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

1. What are the two primary circuits within an ignition system?

a. Primary and secondary circuits

b. Distributor and coil circuits

c. Crankshaft and camshaft circuits

d. Magnetic and Hall-effect circuits

2. What is the main advantage of a Hall-effect sensor over a magnetic sensor in ignition systems?

a. It requires less voltage to operate

b. It produces a higher voltage output

c. It provides a digital on/off signal

d. It is more resistant to EMI interference

3. What is the purpose of mutual induction in an ignition coil?

a. To store energy for prolonged spark duration

b. To minimize electromagnetic interference

c. To induce high voltage in the secondary windings

d. To adjust the spark timing automatically

4. What is the role of the knock sensor in an engine's ignition system?

a. To measure the air-fuel ratio in the cylinder

b. To regulate the ignition coil voltage

c. To detect spark timing deviations

d. To identify engine detonation and send signals to the PCM

5. Why are waste-spark ignition systems advantageous for some vehicles?

a. They eliminate the need for spark plug wires

b. They reduce ignition system complexity

c. They allow two spark plugs to fire simultaneously

d. They produce consistent spark energy across cylinders

6. How does a coil-on-plug (COP) ignition system differ from traditional systems?

a. Each cylinder has its own ignition coil directly above the spark plug

b. It eliminates the need for an ignition module

c. It uses a single coil for all cylinders

d. It relies solely on the crankshaft position sensor

7. What does a downward-sloping spark line on an oscilloscope pattern indicate?

a. High secondary resistance

b. Lean air-fuel mixture

c. Fouled spark plug deposits

d. Spark energy loss due to incomplete combustion

8. Which component generates a signal for precise timing of ignition events?

a. Ignition coil primary winding

b. Distributor rotor

c. Crankshaft position (CKP) sensor

d. Spark plug gap

9. What is the recommended testing method for identifying a no-spark condition?

a. Measuring resistance of the primary winding with an ohmmeter

b. Using a spark tester to confirm voltage delivery

c. Checking for spark plug fouling and deposits

d. Inspecting the distributor cap for physical damage

10. How can ignition timing be adjusted on engines equipped with distributors?

a. By rotating the distributor body to align with the timing marks

b. By using an oscilloscope to fine-tune the spark duration

c. By adjusting the PCM program to advance the timing curve

d. By installing high-performance spark plugs with preset gaps

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Answer Key Quiz B

Correct Answers:

1. a

2. c

3. c

4. d

5. b

6. a

7. d

8. c

9. b

10. a