

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.

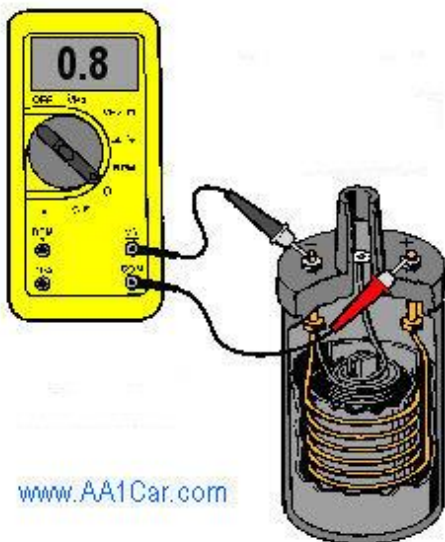
There are also links to related articles on the <https://www.AA1Car.com> website. Good luck!

IGNITION SYSTEMS

1. Which of the following components generates a timing signal for the ignition system?
 - a. Crankshaft position sensor
 - b. Ignition module
 - c. Ignition coil
 - d. Rotor
2. All of the following components are part of a Distributorless Ignition System (DIS) EXCEPT:
 - a. Ignition coil pack
 - b. Rotor
 - c. Spark plug wires
 - d. Crankshaft position sensor
3. Which of the following components would NOT be part of a "Coil-Over-Plug" (COP) ignition system?
 - a. Ignition coils
 - b. Spark plugs
 - c. Spark plug wires
 - d. Crankshaft position sensor
4. Technician A says spark plugs are pregapped at the factory, but should be checked prior to installation in case adjustments are needed. Technician B says "Platinum" spark plugs have platinum tipped electrodes to reduce wear and extend plug life. Who's right?
 - a. Technician A only
 - b. Technician B only
 - c. Both Technician A and B
 - d. Neither one
5. The HEAT RANGE of a spark plug can be determined by:
 - a. Its part number
 - b. Its length
 - c. Its diameter
 - d. The number of electrodes

6. All of the following must be the same for Replacement spark plugs EXCEPT:
- Thread pitch
 - Thread diameter
 - Plug seat configuration
 - Plug electrode configuration
7. All of the following statements about spark plug cables are true EXCEPT:
- Cables should be replaced if resistance exceeds specifications
 - Cables should be replaced if the insulation is cracked, worn or damaged
 - Cables should be replaced one at a time to avoid mixing up the firing order
 - Replacement cables must be the same brand as the original
8. Which of the following components multiplies battery voltage to create a spark?
- Ignition module
 - Ignition coil
 - Ignition pickup
 - Ignition wires
9. Technician A says the firing voltage at the spark plugs can vary with engine load and changes in the Air/Fuel mixture.
Technician B says worn spark plugs require no more voltage than new spark plugs.
Who is right?
- Technician A only
 - Technician B only
 - BOTH Technician A and B
 - Neither Technician A nor B
10. All of the following statements about IRIDIUM spark plugs are True EXCEPT:
- The gap between the electrodes is much SMALLER than an ordinary spark plug
 - They usually have a single ground electrode
 - They typically have a smaller diameter center electrode than ordinary spark plugs
 - They have a service life of 100,000 miles or more
11. Technician A says a bad ignition module may prevent an engine from starting or cause it to suddenly quit running.
Technician B says a voltmeter can be used to test an ignition module to determine if it is good or bad.
Who's right?
- Technician A only
 - Technician B only
 - Both Technician A and B
 - Neither one
12. If an engine has a misfire problem, the cause could be:
- Fouled spark plug(s)
 - A weak ignition coil(s)
 - An overly LEAN Air/Fuel mixture
 - Any of the above

13. As spark plugs accumulate mileage, what happens?
- Internal resistance decreases
 - Internal resistance increases
 - The spark gap widens
 - The spark gap narrows
14. A common cause of Ignition Misfire in engines with Coil-On-Plug (COP) ignitions is:
- Bad spark plug wires
 - Cracks or carbon tracks inside the coil insulators
 - Fouled spark plugs
 - Bad crankshaft position sensors
15. What is COIL SATURATION?
- When the magnetic field in the coil PRIMARY windings is at peak strength
 - When the magnetic field in the coil SECONDARY windings is at peak strength
 - When the coil output voltage is at maximum
 - When the coil input voltage is at maximum



