

Automotive Electrical and Engine Performance 9th Edition
Chapter 27 – Gasoline, Diesel, and Alternative Fuels
Multiple Choice Questions Quiz B

1. What is the primary function of the catalytic cracking process in gasoline refining?
 - a. To separate gasoline from diesel fuel
 - b. To improve the color and smell of gasoline
 - c. To remove impurities such as sulfur
 - d. To break down heavier hydrocarbons into lighter hydrocarbons

2. What does Reid Vapor Pressure (RVP) measure in gasoline?
 - a. The ability of gasoline to resist detonation
 - b. The energy content of gasoline in BTUs
 - c. The pressure of vapor above the fuel at 100°F
 - d. The freezing point of gasoline

3. What is the ideal stoichiometric air–fuel ratio for gasoline combustion?
 - a. 9.5:1
 - b. 12.0:1
 - c. 18.5:1
 - d. 14.7:1

4. How does altitude affect octane requirements in gasoline engines?
 - a. Higher altitudes require higher octane fuel due to thinner air.
 - b. Higher altitudes reduce octane requirements because of reduced air density.
 - c. Octane requirements remain constant regardless of altitude.
 - d. Octane ratings are irrelevant for high-altitude operations.

5. What does the "antidetonation index" (AKI) on a fuel pump indicate?
 - a. The average of the Research Octane Number (RON) and Motor Octane Number (MON)
 - b. The Reid Vapor Pressure of the fuel
 - c. The fuel's ability to withstand freezing temperatures
 - d. The percentage of ethanol blended with the gasoline

6. What is a key feature of E85 fuel?
- a. It contains 85% gasoline and 15% ethanol.
 - b. It provides higher energy content per gallon than regular gasoline.
 - c. It is composed of 85% ethanol and 15% gasoline.
 - d. It is used exclusively in diesel engines.
7. Which of the following vehicles can safely use E85 fuel?
- a. Regular gasoline vehicles
 - b. Diesel engines
 - c. Flexible fuel vehicles (FFVs)
 - d. Hybrid electric vehicles
8. What is the cetane number used to measure in diesel fuel?
- a. Its resistance to spark knock
 - b. Its ease of ignition under compression
 - c. Its energy content compared to gasoline
 - d. Its freezing point at low temperatures
9. Why is propane considered a popular alternative fuel?
- a. It is nontoxic and burns cleaner than gasoline.
 - b. It has a higher energy content than diesel fuel.
 - c. It requires no compression for storage.
 - d. It eliminates the need for emission controls.
10. What is the primary disadvantage of compressed natural gas (CNG) compared to gasoline?
- a. It is more expensive per gallon.
 - b. It requires heavy, high-pressure storage tanks.
 - c. It produces more harmful emissions.
 - d. It cannot be used in hybrid vehicles.

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Answer Key Quiz B

Correct Answers:

1. d
2. c
3. d
4. b
5. a
6. c
7. c
8. b
9. a
10. b