

Automotive Electrical and Engine Performance 9th Edition
Chapter 36 – Gasoline Direct-Injection (GDI) System
Multiple Choice Questions Quiz A

1. Where is the fuel injected in a gasoline direct injection (GDI) engine?
 - a) Into the intake manifold near the intake valve
 - b) Directly into the combustion chamber
 - c) Above the intake port
 - d) In the exhaust port

2. The high-pressure fuel pump in GDI systems is driven by:
 - a) A DC motor
 - b) An AC motor
 - c) The camshaft
 - d) The crankshaft

3. What is the primary advantage of the stratified mode in GDI systems?
 - a) Uniform air-fuel mixture throughout the cylinder
 - b) Enhanced power output at high RPMs
 - c) Decreased engine noise during idle
 - d) Richer fuel concentration near the spark plug, improving cold-start efficiency

4. Which component is used to regulate fuel pressure in the high-pressure GDI system?
 - a) Vacuum-biased regulator
 - b) Non-vacuum-biased regulator
 - c) Electric pressure-control valve
 - d) Fuel rail sensor

5. Technician A states that a GDI system injector requires higher voltage to operate than a port fuel injector. Technician B states that GDI injectors only operate at standard 12 volts. Who is correct?

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

6. In GDI engines, carbon buildup is most commonly found:

- a) On the exhaust valves
- b) In the combustion chamber only
- c) On the intake valves and injector tips
- d) On the spark plug tips

7. Why must high-pressure lines be replaced after removal in GDI systems?

- a) They are connected to the fuel tank assembly
- b) They deform at the ball ends, preventing effective resealing
- c) High temperatures cause material fatigue after initial installation
- d) They must be re-torqued, which may damage them

8. In a dual-injection system combining port and direct injection, which condition typically activates both types of injectors?

- a) Steady cruising speed
- b) Cold-start warm-up phase
- c) High-speed highway driving
- d) Engine idle at normal temperature

9. What mode is used in GDI systems to quickly warm the catalytic converter after a cold start?

- a) Homogeneous mode
- b) Knock protection mode
- c) Stratified catalyst heating mode
- d) Lean-burn mode

10. The fuel pressure in a GDI high-pressure system can reach up to:

- a) 1,000 PSI
- b) 2,500 PSI
- c) 3,500 PSI
- d) 2,900 PSI

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Answer Key Quiz A

Correct Answers:

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