

Automotive Electrical and Engine Performance 8th Edition
Chapter 12 – Immobilizer and Push Button Start Systems
Quiz B

1. What are the primary components of an immobilizer system?
 - a. Starter relay, transponder, and brake switch
 - b. Inductive coupling antenna, security light, and keyless entry module
 - c. Immobilizer module, key reminder switch, and transceiver
 - d. Transponder key, coil antenna, and PCM

2. What function does the transponder key perform in an immobilizer system?
 - a. Acts as a physical lock for the ignition cylinder
 - b. Transmits a unique ID code to the immobilizer module
 - c. Powers the immobilizer circuit through its internal battery
 - d. Generates a high-frequency signal for the keyless entry module

3. How does inductive coupling transfer data in an immobilizer system?
 - a. By using a battery-powered transmitter to send signals
 - b. By a radio frequency generator in the immobilizer module
 - c. Through electromagnetic energy pulses between coils
 - d. Using encrypted keys stored in the immobilizer transceiver

4. What might trigger a tamper mode in the security system?
 - a. Incorrectly programmed key inserted in the ignition
 - b. A signal mismatch between the immobilizer module and the PCM
 - c. Attempt to start the engine with an invalid transponder key
 - d. Failure of the key fob's signal due to low battery strength

5. What is a defining feature of passive keyless entry systems?
 - a. They require a physical key for mechanical backup in all conditions
 - b. They automatically unlock doors within a specific proximity range
 - c. They operate independently of the vehicle's powertrain system
 - d. They can only start the vehicle when the fob is within one foot of the ignition

6. Which system diagnostic tool can most effectively locate faults in the immobilizer module?
 - a. Handheld multimeter set to read DC voltage
 - b. Enhanced factory-level scan tool
 - c. Stand-alone fob tester with signal strength detection
 - d. Oscilloscope set to capture electromagnetic pulses

7. What is the role of the security light in an immobilizer system?
 - a. Continuously illuminates during engine operation for security checks
 - b. Flashes during system faults and tamper detection
 - c. Powers the immobilizer module when the key is detected
 - d. Synchronizes the transponder key ID with the PCM

8. How does the push-button start system determine if the vehicle can start?
 - a. By detecting the fob within a 5-meter range and checking the key ID
 - b. By verifying the battery voltage of the immobilizer module
 - c. By ensuring the key slot is occupied before ignition sequence begins
 - d. By confirming both the brake pedal and transmission sensor signals

9. What are the common locations for immobilizer-related diagnostic trouble codes (DTCs)?
 - a. Transmission-related "T" codes
 - b. Chassis and body-related "C" and "B" codes
 - c. Fuel-related "F" codes
 - d. Powertrain-related "P" codes exclusively

10. What should be done when replacing an immobilizer module?
- a. Reset the immobilizer key using a factory reset tool
 - b. Replace the transceiver and key fob to ensure compatibility
 - c. Reprogram the module to work with the existing keys
 - d. Calibrate the vehicle's sensors to accept a new immobilizer module

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Correct Answers:

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