$\qquad$ Date: $\qquad$ Per: $\qquad$ Student\# $\qquad$

## Chapter 7 Quiz - 5

## Multiple Choice

1. Which conversion factor would best fit in the space labeled "C" in this diagram?

a. $\frac{1 \mathrm{~mol}}{\mathrm{~N}_{\mathrm{A}}}$
b. $\frac{\mathrm{N}_{\mathrm{A}}}{1 \mathrm{~mol}}$
c. $\frac{1 \mathrm{~mol}}{\text { molar mass }}$
d. $\frac{\text { molar mass }}{1 \mathrm{~mol}}$
2. How many hydrogen atoms are in $\mathbf{5}$ molecules of isopropyl alcohol, $\mathrm{C}_{3} \mathrm{H}_{7} \mathrm{O}$ ?
a. 5
b. 35
c. $5 \times\left(6.02 \times 10^{23}\right)$
d. $35 \times\left(6.02 \times 10^{23}\right)$
3. The molar mass of LiF is $25.94 \mathrm{~g} / \mathrm{mol}$. How many moles of LiF are present in 5.185 g ?
a. $\quad 5.000 \mathrm{~mol}$
b. $\quad 134.5 \mathrm{~mol}$
c. $\quad 0.1999 \mathrm{~mol}$
d. $\quad 36.32 \mathrm{~mol}$
4. The molar mass of $\mathrm{CS}_{2}$ is $76.14 \mathrm{~g} / \mathrm{mol}$. How many grams of $\mathrm{CS}_{2}$ are present in 5.00 mol ?
a. $\quad 5.00 \mathrm{~g}$
b. $\quad 15.23 \mathrm{~g}$
c. $\quad 380.7 \mathrm{~g}$
d. 0.066 g
5. What is the number of moles in $216 \mathrm{~g} \mathrm{Ba}\left(\mathrm{NO}_{3}\right)_{2}$ ? (hint: unless you're quick, do this one last!)
a. $\quad 0.237 \mathrm{~mol}$
b. $\quad 0.825 \mathrm{~mol}$
c. $\quad 0.605 \mathrm{~mol}$
d. $\quad 3.66 \mathrm{~mol}$
6. A formula that shows the simplest whole-number ratio of the atoms in a compound is the
a. structural formula.
c. ideal formula.
b. molecular formula.
d. empirical formula.
7. A molecular compound has the empirical formula $\mathrm{XY}_{3}$. Which of the following is a possible molecular formula?
a. $X_{2} Y_{3}$
b. $X_{2} Y_{6}$
c. $\mathrm{X}_{2} \mathrm{Y}_{5}$
d. $\mathrm{XY}_{4}$
8. A compound's empirical formula is $\mathrm{NO}_{2}$. If the formula mass is 92 amu , what is the molecular formula?
a. $\mathrm{N}_{2} \mathrm{O}_{4}$
b. $\mathrm{N}_{2} \mathrm{O}_{2}$
c. $\mathrm{NO}_{2}$
d. NO
9. The percentage of sulfur in $\mathrm{SO}_{2}$ is about $50 \%$. What is the percentage of oxygen in this compound?
a. $25 \%$
b. $75 \%$
c. $50 \%$
d. $90 \%$
10. (EC)What is the empirical formula for a compound that is $53.3 \% \mathrm{O}$ and $46.7 \% \mathrm{Si}$ ?
a. $\mathrm{Si}_{2} \mathrm{O}$
b. $\mathrm{Si}_{2} \mathrm{O}_{3}$
c. $\mathrm{SiO}_{2}$
d. SiO
11. What is the percentage composition of $\mathrm{CF}_{4}$ ?
a. $16.8 \% \mathrm{C}, 83.2 \% \mathrm{~F}$
b. $20 \% \mathrm{C}, 80 \% \mathrm{~F}$
c. $\quad 13.6 \% \mathrm{C}, 86.4 \% \mathrm{~F}$
d. $81 \% \mathrm{C}, 19 \% \mathrm{~F}$

## Numeric Response

12. The molar mass of aluminum is $26.98 \mathrm{~g} / \mathrm{mol}$ and the molar mass of oxygen is $16.00 \mathrm{~g} / \mathrm{mol}$. Determine the molar mass of $\mathrm{Al}_{2} \mathrm{O}_{3}$.
13. Calculate the number of moles in 10.05 grams of $\mathrm{CaCO}_{3}($ molar mass $=100.1 \mathrm{~g} / \mathrm{mol})$.
14. What is the mass of 10.0 moles of carbon?
15. Calculate the molar mass of nitroglycerin, $\mathrm{C}_{3} \mathrm{H}_{5}\left(\mathrm{NO}_{3}\right)_{3}$, the main ingredient of dynamite.
16. The percentage of hydrogen in NaOH is $\qquad$ .
