither Technician A nor B
17. Electricity that flows in short pulses or with an on and off pattern is what ?
- Alternating Current (AC)
 - Direct Current (DC)
 - A Digital Current
 - A defective current
18. A Voltage Drop Test will tell you if a battery cable or wiring connection is good or bad.
What is a "Good" voltage drop reading?
- 12 volts
 - 10 volts
 - 1 volt
 - 0.1 volt
19. When electricity flows through a wire, what happens?
- It creates a magnetic field around the wire
 - It may produce Radio Frequency Interference (RFI) or Electromagnetic Interference (EMI)
 - It increases the temperature of the wire
 - All of the above
20. A HIGH CURRENT in a circuit with little resistance may do ANY of the following EXCEPT:
- Melt insulation around the wiring or start a fire
 - Damage components or modules in the circuit
 - Blow a fuse
 - Increase the VOLTAGE in the circuit

21. Technician A says the diameter or GAUGE SIZE of a wire determines how much CURRENT it can safely handle.

Technician B says an 18 gauge wire can handle more CURRENT than a 12 gauge wire.

Who is right?

- a. Technician A only
- b. Technician B only
- c. Both Technician A and B
- d. Neither Technician A nor B

22. Technician A says you can replace a blown fuse with one that has a HIGHER amp rating than the original to prevent the fuse from blowing again.

Technician B says when a fuse blows, it stops the CURRENT in a circuit to prevent an overload.

Who is right?

- a. Technician A only
- b. Technician B only
- c. Both Technician A and B
- d. Neither Technician A nor B

23. If a circuit repeatedly blows a fuse as soon as you replace it, it means what?

- a. There is an OPEN in the circuit
- b. There is a SHORT in the circuit
- c. There is too much RESISTANCE in the circuit
- d. There is not enough VOLTAGE in the circuit

24. Technician A says a RELAY is a device that uses a small control current to switch a larger current on and off.

Technician B says you can test a RELAY by applying voltage to the control circuit side of the relay to see if it turns the output circuit on or off.

Who is right?

- a. Technician A only
- b. Technician B only
- c. Both Technician A and B
- d. Neither Technician A nor B

25. If you replace a RELAY in a circuit that is not working with a new RELAY, and the circuit still does not work, what does it mean?

- a. The original relay was not defective
- b. There may be a wiring problem in the circuit or a defective component
- c. The circuit may have a blown fuse
- d. ANY of the above

(Answer Key on Next Page)

ANSWER KEY:

1C, 2B, 3A, 4A, 5C, 6C, 7D, 8C, 9D, 10A, 11B, 12A, 13B, 14B, 15D, 16D,
17C, 18D, 19D, 20D, 21A, 22B, 23B, 24C, 25D



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