

1. Covalent bonds mainly occur between —

- A two nonmetallic elements
- B two metallic elements
- C one metallic element and one nonmetallic element
- D one metalloid and one metallic element

2. An example of a chemical property is —

- F mass of a substance per unit volume
- G ability to dissolve in solution
- H point where solid becomes liquid
- J tendency to undergo oxidation

3. A student hypothesizes that bromine (Br) has different chemical properties from krypton (Kr). The periodic table supports this hypothesis by indicating that —

- A bromine is a metal while krypton is a nonmetal
- B one mole of bromine is heavier than one mole of krypton
- C bromine and krypton are members of the same family
- D bromine and krypton have different numbers of valence electrons

4. A student determined that the density of a sample of tin is 8.00 g/mL, when the actual density of tin is 7.28 g/mL. What was the percent error in the student's calculation?

- F 0.72%
- G 9.0%
- H 9.9%
- J 91%

5. Potassium (K) has a smaller atomic mass than argon (Ar) even though the atomic number of potassium is larger than the atomic number of argon.

Which of the following best accounts for this observation?

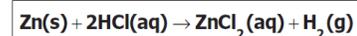
- A) At STP, potassium is in the solid phase, but argon is a gas.
- B) It is easier for a potassium atom to lose an electron than it is for an argon atom.
- C) The most common isotopes of argon have more protons than the most common isotopes of potassium.
- D) The most common isotopes of potassium have fewer neutrons than the most common isotopes of argon.

6. Students want to separate and compare the components of black ink and green ink. Which technique is the *best* for the students to use?

- A chromatography
- B decanting
- C filtration
- D evaporation

7. What type of reaction is shown?

- A Precipitation
- B Neutralization
- C Single replacement
- D Double replacement



8. A student attempts to measure the specific heat capacity of an unknown liquid through repeated trials. She measures its specific heat capacity, in $\frac{\text{J}}{\text{g} \cdot ^\circ\text{C}}$, as 2.14, 2.11, 2.13, 2.12, and 2.11. The specific heat capacity of the liquid should be recorded as —

- F) $2 \frac{\text{J}}{\text{g} \cdot ^\circ\text{C}}$
- G) $2.1 \frac{\text{J}}{\text{g} \cdot ^\circ\text{C}}$
- H) $2.12 \frac{\text{J}}{\text{g} \cdot ^\circ\text{C}}$
- J) $2.122 \frac{\text{J}}{\text{g} \cdot ^\circ\text{C}}$

9. What is the name for the compound CaSO_4 ?

- A Calcium sulfate
- B Calcium sulfide
- C Calcium sulfur oxide
- D Calcium sulfur oxygen

10. When 1 g of sodium chloride (NaCl) is placed in 100 g of water, a solution results. Once the solution is prepared, water is now considered what part of the solution?

- F Solid
- G Liquid
- H Solute
- J Solvent