

Automotive Electrical and Engine Performance 9th Edition
Chapter 18 – Electronic Throttle Control System
Quiz B

1. What are the four basic functions of a vehicle's electronic throttle control system?
 - a. Input, processing, storage, and output
 - b. Monitoring, regulation, resetting, and feedback
 - c. Voltage control, air regulation, diagnostics, and stability
 - d. Signal acquisition, motor actuation, calibration, and idle control

2. Which position does the throttle plate default to during a fail-safe or limp-home mode?
 - a. Fully closed
 - b. Fully open
 - c. Partially open (16% to 20%)
 - d. Half open

3. What is the primary advantage of the Hall-effect throttle position sensor over potentiometer-based sensors?
 - a. Greater precision
 - b. Resistance to wear due to lack of contact
 - c. Compatibility with higher voltages
 - d. Improved signal clarity

4. How does the throttle actuator motor control the position of the throttle plate?
 - a. By varying its rotational speed
 - b. By reversing polarity through an H-bridge circuit
 - c. By using a stepper motor with precise pulses
 - d. By a series-parallel circuit with adjustable current

5. What does the diagnostic trouble code P2101 typically indicate?
- Sensor signal mismatch between TP1 and TP2
 - Low circuit voltage for the throttle actuator motor
 - Overvoltage detected in the throttle control circuit
 - Sticking throttle plate due to corrosion
6. What happens during the throttle "Spring Test" performed by the PCM?
- The throttle plate is driven fully closed and reopened
 - The actuator motor is pulsed to calibrate the TP sensors
 - The spring returns the throttle plate to its default position
 - The PCM compares APP and TP signals for accuracy
7. Why is a DC motor preferred over a stepper motor for electronic throttle control systems?
- A stepper motor cannot handle the required torque
 - A stepper motor reacts too slowly for throttle applications
 - A DC motor provides more precise position control
 - A DC motor has higher energy efficiency
8. What should a technician expect when attempting to move the throttle plate manually with the ignition off?
- The plate will remain stationary and resist movement
 - The plate will move and stay in place until manually returned
 - The plate will return to its default position when released
 - The plate will move to the closed position automatically
9. Which condition does not require throttle body cleaning?
- Engine stalls during coast-down
 - Lower-than-normal idle speed
 - Intermittent throttle actuator motor operation
 - Rough idle

10. What tool is required to perform a throttle body relearn procedure?

- a. Multimeter to measure TP sensor voltage
- b. Factory-level scan tool or equivalent
- c. Digital storage oscilloscope (DSO)
- d. Vacuum gauge for intake manifold pressure

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Correct Answers:

1. a

2. c

3. b

4. b

5. d

6. c

7. b

8. c

9. c

10. a