

Name \_\_\_\_\_

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

1) How does a Hall-effect sensor work?

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2) What does the heat range of a spark plug refer to?

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3) How does a magnetic sensor work?

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4) How does a waste-spark ignition system work?

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5) How can 12 volts from a battery be changed to 40,000 volts for ignition?

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## Answer Key

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- 1) A Hall-effect sensor reacts to a magnetic field and produces a square wave output voltage signal.  
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- 2) The heat range of the spark plug refers to how rapidly the heat created at the tip is transferred to the cylinder head. A plug with a long ceramic insulator path runs hotter at the tip than a spark plug that has a shorter path because the heat must travel farther.  
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- 3) A magnetic sensor produces a varying voltage when the notch on the camshaft or crankshaft passes near the sensor and changes the strength of the magnetic field around the sensor.  
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- 4) Each end of the secondary winding of the ignition coil is attached to a spark plug, therefore, both plugs fire at the same time.  
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- 5) Battery voltage is increased to 40,000 volts in the ignition coil by pulsing the primary windings on and off to ground through the module. The collapsing magnetic field around the primary winding induces the high-voltage change in the adjacent secondary winding.  
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