Automotive Technology 7th Edition
Chapter 12: Scientific Principles and Materials
Short Answer Quiz

Name: _____ Date: _____

1. Explain the concept of the "five whys" as it relates to automotive diagnosis.

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2. What is the relationship between speed and kinetic energy in a moving vehicle? Provide a mathematical explanation.

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3. Describe the differences between a first-class lever, a second-class lever, and a third-class lever in terms of the placement of the weight, fulcrum, and force. Include their functional advantages and disadvantages.

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4. Using Newton's three laws of motion, explain why a heavy sport utility vehicle (SUV) would require more force to accelerate compared to a small economy vehicle.

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5. How does a dynamometer work in measuring the horsepower of an engine, and how does torque relate to this measurement?

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6. Explain the difference between heat and temperature using the provided examples of a match and a large fire.

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7. What is the meaning of the term pH and how does it relate to the neutralization process described in the text?

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8. Briefly describe Boyle's Law and Charles's Law, stating who they were named after and what relationship they describe.

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9. What are the two main properties of sound as described in the text? Provide a brief definition for each and provide one example as mentioned in the material.

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10. Using the SAE Steel Designation system, explain what the analysis of the designation SAE 4340 represents in terms of alloy content and carbon points.

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