

**Automotive Electrical and Engine Performance 9th Edition**  
**Chapter 43 – Catalytic Converters**  
**Multiple Choice Questions Quiz B**

1. What are the main chemical processes facilitated by a catalytic converter?
  - a. Combustion and vaporization
  - b. Storage and reduction
  - c. Oxidation and reduction
  - d. Separation and dissociation
  
2. What is applied to the ceramic substrate in a catalytic converter to make the surface porous?
  - a. Rhodium coating
  - b. Washcoat
  - c. Palladium layer
  - d. Aluminum finish
  
3. At what temperature does a catalytic converter begin to work at 50% effectiveness?
  - a. 600°F (315°C)
  - b. 800°F (427°C)
  - c. 500°F (260°C)
  - d. 1000°F (540°C)
  
4. Which sensors are primarily used by the PCM to monitor catalytic converter efficiency?
  - a. MAP and MAF sensors
  - b. Precat and postcat oxygen sensors
  - c. Exhaust temperature sensors
  - d. EGR and IAT sensors

5. What type of mixture is necessary for a catalytic converter to perform reduction processes effectively?
- a. A rich mixture
  - b. A lean mixture
  - c. A stoichiometric mixture
  - d. An oxygen-rich mixture
6. What are the three primary catalyst elements used in a three-way catalytic converter?
- a. Platinum, cerium, aluminum
  - b. Rhodium, platinum, palladium
  - c. Cerium, palladium, titanium
  - d. Platinum, rhodium, cerium
7. What can result in premature catalytic converter failure?
- a. Excessive use of fuel additives
  - b. Engine misfire causing unburned fuel
  - c. High sulfur content in fuel
  - d. All of the above
8. How does cerium contribute to the catalytic converter's operation?
- a. Enhances the oxidation of nitrogen oxides
  - b. Stores and releases oxygen to maintain efficiency
  - c. Converts CO<sub>2</sub> into CO
  - d. Absorbs excess hydrocarbons

9. What is a common symptom of a restricted catalytic converter?

- a. Excessive oil consumption
- b. Reduced engine vacuum at higher RPMs
- c. Sudden increase in fuel economy
- d. Overheating of the exhaust manifold

10. Technician A states that aftermarket catalytic converters are identical to OEM in oxygen storage. Technician B states that aftermarket units may have less cerium, affecting oxygen storage and efficiency. Who is correct?

- a. Technician A only
- b. Technician B only
- c. Both Technician A and Technician B
- d. Neither Technician A nor Technician B

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**Answer Key Quiz B**

**Correct Answers:**

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