

Non-Metals (p. 578 – 582)

I. Properties Of Non-Metals

1. Define the term non-metals.

Non-Metals – elements that are usually gases or brittle solids at room temperatures

2. Which statement is false concerning non-metals?

- a. Usually non-metals are gases or brittle solids at room temperature.
- b. Solid non-metals are brittle or powdery.
- c. Non-metals do not conduct heat or electricity well.
- d. Generally, non-metals are shiny. not shiny

3. In general, where are non-metals located in the periodic table?

Upper-right side

Which non-metal is an exception to this rule?

Hydrogen

4. Non-metals can form ionic ^{and} ~~but not~~ covalent bonds.

Circle One : True False

5. Non-metals typically become negatively-charged in ionic bonds.

Circle One : True False

II. Hydrogen

1. Which statement is false concerning hydrogen?

- a. Hydrogen accounts for ^{90%} 10% of all the atoms in the universe.
- b. Most hydrogen on Earth is found in water molecules.
- c. Hydrogen is highly reactive.
- d. Hydrogen possesses a single electron.

2. Define the term diatomic molecule.

Diatomic Molecule – two atoms of the same element in a covalent bond

Ex. $F_2, H_2, N_2, Cl_2, Br_2, I_2$

III. The Halogens

1. Which group of the periodic table makes up the halogens?

Group 17 (7A)

2. Which statement is false concerning the halogens?

- a. Halogens are very reactive in their elemental form.
- b. Each halogen element has seven electrons in its outer energy level.
- c. Halogens form ionic bonds with metals to create salts.
- d. Fluorine is the least reactive element in the periodic table of elements.

3. Define the term salt.

Salt - ionic compound that forms when a halogen gains an electron from a metal

4. Identify a use for each halogen element.

Fluorine = Frosted lightbulbs, Semiconductors Iodine = Iodized Salt, Indicator
Chlorine = Swimming Pools, Bleaches Astatine = Radioactive + Rare
Bromine = Dyes in cosmetics

5. Define the term sublimation.

Sublimation - process of a solid changing directly to a vapor without forming a liquid

Ex: Dry Ice
Iodine

IV. The Noble Gases

1. Which group of the periodic table makes up the noble gases?

Group 18 (8A)

2. Which statement is false concerning the noble gases?

- a. Noble gases can not naturally react to form compounds.
- b. Noble gases are very stable elements.
- c. Each noble gas has eight electrons in its outer energy level.
- d. Laboratory forms of noble gas compounds have been created.

3. List three uses for the noble gases.

1. Balloons (He) 2. "Neon" Lights 3. Lasers (Ar, Kr)

4. Which "neon" colors are produced using the following noble gases? (Not in the book.)

Helium = Pink Krypton = White
Neon = Orange-Red Xenon = Blue
Argon = Lavender