

## Prep for Basic Chemistry: Competency 6 Practice **KEY**

- A sodium *ion* contains \_\_\_\_ electrons, \_\_\_\_ protons, and \_\_\_\_ neutrons.  
 A **10; 11; 12**  
 B 11; 11; 12  
 C 11; 12; 12  
 D 11; 10; 12
- Which one of following ionic compounds does not have a correct chemical formula?  
 A  $\text{NH}_4\text{OH}$   
 B  $\text{Na}_3\text{PO}_4$   
 C  $\text{CaCl}_2$   
 D  **$\text{NaCO}_3$**
- When oxygen gains electrons, \_\_\_\_\_.  
 A the ion has a 2+ charge  
 B **the ion has a 2- charge**  
 C it also gains protons  
 D all of the above
- All of the following elements form ions with a charge of 2 (2+ or 2-) EXCEPT \_\_\_\_\_.  
 A sulfur  
 B magnesium  
 C calcium  
 D oxygen  
 E **potassium**
- In an ionic compound, the sum of the negative charges equals the sum of the positive charges.  
 A **True**  
 B False
- A covalent compound when dissolved in water will easily conduct an electric current.  
 A True  
 B **False**
- The chloride ion is a polyatomic ion.  
 A True  
 B **False**
- A polyatomic ion is...  
 A **an ion of more than one atom.**  
 B an ion of more than two atoms.  
 C a positively or negatively charged atom.  
 D an energy absorbed during a chemical reaction.
- An *ionic* compound is...  
 A always composed of polyatomic ions.  
 B an ion of one atom.  
 C **a compound composed of positive and negative ions.**

10. The octet rule (rule of eight)...
- A results in a negatively charged ion, formed when an electron is gained by an atom.
  - B explains the ion of one atom.
  - C **states that when atoms combine to form compounds, they lose, gain, or share electrons to obtain an electron configuration with a complete outer energy level.**
  - D shows the number of ions of opposite charge that surround an ion in a crystal.
11. Which one of the following compounds contains a covalent bond?
- A NaCl
  - B Li<sub>2</sub>O
  - C **H<sub>2</sub>O**
  - D KBr
12. What kind of chemical bond will form when elements of the IA group react with elements of the VIIA group?
- A metallic bond
  - B hydrogen bond
  - C **ionic bond**
  - D covalent bond
13. Which of the following are shared in the formation of an ionic bond?
- A protons
  - B neutrons
  - C electrons
  - D **none of the above**
14. For the following, give the symbol and charge of each ion, then write the formula for the compound formed by them (Example: calcium & iodide Ca<sup>2+</sup> I<sup>1-</sup> CaI<sub>2</sub>).

<u>Positive and negative ions</u>	<u>Symbols &amp; charges</u>	<u>Formula</u>
a. potassium & acetate	<u>K<sup>1+</sup> &amp; C<sub>2</sub>H<sub>3</sub>O<sub>2</sub><sup>1-</sup></u>	<u>KC<sub>2</sub>H<sub>3</sub>O<sub>2</sub></u>
b. ammonium & hydroxide	<u>NH<sub>4</sub><sup>1+</sup> &amp; OH<sup>1-</sup></u>	<u>NH<sub>4</sub>OH</u>
c. calcium & phosphate	<u>Ca<sup>2+</sup> &amp; PO<sub>4</sub><sup>3-</sup></u>	<u>Ca<sub>3</sub>(PO<sub>4</sub>)<sub>2</sub></u>
d. silver & sulfate	<u>Ag<sup>1+</sup> &amp; SO<sub>4</sub><sup>2-</sup></u>	<u>Ag<sub>2</sub>SO<sub>4</sub></u>
e. aluminum & carbonate	<u>Al<sup>3+</sup> &amp; CO<sub>3</sub><sup>2-</sup></u>	<u>Al<sub>2</sub>(CO<sub>3</sub>)<sub>3</sub></u>
f. lead & nitrate	<u>Pb<sup>2+</sup> &amp; NO<sub>3</sub><sup>1-</sup></u>	<u>Pb(NO<sub>3</sub>)<sub>2</sub></u>
g. ammonium & phosphate	<u>NH<sub>4</sub><sup>1+</sup> &amp; PO<sub>4</sub><sup>3-</sup></u>	<u>(NH<sub>4</sub>)<sub>3</sub>PO<sub>4</sub></u>