

## PRACTICE TEST: FORMULA WRITING

1. Which of these best describes a molecular compound?
  - A. two polyatomic ions
  - B. two metallic ions
  - C. two nonmetallic elements**
  - D. two oppositely charged ions

Remember, molecular (also called covalent compounds) are made up of only non-metals.

2. Which of these is molecular compound?
  - A. NaOH
  - B. BaCl<sub>2</sub>
  - C. MgO
  - D. PCl<sub>3</sub>**

Both P and Cl are non-metals. That makes this [a molecular/covalent compound](#).

3. The formula for calcium nitrite is Ca(NO<sub>2</sub>)<sub>2</sub>. How many oxygen atoms does calcium nitrite contain?
  - A. 2
  - B. 4**
  - C. 5
  - D. 6

We have two O atoms in the NO<sub>2</sub>. Since there is a 2 outside of the parentheses we multiply this by 2. That gives 4 total O atoms (2 x 2 = 4).

4. What is the formula for calcium nitride?
  - A. Ca<sub>3</sub>N<sub>2</sub>**
  - B. Ca(NO<sub>3</sub>)<sub>2</sub>
  - C. Ca<sub>2</sub>N<sub>3</sub>
  - D. Ca<sub>3</sub>(NO)<sub>2</sub>

Ca is in Group 2 on the Periodic Table so it has a charge of +2. N is in group 17 (also called 7A) it has a -3 charge. Balancing the charges gives Ca<sub>3</sub>N<sub>2</sub>. [More on charges ...](#)

5. What is the name of the binary compound  $\text{SnF}_2$ ?

- A. tin fluoride
- B. tin difluoride
- C. tin (II) fluoride**
- D. ditin fluoride

Tin is a transition metal so we need to include its charge using Roman Numerals. We know that F has a charge of -1. We two F atoms so the total charge will be -2. In order to balance the -2, Sn will need to have a +2 charge. That's why we write the (II) : to show that Sn is +2. [More on transition metals ...](#)

6. What is the chemical name of the compound  $\text{CoPO}_4$ ?

- A. cobalt phosphide
- B. cobalt (II) phosphate
- C. cobalt (III) phosphate**
- D. cobalt phosphoxide

Another transition metal. Look up  $\text{PO}_4$  on the [common ion table](#) and you will find the  $\text{PO}_4$  has a charge of -3. Therefore the Co must have a +3 charge.

7. Which of these is a molecular compound that contains 5 atoms per molecule?

- A. carbon tetrachloride**
- B. sulfur dioxide
- C. dinitrogen pentoxide
- D. carbon dioxide

$\text{CCl}_4$ , carbon tetra chloride has one carbon and four chlorine atoms.  $1 + 4 = 5$

8. Which of these is the correct name of  $\text{HBr}$ ?

- A. perbromic acid
- B. hydrobromic acid**
- C. hypobromous acid
- D. hydrogen monobromic acid

Think about  $\text{HCl}$ . That's called hydrochloric acid. So  $\text{HBr}$  is hydrobromic since Cl and Br are in the same group on the Periodic Table.

9. Which of these is the name for  $C_4H_{10}$ ?

- A. pentane
- B. butane**
- C. propane
- D. octane

This is just memory.  $CH_4$  is methane,  $C_2H_6$  is ethane,  $C_3H_8$  is propane,  $C_4H_{10}$  is butane,  $C_5H_{12}$  is pentane, and  $C_6H_{14}$  is hexane.

10. What is the chemical formula for hexane?

- A.  $C_3H_8$
- B.  $C_4H_{10}$
- C.  $C_6H_{14}$**
- D.  $CH_4$

11. Which of these is the correct chemical formula for diphosphorus pentoxide?

- A.  $P_2O_5$**
- B.  $P_5O_2$
- C. PO
- D.  $P_2O$

We have two non-metals so it's molecular/covalent. Gotta use those prefixes.

12. A student accidentally gets a chemical in their mouth. What should they do?

- A. get a drink of water
- B. tell the teacher**
- C. go to the nurse
- D. spit

I'd probably spit but you know what they want you to say. Tell the teacher, perhaps while spitting.

BCR: You are asked to name the following compounds:  $H_2SO_4$ ,  $BCl_3$ , and  $Na_2CO_3$ .

- Classify each element as ionic ( **$Na_2CO_3$** ), molecular ( **$PCl_3$** ), or acid ( **$H_2SO_4$** ).
- Give an example of another compound in that same classification ( **$CaCl_2$ ,  $N_2O_5$ ,  $HCl$** ).
- Explain how the name of the compound describes the chemical make-up of the compound. --- **discuss metal/nonmetals, ionic/molecular, ions and charges, prefixes, common (polyatomic) ions, transition metals and roman numerals, and the alkanes.**

But you have to have the major acids memorized ( $HCl$ ,  $HNO_3$ ,  $H_2SO_4$ ).