1. Which of the following is a gaseous alternative fuel for automobiles?
a) Diesel
b) Biodiesel
c) LPG
d) Ethanol

Answer: c) LPG
Explanation: LPG, or liquefied petroleum gas, is a popular alternative fuel for automobiles that is stored as a liquid but used as a gas. It consists mainly of propane and butane.

2. Which desirable characteristic is important for both SI and CI engine alternative fuels?
a) High viscosity
b) Low energy density
c) Low emissions
d) High volatility

Answer: c) Low emissions
Explanation: Low emissions are crucial for both spark-ignition (SI) and compression-ignition (CI) engine alternative fuels to minimize environmental impact and comply with emission regulations.

3. In terms of rating, which engine type typically benefits more from hydrogen as a fuel?
a) SI engine
b) CI engine
c) Both equally
d) Neither

Answer: a) SI engine
Explanation: Hydrogen tends to perform better in spark-ignition (SI) engines due to its high flammability and faster combustion characteristics.

4. Which of the following is a liquid alternative fuel suitable for both SI and CI engines?
a) CNG
b) Biogas
c) Biodiesel
d) Hydrogen

Answer: c) Biodiesel
Explanation: Biodiesel, derived from renewable sources such as vegetable oils or animal fats, can be used as an alternative fuel in both spark-ignition (SI) and compression-ignition (CI) engines.

5. Which alternate energy source powers electric vehicles (EVs)?
a) Solar energy
b) Wind energy
c) Hydrogen fuel cells
d) Battery

Answer: d) Battery
Explanation: Electric vehicles (EVs) are powered by batteries, which store electricity for propulsion.

6. What is a notable advantage of hybrid vehicles?
a) Lower initial cost

b) Higher fuel efficiency
c) Limited range
d) Higher emissions

Answer: b) Higher fuel efficiency
Explanation: Hybrid vehicles combine an internal combustion engine with an electric motor, resulting in improved fuel efficiency compared to conventional vehicles.

7. What is a disadvantage of using solar cars?
a) Low maintenance
b) Dependence on weather conditions
c) High operating costs
d) Fast charging

Answer: b) Dependence on weather conditions
Explanation: Solar cars rely on sunlight to generate electricity, making them dependent on weather conditions and less practical in areas with limited sunlight.

8. Which of the following alternative fuels typically emits fewer pollutants during combustion?
a) Diesel
b) Gasoline
c) Hydrogen
d) Ethanol

Answer: c) Hydrogen
Explanation: Hydrogen combustion typically produces fewer pollutants compared to conventional fossil fuels like diesel and gasoline.

9. What is a merit of using biogas as an alternative fuel?
a) Limited availability
b) High greenhouse gas emissions
c) Utilization of organic waste
d) Low energy density

Answer: c) Utilization of organic waste
Explanation: Biogas is produced from organic waste through anaerobic digestion, providing a sustainable way to manage waste while producing a renewable fuel.

10. Which engine type generally requires fuel with higher octane ratings?
a) SI engine
b) CI engine
c) Both require the same octane ratings
d) Neither requires octane ratings

Answer: a) SI engine
Explanation: Spark-ignition (SI) engines typically require fuel with higher octane ratings to prevent knocking and ensure proper combustion.

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