Automotive Engine Performance, 5th Edition
Chapter 16

Name_____

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

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

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2) How does a magnetic sensor work?

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

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4) How does a Hall-effect sensor work?

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

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1) 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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2) 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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3) 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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4) A Hall-effect sensor reacts to a magnetic field and produces a square wave output voltage signal.
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5) A waste-spark ignition uses one coil for two cylinders. Instead of grounding one lead of the secondary winding, both ends are connected to a spark plug. When the coil fires, one spark plug is fired when the piston is on the compression stroke and the other (paired) cylinder is on the exhaust stroke.
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