Automotive Electrical and Engine Performance 9th Edition
Chapter 35 – Fuel-Injection Parts and Operation
Multiple Choice Questions Quiz A

1. In an electronic fuel injection system, what primarily controls the fuel injector's pulse width?

a) Throttle position (TP) sensor

b) Oxygen sensor (O2S)

c) Manifold absolute pressure (MAP) sensor

d) Intake air temperature (IAT) sensor

2. What is the purpose of a fuel-pressure regulator in a return-type fuel-injection system?

a) To reduce fuel flow to the injectors at high RPMs

b) To maintain constant pressure across the fuel injectors

c) To vent excess pressure back to the intake manifold

d) To equalize the pressure between the fuel rail and fuel pump

3. Technician A states that the PCM controls the fuel-pump relay in most electronic fuel injection systems. Technician B says the PCM also directly adjusts the pressure regulator's settings. Who is correct?

a) Technician A only

b) Technician B only

c) Both Technician A and Technician B

d) Neither Technician A nor B

4. A speed-density fuel injection system primarily relies on which two inputs to determine fuel delivery?

a) Throttle position and oxygen sensors

b) Mass airflow and barometric pressure sensors

c) Engine speed and manifold pressure

d) Fuel pressure and intake air temperature

5. Which fuel injection mode is used to clear a flooded engine by reducing the injector pulse width significantly?

a) Starting mode

b) Clear flood mode

c) Open loop mode

d) Acceleration enrichment mode

6. In a vacuum-controlled fuel-pressure regulator, a vacuum line is attached to:

a) Increase fuel flow during high-load conditions

b) Reduce pressure to the injectors at idle

c) Adjust fuel pressure based on altitude

d) Maintain a constant pressure drop across injectors

7. What advantage does the demand delivery system (DDS) offer over mechanical returnless fuel systems?

a) It uses fewer sensors, reducing complexity

b) It allows precise control of fuel rail pressure to match engine demand

c) It does not require a fuel-pump relay

8. The purpose of the fuel rail in a port fuel-injection system is to:

a) Reduce fuel pressure pulses for quieter operation

b) Filter contaminants before fuel reaches the injectors

c) Mix fuel with air for improved atomization

d) Act as a reservoir, supplying fuel to all injectors evenly

9. What sensor input allows the PCM to modify the base pulse width in closed-loop mode?

a) Mass airflow sensor (MAF)

b) Throttle position sensor (TP)

c) Oxygen sensor (O2S)

d) Engine coolant temperature sensor (ECT)

10. Which type of idle speed control device is commonly used in electronic throttle control (ETC) systems?

a) Idle air control (IAC) motor

b) Stepper motor

c) Throttle body actuator motor

d) Vacuum-operated bypass valve

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Answer Key Quiz A

Correct Answers:

1. c

2. b

3. a

4. c

5. b

6. d

7. b

8. d

9. c

10. c