Automotive Technology 7th Edition
Chapter 79: Vehicle Emissions Standards and Testing
Short Answer Quiz

Name: Date:

1. What does a high level of carbon dioxide (CO2) in the exhaust indicate about engine efficiency and what are the acceptable levels?

2. Describe the relationship between oxygen (O2) levels in the exhaust and the air-fuel mixture of the engine.

3. Explain how oxides of nitrogen (NOX) contribute to the formation of photochemical smog and the environmental conditions that exacerbate this process.

4. What is the significance of the stoichiometric ratio in combustion and how does it relate to emission levels?

5. How does the addition of 10% alcohol to gasoline affect the levels of carbon monoxide (CO) and oxygen (O2) in the exhaust?

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6. Discuss the role of the EGR system in limiting NOX formation and the potential consequences of a clogged EGR passage.

7. What are the implications of high hydrocarbon (HC) and carbon monoxide (CO) levels in the exhaust, and what could cause these conditions?

8. How is water formed during the combustion process in an engine?

9. What does a low level of CO2 in the exhaust typically indicate about the air-fuel mixture, and why is CO2 level alone not sufficient to determine if the mixture is too rich or too lean?

10. Identify and explain the various emission ratings from TLEV to ZEV, and the significance of these ratings for vehicle manufacturers and environmental standards.