

Automotive Electrical and Engine Performance 9th Edition
Chapter 42 – PCV and SAI Systems
Multiple Choice Questions Quiz B

1. What regulates the flow of fumes in a Positive Crankcase Ventilation (PCV) system?
 - a. Orifice-controlled separator
 - b. Dual-stage vacuum regulator
 - c. Spring-loaded plunger in a PCV valve
 - d. Air-injection reaction pump

2. Which component prevents exhaust gases from entering the Secondary Air-Injection (SAI) pump?
 - a. Diverter valve
 - b. Exhaust check valve
 - c. Air manifold
 - d. Switching solenoid

3. What percentage of idle air can flow through the PCV system in some engines?
 - a. Up to 30%
 - b. 5% to 10%
 - c. 10% to 15%
 - d. None

4. What occurs when a PCV valve does not rattle during a shake test?
 - a. It should be cleaned and reinstalled.
 - b. It needs recalibration.
 - c. It is defective and must be replaced.
 - d. It is functioning as intended.

5. During cold engine operation, where does the output of the SAI pump direct air?
- a. Catalytic converter
 - b. Exhaust manifold
 - c. Intake manifold
 - d. Air cleaner assembly
6. What does the snap-back test check for in a PCV valve?
- a. Proper valve spring tension
 - b. Adequate airflow rates
 - c. Resistance to backfire
 - d. Gasket integrity
7. What is the purpose of the electric heater in some PCV valves?
- a. To prevent valve sticking during acceleration
 - b. To improve airflow calibration
 - c. To regulate intake manifold vacuum
 - d. To avoid ice blockages in cold weather
8. How is the SAI pump activated in an electric motor-driven system?
- a. By a direct belt connection
 - b. By the PCM during startup
 - c. By engine vacuum signals
 - d. By thermal sensors detecting coolant temperature

9. Which diagnostic method verifies vacuum integrity in the crankcase?

- a. Crankcase vacuum test using a manometer
- b. Snap-back test
- c. 3x5 card test at idle
- d. Rattle test of the PCV valve

10. What is a potential symptom of a blocked PCV system?

- a. Increased idle speed
- b. Reduced emissions
- c. Excessive oil consumption
- d. Enhanced throttle response

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Answer Key Quiz B

Correct Answers:

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