

KNOWLEDGE PROBE 1: ALTERNATIVE POWER SOURCES

Fuel Cells

Learning Objectives

1. Describe fuel cell operation and specifications.
 2. Identify the components of a fuel cell.
 3. Identify fuel cell applications.
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1. Which of the following is the best definition of a fuel cell?
 - a. A battery-like device that produces AC from oxygen and hydrogen
 - b. A battery-like device that uses any available fuel
 - c. A chemical source of DC produced with oxygen and hydrogen
 - d. Just like a battery but with different types of electrode and electrolyte materials
 2. What is the approximate DC output from a fuel cell?
 - a. 0.1 volt
 - b. 0.4 volt
 - c. 1.5 volts
 - d. 2.1 volts
 3. What are the byproducts produced by a fuel cell?
 - a. Heat and water
 - b. Hydrogen and water
 - c. Methanol and heat
 - d. Oxygen and hydrogen
 4. What is a common source of hydrogen in a practical fuel cell?
 - a. Air
 - b. Gasoline
 - c. Methanol
 - d. Water
 5. A fuel cell occasionally needs recharging.
 - a. True
 - b. False
 6. A byproduct of a DMFC is
 - a. Carbon dioxide
 - b. Hydrogen
 - c. Oxygen
 - d. Sulfuric acid



7. What is the element between the electrodes in a fuel cell?
 - a. Air
 - b. Ceramic
 - c. Electrolyte chemical
 - d. Plastic membrane coated with platinum

8. What is the percentage of oxygen in the air?
 - a. 1 %
 - b. 16 %
 - c. 21 %
 - d. 78 %

9. Any desired voltage level can be obtained with stacked fuel cells.
 - a. True
 - b. False

10. Which of the following is NOT a common fuel cell application?
 - a. Automotive
 - b. Fixed industrial power
 - c. Home power systems
 - d. Space craft