16. In the illustration above, the DVOM reads 0.8 ohms. What does this tell you?
- The coil is bad and needs to be replaced.
 - The coil primary circuit is probably within specifications
 - The coil secondary circuit is probably within specifications
 - The coil is good
17. If the DVOM above reads 10K ohms, what would that tell you?
- The coil is bad and needs to be replaced
 - The coil primary circuit is within specifications
 - The coil secondary circuit is within specifications
 - The coil is good



18. In the photo above, what is the condition of this spark plug?
 - a. The spark plug show normal combustion deposits
 - b. The spark plug is oil fouled (likely due to worn valve guides or piston rings)
 - c. The spark plug is carbon fouled (due to a Rich Air/Fuel mixture)
 - d. The spark plug has been overheating (due to cooling problems)

19. If the tip of a spark plug is CLEAN and WET when removed, what would that tell you?
 - a. The engine's Air/Fuel mixture is TOO RICH
 - b. The engine's Air/Fuel mixture is TOO LEAN
 - c. The spark plug is not firing due to a lack of voltage from the coil
 - d. The spark plug is experiencing pre-ignition

20. The spark plug above is most likely what type of plug?
 - a. Iridium
 - b. Platinum
 - c. Standard
 - d. Can't tell

21. What does copper do in a COPPER CORE spark plug?
 - a. Broadens the HEAT RANGE of the spark plug
 - b. Reduces idle and cold fouling
 - c. Reduces risk of pre-ignition/detonation when the engine is under load
 - d. All of the above

22. Which of the following can cause changes in Ignition Timing?
 - a. Engine Load
 - b. Engine Temperature
 - c. Engine RPM
 - d. Any of the above

23. When do the spark plugs fire?
 - a. At or near the top of the intake stroke
 - b. At or near the top of the compression stroke
 - c. At or near the bottom of the power stroke
 - d. At or near the bottom of the exhaust stroke

24. If the Crankshaft Position Sensor is not producing a signal, what will happen?
 - a. Ignition timing will be RETARDED
 - b. Ignition timing will be ADVANCED
 - c. There will be no ignition timing
 - d. The engine computer will substitute a timing signal

25. How do you adjust ignition timing on a late model engine with a DIS or COP ignition?
- a. Reprogram the Powertrain Control Module (PCM)
 - b. Reprogram the Crankshaft Position Sensor
 - c. Replace the Ignition Module
 - d. Rotate the Distributor

(Answer Key on Next Page)

ANSWER KEY

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



Ignition System Repair Topics on AA1Car.com:

[Spark Plugs: All The Details You Need To Know](#)

[Original Equipment Spark Plugs, Are They Best?](#)

[Ruthenium Spark Plugs](#)

[Don't Neglect the Spark Plugs](#)

[Why Spark Plugs Still Need To Be Replaced](#)

[Spark Plug Fouling](#)

[Ford Motorcraft Spark Plug Breakage Problem](#) (2004 - 2008 Ford Trucks w/5.4L V8, & 2005 - 2008 Mustang GT with 4.6L V8)

[Don't Use Ordinary Spark Plugs with Waste Spark DIS Ignition Systems](#)

[Bosch Platinum +4 Spark Plugs](#)

[Spark Plug Wires](#)

[Diagnosing Ignition Misfire](#) & [Analyzing Ignition Misfires](#)

[Spark Plugs & Ignition Performance](#)

[Chevy Firing Orders](#) [Chrysler Firing Orders](#) [Ford Firing Orders](#)

[Distributor Ignition Systems](#)

[Distributorless Ignition Systems](#)

[Coil-Over-Plug Ignition Systems](#)

[Multi-Coil Ignition Systems](#)

[Ignition Coil Diagnosis & Testing](#)

[Diagnosing An Engine that Won't Crank or Start](#)

[Engine Won't Start, No Spark](#)

[Diagnose Ignition Switch Problems](#)

[Key fob Won't Start Car](#)

[Spark Knock \(Detonation\)](#)