

Advanced Engine Performance Diagnosis, 7e (Halderman)
Chapter 2 Gasoline, Alternative Fuels, and Diesel Fuels

- 1) Winter-blend gasoline _____.
A) vaporizes more easily than summer-blend gasoline
B) can cause engine driveability problems if used during warm weather
C) has a higher RVP
D) All of the above

Answer: D

- 2) Technician A says that spark knock, ping, and detonation are different names for abnormal combustion. Technician B says that any abnormal combustion raises the temperature and pressure inside the combustion chamber and can cause severe engine damage. Which technician is correct?

- A) Technician A only
B) Technician B only
C) Both technicians A and B
D) Neither technician A nor B

Answer: C

- 3) Technician A says that the research octane number is higher than the motor octane number. Technician B says that the octane rating posted on fuel pumps is an average of the two ratings. Which technician is correct?

- A) Technician A only
B) Technician B only
C) Both technicians A and B
D) Neither technician A nor B

Answer: C

- 4) What personal protective equipment should be used when working around alternative fuels?

- A) Protective gloves
B) Safety glasses
C) Long-sleeved shirt and long pants
D) All of the above

Answer: D

- 5) Which of the following is considered to be a synthetic or man-made fuel?

- A) Fischer-Tropsch
B) E-diesel
C) P-series
D) Both A and B

Answer: D

6) What can be used to measure the alcohol content in gasoline?

- A) Graduated cylinder
- B) Electronic tester
- C) Scan tool
- D) Either A or B

Answer: D

7) E85 means that the fuel is made from _____.

- A) 85% gasoline and 15% ethanol
- B) ethanol that has 15% water
- C) 85% ethanol and 15% gasoline
- D) pure ethyl alcohol

Answer: C

8) Overfilling the fuel tank can damage which component?

- A) Fuel injectors
- B) Fuel pump
- C) Gas cap
- D) Charcoal canister

Answer: D

9) A flex-fuel vehicle can be identified by _____.

- A) VIN
- B) emblems on the side, front, and/or rear of the vehicle
- C) VECI
- D) All of the above

Answer: D

10) When refueling a CNG vehicle, why is it recommended that the tank be filled to a high pressure?

- A) Less of the fuel is lost due to evaporation.
- B) The cost of the fuel is lower.
- C) The range of the vehicle is increased.
- D) Both A and C

Answer: C

11) Technician A says that in going to high altitudes, engines produce lower power. Technician B says that most engine control systems can compensate the air-fuel mixture for changes in altitude. Which technician is correct?

- A) Technician A only
- B) Technician B only
- C) Both technicians A and B
- D) Neither technician A nor B

Answer: C

12) Which method of blending ethanol with gasoline is the most accurate?

- A) Splash
- B) Sequential
- C) In-line
- D) All of the above

Answer: C

13) What color is diesel fuel dyed if it is for off-road use only?

- A) Green
- B) Yellow
- C) Red
- D) Blue

Answer: C

14) Technician A says that the use of premium high-octane gasoline in an engine designed to use regular-grade gasoline will increase engine power. Technician B says that flexible fuel vehicles are designed to operate on gasoline or gasoline-ethanol blends up to 85% ethanol. Which technician is correct?

- A) Technician A only
- B) Technician B only
- C) Both technicians A and B
- D) Neither technician A nor B

Answer: B

15) Technician A says that gasoline should always be purchased from a busy station, and the vehicle's tank should not be overfilled. Technician B says that oxygenated fuels contain extra oxygen to help increase CO exhaust emissions. Which technician is correct?

- A) Technician A only
- B) Technician B only
- C) Both technicians A and B
- D) Neither technician A nor B

Answer: A

16) Vapor lock can occur under which of these conditions?

- A) High heat near fuel lines
- B) RVP too high
- C) During both A and B
- D) During neither A nor B

Answer: C

17) One should avoid topping off their fuel tank because the _____.

- A) gas cap may leak due to fuel expansion
- B) extra fuel simply spills onto the ground
- C) charcoal canister may get saturated
- D) charcoal canister may get dry

Answer: C

18) Using E85 can result in which of these?

- A) Decreased exhaust emissions
- B) Increased fuel economy
- C) Increased exhaust emissions
- D) Reduced fuel economy

Answer: D

19) Most regular-grade gasoline today, using the $(R + M) \div 2$ rating method, is which of these octane ratings?

- A) 91
- B) 85
- C) 89
- D) 87

Answer: D

20) Abnormal combustion (also called detonation or spark knock) increases both the temperature and _____ inside the combustion chamber?

- A) Hydrogen
- B) EGR
- C) Pressure
- D) Carbon

Answer: C

21) Exxon Mobil has developed a process for converting methanol (methyl alcohol) into gasoline in a process called _____.

- A) MTBE (methyl tertiary butyl ether)
- B) TBA (tertiary butyl alcohol)
- C) ethanol-to-gasoline (ETG)
- D) methanol-to-gasoline (MTG)

Answer: D

22) Which of these procedures used to convert coal-to-liquid fuel, creates a synthetic crude, called syncrude, which is then refined to produce gasoline or diesel fuel?

- A) Direct method
- B) Indirect method
- C) Cracking
- D) Distillation

Answer: A

23) P-series alternative fuel that is patented by Princeton University and is a non-petroleum-based fuel suitable for use in _____ vehicles or any vehicle designed to operate on E-85 (85% ethanol, 15% gasoline).

- A) Ethanol
- B) Methanol
- C) Flexible fueled
- D) Controlled Fueled

Answer: C

24) Technician A says that gasoline is a complex blend of hydrocarbons. Technician B says that gasoline is blended for seasonal usage to achieve the correct volatility for easy starting and maximum fuel economy. Which technician is correct?

- A) Technician A only
- B) Technician B only
- C) Both technicians A and B
- D) Neither technician A nor B

Answer: C

25) The fuel in a CNG fueled vehicle is stored at a pressure as high as 3500 PSI. The CNG is delivered to the mixture control valve at a pressure of _____.

- A) 150 to 175 PSI
- B) 0.5 PSI
- C) 4 to 6 PSI
- D) None of these

Answer: B

26) A CNG refueling station pump is designated as a P24 filling station. This means _____.

- A) it will take 24 hours to refuel, using the slow-fill method
- B) the pump can refuel at a pressure of up to 2400 PSI
- C) the pump can only deliver 24 gallons at a time
- D) the CNG is 24% natural gas and 76% propane

Answer: B