Automotive Electrical and Engine Performance 9th Edition
Chapter 29 – Ignition System Parts and Operation
Multiple Choice Questions Quiz A

1. What is the primary function of the ignition coil in an automotive ignition system?

a) To generate a high voltage spark through electromagnetic induction

b) To adjust ignition timing based on engine speed

c) To control the engine's fuel injection system

d) To switch on the vehicle's ignition system

2. In a waste-spark ignition system, each ignition coil fires two spark plugs at the same time. What is the main purpose of this configuration?

a) To increase combustion efficiency in both cylinders

b) To provide a ground path for the secondary coil circuit

c) To reduce the need for spark plug replacement

d) To conserve energy by firing only once per cycle

3. How does a Hall-effect sensor detect engine position or speed?

a) By creating a voltage signal when a magnetic field interacts with a semiconductor

b) By using a rotating metal blade that opens and closes to create signals

c) By monitoring changes in electrical resistance due to temperature

d) By emitting light pulses to a receiver

4. What does the "reach" of a spark plug refer to?

a) The lifespan of the spark plug based on usage

b) The distance the spark travels within the combustion chamber

c) The resistance level of the center electrode

d) The length of the threaded part of the spark plug

5. In a coil-on-plug (COP) ignition system, where is the ignition coil located?

a) Directly above or near each spark plug

b) In the distributor, connected to all spark plugs

c) Adjacent to the primary circuit wiring

d) Mounted on a single centralized ignition module

6. What is the purpose of the knock sensor in modern ignition systems?

a) To detect engine misfires

b) To monitor crankshaft position for accurate timing

c) To sense abnormal combustion and adjust ignition timing

d) To control the vehicle's fuel injector timing

7. In an automotive ignition system, what does the process of "switching" refer to?

a) Turning the ignition coil current on and off to produce a spark

b) Varying the voltage level of the battery

c) Redirecting the spark to the necessary spark plug

d) Communicating with the vehicle's onboard computer

8. Which component primarily controls the timing and operation of the ignition system in a vehicle equipped with an Electronic Ignition (EI) system?

a) Knock sensor

b) Ignition distributor

c) PCM (Powertrain Control Module)

d) Spark plug

9. The turns ratio of the ignition coil describes:

a) The difference in turns between primary and secondary windings

b) The firing order between cylinders

c) The distance the spark travels between electrodes

d) The power delivered to the spark plug

10. What type of spark plug is known for its durability and high resistance to erosion due to its platinum alloy components?

a) Iridium spark plug

b) Platinum spark plug

c) Copper spark plug

d) Steel spark plug

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Answer Key Quiz A

Correct Answers:

1. a
2. b
3. a
4. d
5. a
6. c
7. a
8. c
9. a
10. b