

## Chemistry Honors Prac-Test: Atomic Structure and Formula Writing

1. Place the correct answer in the space to the left.

- a.) \_\_\_\_\_ Name of person who discovered the electron.
- b.) \_\_\_\_\_ Rutherford's gold foil experiment proved that the atom is mostly ...
- c.) \_\_\_\_\_ Name of scientist that is credited for his development and study of the Atomic Theory.
- d.) \_\_\_\_\_ Which pair of particles contain the same number of electrons? **A.**  $^{14}\text{N}^{3-}$ ,  $^{124}\text{Mg}^{2+}$  **B.**  $^{40}\text{Ca}^{2+}$ ,  $^{88}\text{Sr}^{2+}$  **C.**  $^7\text{Li}^+$ ,  $^{19}\text{F}^-$
- e.) \_\_\_\_\_ Which pair of particles are isotopes? **A.**  $^{58}\text{Ni}^{3+}$ ,  $^{58}\text{Ni}^{2+}$  **B.**  $^{88}\text{Sr}^+$ ,  $^{88}\text{Sr}$  **C.**  $^{127}\text{Te}^-$ ,  $^{128}\text{I}$  **D.**  $^{131}\text{Cs}$ ,  $^{133}\text{Cs}$
- f.) \_\_\_\_\_ Which pair of particles contain the same number of neutrons? **A.**  $^{56}\text{Fe}$ ,  $^{56}\text{Mn}$  **B.**  $^{119}\text{Sn}$ ,  $^{120}\text{Sb}$  **C.**  $^2\text{H}$ ,  $^3\text{H}$
- g.) \_\_\_\_\_ All members of the halogens form a (1+, 2+, 3+, 2-, 1-) charged ion when combined.
- h.) \_\_\_\_\_ Non-metals ((h.) lose / gain) ((i.) protons / electrons / neutrons) to form ((j.) positive / negative) ions.
- i.) \_\_\_\_\_
- j.) \_\_\_\_\_
- k.) \_\_\_\_\_ Metals ((k.) lose / gain) ((l.) protons / electrons / neutrons) to form ((m.) positive / negative) ions.
- l.) \_\_\_\_\_
- m.) \_\_\_\_\_
- n.) \_\_\_\_\_ Father of the Periodic Table
- o.) \_\_\_\_\_ What is the charge on a particle that contains 33 protons, 28 electrons, and 41 neutrons. (ex. +1, -2, etc.)
- p.) \_\_\_\_\_ Term for a positively / negatively charged ion.
- q.) \_\_\_\_\_ The vanadium atom has 23 electrons, while the vanadium ion,  $\text{V}^{+5}$ , has \_\_\_ electrons.
- r.) \_\_\_\_\_ How many atoms of H are indicated in a formula:  $(\text{NH}_4)_3\text{C}_{10}\text{H}_5\text{O}_2$ ?
- s.) \_\_\_\_\_ All alkali metals produce a (1+, 2+, 3+, 2-, 1-) ionic charge.
- t.) \_\_\_\_\_ All alkaline Earth metals produce a (1+, 2+, 3+, 2-, 1-) ionic charge.
- u.) \_\_\_\_\_ Ionic compounds are also known as \_\_\_. Covalent compounds are also known as \_\_\_.
- v.) \_\_\_\_\_ Which element is most chemically similar to phosphorous? Ar, N, or Si
- w.) \_\_\_\_\_ Which element is a diatomic element? (Carbon, Helium, Sulfur, Fluorine)
- x.) \_\_\_\_\_ Which element is used as the atomic mass unit standard?
- y.) \_\_\_\_\_ Given 1 gram of magnesium and 1 gram of silver which sample has the largest number of atoms?
- z.) \_\_\_\_\_ Boron has 2 naturally occurring isotopes,  $^{10}\text{B}$  and  $^{11}\text{B}$ . B has an AMU of 10.811. Which isotope is most abundant?

2. Write the symbol of the element that each statement describes.

- a.) \_\_\_\_\_ Liquid metal at RT (room temp.)
- b.) \_\_\_\_\_ Liquid non-metal at RT
- c.) \_\_\_\_\_ Lightest ion to form  $\text{XF}_2$  compound
- d.) \_\_\_\_\_ Atomic Number = 79
- e.) \_\_\_\_\_ Most abundant Noble gas in the air
- f.) \_\_\_\_\_ Diatomic member of group 15
- g.) \_\_\_\_\_ Gas from breaking down  $\text{Na}_3\text{N}$
- h.) \_\_\_\_\_ lightest alkali metal
- i.) \_\_\_\_\_ precious metal with 47 protons and 46  $e^-$
- j.) \_\_\_\_\_  $Z = 19$
- k.) \_\_\_\_\_ Metalloid in same family as N
- l.) \_\_\_\_\_ particle with 22 protons, and 23 neutrons