

Alternative Fuel Vehicle Quiz Questions

Natural Gas Vehicles

Natural gas emits higher levels of harmful byproducts into the air than other fossil fuels.

True

False

Natural gas is made up almost entirely of what chemical compound?

Ethane

Methane

Chlorine

Benzene

Natural gas is used as a vehicle fuel in what two forms?

Cold natural gas (CNG) and hot natural gas (HNG)

Solid natural gas (SNG) and liquefied natural gas (LNG)

Compressed natural gas (CNG) and liquefied natural gas (LNG)

Compressed natural gas (CNG) and expanded natural gas (ENG)

Natural gas under extreme pressure yields compressed natural gas (CNG)

True

False

Natural gas under very low temperatures results in liquefied natural gas (LNG)

True

False

Ethanol Vehicles

Ethanol has a positive energy balance; meaning that it produces *less* energy during combustion than is used to produce the fuel.

True

False

*Ethanol has a positive energy balance; ethanol produces **more** energy during combustion than is used to produce the fuel itself.*

What are common ethanol blends in the U.S.?

E10 and E100

E10 and E85

E0 and E85

E25 and E75

Ethanol is mixed with conventional gasoline to form desired blends. The number refers to the amount of ethanol, so E10 means the mix is 10% ethanol and 90% gasoline; E85 means it's between 53% and 85% ethanol and the remainder gasoline.

Which of the following statements is true:

Ethanol is produced from renewable resources but is low octane

Ethanol is high octane but comes from nonrenewable sources

Ethanol comes from nonrenewable sources and is low octane

Ethanol comes from renewable sources and is high octane

Pure ethanol has an octane rating of 99.

Ethanol, in its most basic form, is synonymous with grain alcohol:

True

False

What percentage of gasoline sold in the U.S. has up to 10% ethanol in it?

97%

85%

50%

12%

Electric Vehicles

What are the four types of electric vehicles?

Hybrid electric vehicles (HEVs)

Heavy-weight electric vehicles (HEVs)

Propane electric vehicles (PEVs)

Plug-in hybrid electric vehicles (PHEVs)

Battery electric vehicles (BEVs)

Biodiesel electric vehicles (BEVs)

Fuel cell electric vehicles (FCEVs)

Fast car electric vehicles (FCEVs)

Which of the following statements about electric vehicles is true?

They create fewer emissions that contribute to air pollution and global warming.

Because electric vehicles emit water, they can be used in dry areas to decrease droughts.

They can be used to charge stop lights on roadways.

They reduce particulate matter (soot), oxides of nitrogen, smog forming pollutants, and greenhouse gas emissions.

Because the U.S. imports electricity at low cost, electric vehicles are cheaper to run than conventional vehicles.

Electricity can be made domestically.

They emit a pale blue glow, eliminating the need for headlights.

Production of electricity will create jobs in the economy.

Which type(s) of electric vehicle produce(s) no emissions?

Hybrid electric vehicles (HEVs)

Plug-in hybrid electric vehicles (PHEVs)

Battery electric vehicles (BEVs)

Fuel cell electric vehicles (FCEVs)

Hybrid and plug-in hybrid electric vehicles also have internal combustion engines. When these engines are used, emissions are produced.

As of 2016, how many public electric vehicle charging stations were there in the U.S.?

12

750

3,200

15,000+

At the end of 2016, there were more than 15,464 charging stations with 40,630 outlets available in every state in the U.S.

Biodiesel Vehicles

The “bio” in biodiesel refers to the fact that this fuel:

Has a fascinating life story

Was developed by biologists

Is manufactured from organic materials

Was named after actor Scott Baio

Biodiesel can be made from which of the following:

New vegetable oil

Used vegetable oil

Soybean oil

Animal fat

Recycled organic waste

Trick question! All of the above items can be used to produce biodiesel.

Biodiesel can be used in most diesel engines model year 1994 and newer.

True

False

Biodiesel is carbon-neutral, in that it does not add carbon to the environment; instead, it takes carbon that is already part of plant and animal matter and neutralizes it.

True

False

*Biodiesel is carbon-neutral, in that it does not add carbon to the environment; instead, it takes carbon that is already part of plant and animal matter and uses it as a **fuel source**.*

Biodiesel is used as a blend with conventional diesel. What is the most common blend in the U.S.?

B10 (10% biodiesel, 90% conventional diesel)

B20 (20% biodiesel, 80% conventional diesel)

B50 (50% biodiesel, 50% conventional diesel)

B80 (80% biodiesel, 20% conventional diesel)

Propane Vehicles

Propane is a byproduct of which two activities:

Natural gas extraction

Earth's rotation

Crude oil refining

Soybean processing

What are four benefits of propane?

Propane's nontoxic nature means propane is not harmful to soil or water if spilled or leaked.

Propane occurs abundantly in nature and can be captured in large tanks attached to caves on the sides of mountains.

Propane readily biodegrades in soil, water, or air.

Because propane is stored as a solid, it is easily transported.

Propane is the most accessible alternative fuel to the general public.

In its natural state, propane smells like wildflowers.

Propane is free to the general public.

90% of propane consumed in the U.S. is produced domestically.

Propane is typically used for fuel as an injection vapor or in liquid form:

True

False

Propane must be handled with care because its boiling point is:

212°F

100°F

32°F

-44°F

Propane turns from a liquid to a gas at -44°F, meaning exposure can cause immediate frostburn.

Propane vehicles are classified in two ways:

Dedicated and bifuel

Committed and bifuel

Dedicated and mix use

Committed and mix use

Propane vehicles are classified as either (a) dedicated, meaning they run only on propane or (b) bifuel, meaning they run on either propane or gasoline.

Hydrogen Vehicles

Hydrogen occurs naturally as a gas.

True

False

Hydrogen is:

Odorless, humorless, and burns with a flickering blue flame

Stinky, colorless, and burns with a fiery passion

Odorless, colorless, and burns with a pale blue flame

Smells like lavender, colorless, and burns with a dark orange flame

Emissions from hydrogen vehicles are mostly natural gas.

True

False

*Emissions from hydrogen vehicles are mostly **water**.*

Currently, most hydrogen vehicles use:

Liquid hydrogen

Fuel cells powered by hydrogen

A combination of hydrogen and diesel

Gaseous hydrogen

Although not yet widespread, hydrogen and fuel cells are the current focus of development and production efforts.

Hydrogen:

Is a renewable energy resource

Can be manufactured from any substance containing hydrogen

Is the most abundant element on the planet

When used as a fuel, produces no harmful emissions

All of the above!