

Start



(Q) What type of reaction takes place in a chemical cell?

- A - Exothermic
- B - Endothermic
- C - No reaction occurs

(A) Exothermic reactions happen in chemical cells. Most of the energy is transferred not by heating, but by electricity flowing through a circuit.



(Q) Why does the voltage from a chemical cell that is connected in a circuit with a lamp eventually reach zero?

- A - The lamp breaks
- B - One of the reactants is used up
- C - The circuit becomes broken

(A) A chemical cell will produce a voltage until one of its reactants is used up. Until then, it will still produce a voltage, even if the lamp breaks or the circuit is broken.



(Q) What is produced by a hydrogen-oxygen fuel cell?

- A - Water and Carbon Dioxide
- B - Carbon Dioxide
- C - Water

(A) The only product made by a hydrogen-oxygen fuel cell is water.



(Q) What happens to hydrogen molecules in a hydrogen-oxygen fuel cell?

- A - They form hydrogen ions, H^+ , and electrons, e^-
- B - They form hydrogen ions, H^- , and electrons, e^+
- C - They form hydrogen atoms, H

(A) Hydrogen molecules lose electrons, e^- , to form hydrogen ions, H^+ . The hydrogen ions pass through a membrane to the other side of the cell.



(Q) What happens to oxygen molecules in a hydrogen-oxygen fuel cell?





- A - They react with electrons to form oxide ions
- B - They react with hydrogen ions to form hydroxide ions
- C - they react with hydrogen ions and electrons to form water

(A) Oxygen molecules react with hydrogen ions and electrons to form water molecules.



(Q) Which of these is a disadvantage of cars driven by hydrogen-oxygen fuel cells rather than by petrol engines?

- A - They have fewer moving parts
- B - There are fewer suitable filling stations
- C - Hydrogen is flammable

<p>(A) The small number of hydrogen filling stations compared to petrol stations is a disadvantage for these cars.</p> 	<p>(Q) What is the main reason why hydrogen is more difficult to store than diesel?</p> <p>A - Hydrogen is a gas at room temperature but diesel is a liquid B - Hydrogen can be liquefied by cooling it C - Hydrogen can be stored under pressure</p>
<p>(A) Hydrogen is a gas at room temperature, so it occupies a greater volume than liquid diesel. It must be liquefied or stored under pressure, but diesel does not need to be.</p> 	<p>(Q) What is a strength of using hydrogen-oxygen fuel cells in manned spacecraft, compared with using chemical cells?</p> <p>A - They produce electricity B - They produce water that the astronauts can drink C - They produce a voltage</p>
<p>(A) Hydrogen-oxygen fuel cells produce water, which the astronauts could drink. These cells are relatively small for the amount of electricity they produce.</p> 	<p>(Q) What is a disadvantage of using solar photovoltaic cells to provide electricity in a spacecraft?</p> <p>A - Photovoltaic cells have lots of moving parts B - Photovoltaic cells release toxic by-products C - Photovoltaic cells only work when the spacecraft is in direct sunlight</p>
<p>(A) PV cells will only produce a voltage when sunlight falls on them.</p> 	<p>(Q) In a hydrogen fuel cell used to power a car, where does the oxygen come from?</p> <p>A - The air B - A catalyst C - The fuel</p>
<p>(A) Oxygen from the air is used in a fuel cell for a car.</p>	<p style="text-align: center; font-size: 2em;">End</p> 