## Stoich Review Questions

Name: $\qquad$

1. The gram-formula mass of $\left(\mathrm{NH}_{4}\right)_{2} \mathrm{CO}_{3}$ is
A. $\quad 46.0 \mathrm{~g}$
B. $\quad 64.0 \mathrm{~g}$
C. 78.0 g
D. 96.0 g
2. What is the gram formula mass of $\mathrm{CuSO}_{4} \cdot 5 \mathrm{H}_{2} \mathrm{O}$ ?
A. 160 g
B. $\quad 178 \mathrm{~g}$
C. 186 g
D. 250 g
3. The total number of molecules in 34.0 grams of $\mathrm{NH}_{3}$ is equal to
A. $1.00 \times 22.4$
B. $2.00 \times 22.4$
C. $1.00 \times 6.02 \times 10^{23}$
D. $2.00 \times 6.02 \times 10^{23}$
4. Approximately how many atoms are there in 3.0 moles of Al ?
A. $6.0 \times 10^{23}$
B. $2\left(6.0 \times 10^{23}\right)$
C. $3\left(6.0 \times 10^{23}\right)$
D. $4\left(6.0 \times 10^{23}\right)$
5. How many molecules are in 0.25 mole of CO ?
6. $\qquad$
A. $1.5 \times 10^{23}$
B. $6.0 \times 10^{23}$
C. $3.0 \times 10^{23}$
D. $9.0 \times 10^{23}$
7. What is the total number of moles in 80.0 grams of $\mathrm{C}_{2} \mathrm{H}_{5} \mathrm{Cl}$ (gram-formula mass $=64.5 \mathrm{grams} / \mathrm{mole})$ ?
8. $\qquad$
9. $\qquad$
A. $5.9 \%$
B. $17.6 \%$
C. $21.4 \%$
D. $82.4 \%$
10. The percentage by mass of hydrogen in $\mathrm{NH}_{3}$ is equal to
A. $\frac{1}{17} \times 100$
B. $\frac{3}{17} \times 100$
C. $\frac{17}{3} \times 100$
D. $\frac{6}{17} \times 100$
11. What is the percent by mass of zinc in $\mathrm{ZnCO}_{3}$ [gram formula mass $=125 \mathrm{~g}$ ]?
A. $12 \%$
B. $48 \%$
C. $52 \%$
D. $65 \%$
12. What is the percent by mass of hydrogen in $\mathrm{CH}_{3} \mathrm{COOH}$ (formula mass $=60$ )?
13. $\qquad$
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14. Which is an empirical formula?
A. $\mathrm{C}_{2} \mathrm{H}_{2}$
B. $\mathrm{C}_{2} \mathrm{H}_{4}$
C. $\mathrm{Al}_{2} \mathrm{Cl}_{6}$
D. $\mathrm{K}_{2} \mathrm{O}$
15. A compound contains $40 \%$ calcium, $12 \%$ carbon, and $48 \%$ oxygen by mass. What is the empirical formula of this compound?
A. $\mathrm{CaCO}_{3}$
B. $\mathrm{CaC}_{2} \mathrm{O}_{4}$
C. $\mathrm{CaC}_{3} \mathrm{O}_{6}$
D. $\mathrm{CaCO}_{2}$
16. A compound consists of $85.7 \%$ carbon and $14.3 \%$ hydrogen by mass. Its empirical formula is
A. CH
B. $\mathrm{CH}_{2}$
C. $\mathrm{CH}_{3}$
D. $\mathrm{CH}_{4}$
17. What is the molecular formula of a compound that has a molecular mass of 42
18. and an empirical formula of $\mathrm{CH}_{2}$ ?
A. $\mathrm{CH}_{2}$
B. $\mathrm{C}_{2} \mathrm{H}_{4}$
C. $\mathrm{C}_{3} \mathrm{H}_{6}$
D. $\mathrm{C}_{4} \mathrm{H}_{12}$
19. A compound with an empirical formula of $\mathrm{CH}_{2}$ has a molecular mass of 70. What
20. $\qquad$ is the molecular formula?
A. $\mathrm{CH}_{2}$
B. $\mathrm{C}_{2} \mathrm{H}_{4}$
C. $\mathrm{C}_{4} \mathrm{H}_{8}$
D. $\mathrm{C}_{5} \mathrm{H}_{10}$
21. Given the reaction:

$$
\mathrm{Mg}(\mathrm{~s})+2 \mathrm{AgNO}_{3}(\mathrm{aq}) \rightarrow \mathrm{Mg}\left(\mathrm{NO}_{3}\right)_{2}(\mathrm{aq})+2 \mathrm{Ag}(\mathrm{~s})
$$

