



1. What is the cathode and anode?

- (A) The cathode is the positive terminal, and the anode the negative terminal.
- (B) The cathode is the negative terminal, and the anode the positive terminal.
- (C) The cathode is the positive terminal in a battery and the anode, the negative terminal.
- (D) The cathode is the terminal where electrons are leaving from.

2. In an electrolysis apparatus, there are three columns. What is the purpose of the central column?

- (A) The central column ensures that the right and left columns have the exact same solution.
- (B) The central column allows gas to accumulate in the right and left columns.
- (C) The central column is where the gases from the right and left columns mix.
- (D) The first two answers are correct.

3. How do you distinguish hydrogen gas from oxygen gas?

- (A) Hydrogen gas expands faster than oxygen gas.
- (B) Hydrogen gas produces a blue flame, oxygen a bright yellow flame.
- (C) Hydrogen gas is easier to ignite than oxygen gas.
- (D) Hydrogen gas pops while oxygen gas brightens a flame.

4. How many electrons does an oxygen atom need to fill up its ring 2?

- (A) 1 electron
- (B) 2 electrons
- (C) 3 electrons
- (D) 4 electrons

5. Oxygen's nucleus is eight times larger than hydrogen's nucleus, yet when oxygen bonds with two hydrogen atoms to fill up its ring 2, each hydrogen atom shares its single electron with oxygen instead of giving it to oxygen. How are the hydrogen atoms able to prevent oxygen from taking each of their electrons?

- (A) Hydrogen's nucleus is closer to the shared electrons than oxygen's nucleus is.
- (B) Hydrogen's nucleus has no electrons blocking its view of the shared electrons.
- (C) The first two answers are correct.
- (D) Oxygen prefers to share one of its own electrons with hydrogen's electron because it allows that end of the water molecule to have a positive electrical charge.

6. Factors that make a water molecule more polar than you might expect include the following, except \_\_\_\_\_.

- (A) each hydrogen nucleus is electrically positive
- (B) electrons circle the nucleus in pairs
- (C) each pair of electrons circling the nucleus repels every other pair
- (D) an unshared pair of electrons exerts more repulsion than a shared pair of electrons

7. How many degrees are there in a complete circle and in a right angle?

- (A) Full circle: 300°, Right angle: 180°
- (B) Full circle: 300°, Right angle: 90°
- (C) Full circle: 360°, Right angle: 180°
- (D) Full circle: 360°, Right angle: 90°