

Prep for Basic Chemistry: Competency 6 Practice

1. A sodium *ion* contains ____ electrons, ____ protons, and ____ neutrons.
 (A) 10; 11; 12
 (B) 11; 11; 12
 (C) 11; 12; 12
 (D) 11; 10; 12
2. Which one of following ionic compounds does not have a correct chemical formula?
 (A) NH_4OH
 (B) Na_3PO_4
 (C) CaCl_2
 (D) NaCO_3
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
4. 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
5. In an ionic compound, the sum of the negative charges equals the sum of the positive charges.
 (A) True
 (B) False
6. A covalent compound when dissolved in water will easily conduct an electric current.
 (A) True
 (B) False
7. The chloride ion is a polyatomic ion.
 (A) True
 (B) False
8. 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.
9. 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_2O
- C H_2O
- 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^{2+} I^{1-} CaI_2).

Positive and negative ions

Symbols & charges

Formula

a. potassium & acetate

b. ammonium & hydroxide

c. calcium & phosphate

d. silver & sulfate

e. aluminum & carbonate

f. lead & nitrate

g. ammonium & phosphate
