

Automotive Electrical and Engine Performance 9th Edition
Chapter 6 – Scan Tools and Scan Tool Diagnosis
Quiz A

1. What is the purpose of the Malfunction Indicator Lamp (MIL)?
 - a. To alert the driver of emission-related malfunctions
 - b. To display detailed diagnostic trouble codes (DTCs)
 - c. To indicate low oil pressure during operation
 - d. To regulate fuel injection timing

2. Which pin on the OBD-II DLC is used for 12-volt power?
 - a. Pin 4
 - b. Pin 16
 - c. Pin 14
 - d. Pin 5

3. What does a freeze frame capture in an OBD-II system?
 - a. The vehicle's live data at the moment of an emission-related DTC
 - b. All historical trouble codes stored in non-volatile memory
 - c. The operating conditions of the engine when a DTC is set
 - d. The calibration data of the powertrain control module (PCM)

4. Why should readiness monitors be checked during diagnostic testing?
 - a. To ensure all emissions systems have been tested
 - b. To verify the functionality of all vehicle subsystems
 - c. To determine fuel economy in varying conditions
 - d. To monitor coolant temperature and oil levels

5. Which protocol is used for communication on pins 6 and 14 of the DLC?
- a. SAE J1850
 - b. ISO 9141
 - c. CAN (Controller Area Network)
 - d. ISO 15765-4
6. What happens when diagnostic trouble codes (DTCs) are cleared?
- a. Readiness monitors are reset
 - b. Freeze frame data is retained
 - c. Both readiness monitors and freeze frame data are reset
 - d. Only pending codes are erased
7. Which tool provides bi-directional capabilities for testing vehicle components?
- a. Code reader
 - b. Factory or enhanced aftermarket scan tools
 - c. Multimeter
 - d. Bluetooth-enabled smartphone app
8. What is the purpose of a breakout box in scan tool diagnostics?
- a. To provide easy access to DLC terminals for testing
 - b. To reset all vehicle control modules simultaneously
 - c. To monitor the fuel pressure and injector pulse widths
 - d. To calibrate the PCM after replacing sensors
9. Why are permanent DTCs more difficult to clear compared to standard DTCs?
- a. They require a factory scan tool to erase manually
 - b. They remain stored until the vehicle passes the required self-tests
 - c. They are stored in volatile memory that resets every ignition cycle
 - d. They are generated only by non-emission-related failures

10. What diagnostic process is recommended before starting a repair?

- a. Perform a pre-scan to document all stored DTCs
- b. Clear all existing DTCs and check for new ones
- c. Replace any faulty components identified visually
- d. Reset the PCM and perform a readiness monitor check

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Correct Answers:

1. a

2. b

3. c

4. a

5. c

6. c

7. b

8. a

9. b

10. a