

Name _____

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

1) What are two advantages of gasoline direct injection compared with port fuel-injection?

2) What are the basic modes of operation of a GDI system?

3) What are two disadvantages of gasoline direct injection compared with port fuel injection?

4) What should be replaced anytime it is removed from the high pressure GDI fuel system?

5) How is the fuel delivery system different from a port fuel injection system?

Answer Key

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1) Advantages include:

- Improved fuel economy due to reduced pumping losses and heat loss
- Allows a higher compression ratio for higher engine efficiency
- Allows the use of lower octane gasoline
- The volumetric efficiency is higher
- Less need for extra fuel for acceleration
- Improved cold starting and throttle response
- Allows the use of greater percentage of EGR to reduce exhaust emissions
- Up to 25% improvement in fuel economy
- 12% to 15% reduction in exhaust emissions

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2) The basic modes of operation include:

- Stratified mode
- Homogeneous mode

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3) Disadvantages include:

- Higher cost
- More components
- Need for NOX storage catalyst in some applications

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4) If any high-pressure line is removed, it must be replaced with a new part. Always replace the Teflon seal whenever replacing or reinstalling an GDI injector.

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5) A vehicle equipped with gasoline direct injection uses a fuel pump in the fuel tank similar to a conventional port injection system. Then, the fuel is sent to a high-pressure pump driven by the camshaft to the fuel rail. The computer controls fuel pressure using an electric pressure-control valve.

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