

Name \_\_\_\_\_

**SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.**

1) What are the advantages and disadvantages of SCR?

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2) Why are glow plugs kept working after the engine starts?

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3) What are the three phases of diesel ignition?

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4) What is the difference between direct injection and indirect injection?

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5) What are the two most commonly used types of automotive diesel injection systems?

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6) What exhaust after-treatment is needed to achieve exhaust emission standards for vehicles 2007 and newer.

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## Answer Key

Testname: ENGINEPERF5\_SHORT4

1) The advantages of SCR include:

- a. The potential for higher power output
- b. Reduced NOX emission up to 90%
- c. Reduced HC and CO emissions up to 50%
- d. Reduced particulate matter (PM) by 50%

The disadvantages of SCR include:

- a. On-board storage tank required for the urea (diesel exhaust fluid – DEF)
- b. Difficult to find DEF at times
- c. Increased cost to the vehicle owner due to the cost of refilling the DEF storage tank

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2) The glow plugs are kept working to help reduce noise, white exhaust smoke (unburned fuel), and to improve idle quality

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3) The three phases of diesel ignition are:

- a. Ignition delay
- b. Rapid combustion
- c. Controlled combustion

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4) A direct injection diesel engine uses an injector that squirts fuel directly into the combustion chamber. An indirect injection diesel engine uses an injector that squirts fuel into a pre-combustion chamber next to the combustion chamber.

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5) The two most commonly used type of automotive diesel injection system will include the high-pressure common rail and the hydraulic electronic unit injection (HEUI) system.

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6) Diesel exhaust particulate filter (DPF) is the aftertreatment device needed to meet the 2007+ emissions standards.

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