Which type of reaction is represented?
A. single replacement
B. double replacement
C. synthesis
D. decomposition
17. Which equation represents a double replacement reaction?
A. $2 \mathrm{Na}+2 \mathrm{H}_{2} \mathrm{O} \rightarrow 2 \mathrm{NaOH}+\mathrm{H}_{2}$
B. $\mathrm{CaCO}_{3} \rightarrow \mathrm{CaO}+\mathrm{CO}_{2}$
C. $\mathrm{LiOH}+\mathrm{HCl} \rightarrow \mathrm{LiCl}+\mathrm{H}_{2} \mathrm{O}$
D. $\mathrm{CH}_{4}+2 \mathrm{O}_{2} \rightarrow \mathrm{CO}_{2}+2 \mathrm{H}_{2} \mathrm{O}$
18. Given the balanced equation:
18.

$$
2 \mathrm{KClO}_{3} \rightarrow 2 \mathrm{KCl}+3 \mathrm{O}_{2}
$$

Which type of reaction is represented by this equation?
A. synthesis
B. decomposition
C. single replacement
D. double replacement
19. Which list includes three types of chemical reactions?
A. condensation, double replacement, and sublimation
B. condensation, solidification, and synthesis
C. decomposition, double replacement, and synthesis
D. decomposition, solidification, and sublimation
20. Base your answer(s) to the following question(s) on the balanced chemical equation below.

$$
2 \mathrm{H}_{2} \mathrm{O} \rightarrow 2 \mathrm{H}_{2}+\mathrm{O}_{2}
$$

What type of reaction does this equation represent?
21. Given the reaction: $\mathrm{Ca}+2 \mathrm{H}_{2} \mathrm{O} \rightarrow \mathrm{Ca}(\mathrm{OH})_{2}+\mathrm{H}_{2}$. What is the total number of moles of Ca needed to react completely with 4.0 moles of $\mathrm{H}_{2} \mathrm{O}$ ?
A. 1.0
B. 2.0
C. 0.50
D. 4.0
22. Given the reaction:
22.

$$
\mathrm{CH}_{4}(\mathrm{~g})+2 \mathrm{O}_{2}(\mathrm{~g}) \rightarrow \mathrm{CO}_{2}(\mathrm{~g})+2 \mathrm{H}_{2} \mathrm{O}(\mathrm{~g})
$$

How many moles of oxygen are needed for the complete combustion of 3.0 moles of $\mathrm{CH}_{4}(\mathrm{~g})$ ?
A. $\quad 6.0$ moles
B. 2.0 moles
C. 3.0 moles
D. 4.0 moles
23. Given the reaction:

$$
2 \mathrm{Al}+3 \mathrm{H}_{2} \mathrm{SO}_{4} \rightarrow 3 \mathrm{H}_{2}+\mathrm{Al}_{2}\left(\mathrm{SO}_{4}\right)_{3}
$$

The total number of moles of $\mathrm{H}_{2} \mathrm{SO}_{4}$ needed to react completely with 5.0 moles of Al is
A. 2.5 moles
B. 5.0 moles
C. 7.5 moles
D. 9.0 moles
24. Given the reaction:

$$
\mathrm{Mg}+2 \mathrm{HCl} \rightarrow \mathrm{MgCl}_{2}+\mathrm{H}_{2}
$$

What is the total number of grams of Mg consumed when 0.50 mole of $\mathrm{H}_{2}$ is produced?
A. $\quad 6.0 \mathrm{~g}$
B. 12 g
C. 3.0 g
D. 24 g
25. Given the reaction: $\mathrm{N}_{2}(\mathrm{~g})+3 \mathrm{H}_{2}(\mathrm{~g}) \leftrightharpoons 2 \mathrm{NH}_{3}(\mathrm{~g})$. What is the ratio of moles of $\mathrm{H}_{2}(\mathrm{~g})$ consumed to moles of $\mathrm{NH}_{3}(\mathrm{~g})$ produced?
A. $1: 2$
B. $2: 3$
C. $3: 2$
D. $6: 6$

## Stoich Review Questions 01/19/2015

1. 

Answer: D
2.

Answer: D
3.

Answer: D
4.

Answer: C
5.

Answer: A
6.

Answer: $\quad 1.24 \mathrm{~mol}$
7.

Answer: B
8.

Answer: B
9.

Answer: C
10.

Answer: C
11.

Answer: D
12.

Answer: A
13.

Answer: B
14.

Answer: C
15.

Answer: D
16.

Answer: A
17.

Answer: C
18.

Answer: B
19.

Answer: C
20.

Answer: decomposition, analysis, redox, endothermic, electrolysis
21.

Answer: B
22.

Answer: A
23.

Answer: C
24.

Answer: B
25.

Answer: C

