1. Which of the following is not a commonly used liquid alternative fuel for internal combustion engines?

a) LPG
b) Biogas
c) Hydrogen
d) Ethanol

Answer: d) Ethanol

Explanation: Ethanol is primarily used as a biofuel additive in gasoline rather than being used as a standalone alternative fuel in internal combustion engines.

2. Which characteristic is desirable for both spark ignition (SI) and compression ignition (CI) engine fuels?

a) Low volatility
b) High octane number (SI) / Cetane number (CI)
c) High viscosity
d) Low flash point

Answer: b) High octane number (SI) / Cetane number (CI)

Explanation: Both SI and CI engines benefit from fuels with high octane numbers for SI engines and high cetane numbers for CI engines, which indicate better combustion characteristics.

3. What is the primary factor that determines the rating of SI engine fuels?

a) Octane number
b) Cetane number
c) Calorific value
d) Density

Answer: a) Octane number

Explanation: The octane number is a measure of a fuel's ability to resist knocking in SI engines, thus it primarily determines the rating of SI engine fuels.

4. Which alternative fuel is commonly used in compressed natural gas (CNG) engines?

a) Methanol
b) Propane
c) Butane
d) Methane

Answer: d) Methane

Explanation: Compressed natural gas (CNG) primarily consists of methane and is commonly used as an alternative fuel in dedicated CNG engines.

5. What is the stoichiometric air-fuel ratio for complete combustion in an internal combustion engine?

a) 14.7:1 (by mass)
b) 10:1 (by volume)
c) 20:1 (by mass)

d) 7.3:1 (by volume)

Answer: a) 14.7:1 (by mass)

Explanation: The stoichiometric air-fuel ratio represents the perfect balance of air and fuel for complete combustion, which is approximately 14.7 parts of air to 1 part of fuel by mass for gasoline.

6. Which gas is the primary combustion product of hydrocarbon fuels in internal combustion engines?

a) Nitrogen
b) Oxygen
c) Carbon dioxide
d) Carbon monoxide

Answer: c) Carbon dioxide

Explanation: Carbon dioxide is the primary combustion product resulting from the oxidation of hydrocarbon fuels in internal combustion engines.

7. What does HHV stand for in relation to fuels?

a) High Heating Value
b) High Hydrocarbon Volume
c) Heat-to-Hydrogen Value
d) Heat Holding Volume

Answer: a) High Heating Value

Explanation: HHV refers to the high heating value of a fuel, also known as the gross calorific value, which represents the total heat released when a fuel is completely combusted.

8. Which characteristic of a fuel is measured by its lower heating value (LHV)?

a) Heat released during complete combustion
b) Heat absorbed during vaporization
c) Heat content excluding the latent heat of vaporization
d) Heat content including the latent heat of vaporization

Answer: c) Heat content excluding the latent heat of vaporization

Explanation: Lower heating value (LHV) of a fuel measures the heat content excluding the latent heat of vaporization, providing a more realistic indication of the usable energy content of the fuel.

9. Which of the following is a gaseous alternative fuel commonly used in spark ignition engines?

a) Biodiesel
b) Biogas
c) Dimethyl ether (DME)
d) Renewable diesel

Answer: b) Biogas

Explanation: Biogas, produced from organic waste, is a gaseous alternative fuel commonly used in spark ignition engines after suitable processing.

10. What is the primary desirable characteristic of an alternative fuel for internal combustion engines?

a) Low energy density
b) High emissions
c) Renewable sourcing
d) High cost

Answer: c) Renewable sourcing

Explanation: The primary desirable characteristic of an alternative fuel for internal combustion engines is its renewable sourcing, promoting sustainability and reducing dependence on finite fossil fuels.

Related posts:

1. Steam generators and boilers MCQs
2. Vapour Cycles MCQs
3. Gas Dynamics MCQs
4. Air Compressors MCQs
5. Nozzles and Condensers MCQs
6. Introduction to stress in machine component MCQs
7. Shafts MCQS
8. Springs MCQs
9. Brakes & Clutches MCQs

10. Journal Bearing MCQs
11. Energy transfer in turbo machines MCQs
12. Steam turbines MCQs
13. Water turbines MCQs
14. Rotary Fans, Blowers and Compressors MCQs
15. Power transmitting turbo machines MCQs
16. Energy transfer in turbo machines MCQs
17. Steam turbines MCQs
18. Water turbines MCQS
19. Rotary Fans, Blowers and Compressors MCQs
20. Power transmitting turbo machines MCQs
21. Introduction to Computer Engineering MCQs
22. Types of Analysis MCQS
23. Heat Transfer and Conduction MCQs
24. Extended Surfaces (fins) MCQs
25. Convection MCQs
26. Thermal and Mass Transfer MCQs
27. Thermal Radiation & Boiling/Condensation MCQs
28. Mechanical processes MCQs
29. Electrochemical and chemical metal removal processes MCQs
30. Thermal metal removal processes MCQs
31. Rapid prototyping fabrication methods MCQs
32. Technologies of micro fabrication MCQs
33. Power Plant Engineering MCQs
34. Fossil fuel steam stations MCQs
35. Nuclear Power Station MCQs
36. Hydro-Power Station MCQs

37. Power Station Economics MCQs
38. Design of Belt, Rope and Chain Drives MCQS
39. Spur and Helical Gears MCQs
40. Bevel Gears MCQs
41. Design of I.C. Engine Components MCQs
42. Linear system and distribution models MCQs
43. Supply chain (SCM) MCQs
44. Inventory models MCQs
45. Queueing Theory & Game Theory MCQs
46. Project Management & Meta-heuristics MCQs
47. Overview of Systems Engineering MCQS
48. Structure of Complex Systems MCQs
49. Concept Development and Exploration MCQs
50. Engineering Development MCQs
51. Basic Concepts & Laws of Thermodynamics MCQs
52. Properties of Steam MCQs
53. Air standard cycles MCQS
54. Fuels & combustion MCQs
55. Materials Science MCQs
56. Alloys and Materials MCQs
57. Metal Heat Treatment MCQs
58. Material Testing and Properties MCQs
59. Chemical Analysis of Metal Alloys MCQs
60. Stress and strain MCQs
61. Bending MCQs
62. Torsion in shafts MCQs
63. Theories of failures MCQs

64. Columns & struts MCQs
65. Manufacturing Process MCQs