Quiz 8A

1. Indicate whether each of the following statements described ionic or covalent compounds (4 points).

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| --- | --- | --- |
| a. | Atoms gain or lose electrons to form stable noble gas configurations. | Ionic Compound |
| b. | Exist as crystalline structures rather than molecules. | Ionic Compounds |
| c. | Atoms form a chemical bond by sharing pairs of electrons between them. | Covalent Compound |
| d. | Compound formulas are often predicted by group numbers of component elements. | Ionic Compounds |

1. Circle the one in each pair with the larger radius (3 points):
   1. Fe2+ or Fe3+
   2. A potassium atom or a potassium ion.
   3. A sodium ion or a chloride ion.
2. Is this week’s experiment a wet lab or a dry lab (1 point)? \_\_\_\_dry lab\_\_\_\_\_
3. Calculate the number of valence electrons in the following compounds (4 points):
   1. Magnesium fluoride, MgF2



* 1. Ammonia, NH3



* 1. Acetone, CH3COCH3



1. Using the periodic table, identify each element given the description (2 points):
   1. the noble gas with the highest first ionization energy. \_\_\_\_\_helium (He)\_\_\_
   2. the element in Period 4 with the lowest metallic character. \_\_\_krypton (Kr)\_\_\_\_
2. The half-life of phosphorus-32 is 2 weeks. How much phosphorus-32 from a 512 g sample remains after five half-lives (3 points)?
3. Write the correct equation when loses a beta particle from its nucleus (3 points).

Quiz 8B

1. Write the correct equation for the loss of an alpha particle from the nuclide (3 points).
2. Cobalt-60 has a half-life of 5.26 years. If 3.53 g of cobalt-60 were allowed to decay, how many grams would be left after four half-lives (3 points)?
3. Indicate whether each of the following statements described ionic or covalent compounds (4 points).

|  |  |  |
| --- | --- | --- |
| a. | Compound formulas are often predicted by group numbers of component elements. | Ionic Compounds |
| b. | Formed by the combination of nonmetal elements. | Covalent Compound |
| c. | Bond formed by the electrostatic attraction between oppositely charged ions. | Ionic Compounds |
| d. | Bond formation involves overlapping of electron orbitals from component atoms. | Covalent Compounds |

1. Circle the one in each pair with the larger radius (3 points):
   1. Cu+ or Cu2+
   2. A strontium atom or an iodine atom.
   3. A rubidium ion or a strontium ion.
2. Is this week’s experiment a wet lab or a dry lab (1 point)? \_\_\_\_dry lab\_\_\_\_\_
3. Calculate the number of valence electrons in the following compounds (4 points):
   1. Calcium sulfide, CaS



* 1. Carbon dioxide, CO2



* 1. Ethanol, CH3CH2OH



1. Using the periodic table, identify each element given the description (2 points):
   1. the element in Period 4 with the lowest first ionization energy. potassium (K)
   2. the element in Period 2 with the greatest metallic character. \_\_\_\_lithium (Li)\_\_\_\_