Name: _____ Class: _____ Date: _____ ID: A

Common Assessment 9

Multiple Choice
Identify the choice that best completes the statement or answers the question.

____ 1. A student determines that the theoretical yield of $CaCO_3$ from a precipitation reaction is 21.5 grams. However, this student only recovers 19.9 grams of precipitate through filtration of the solution. What would be this student's percent yield?

a. 85.6 %
b. 92.6%
c. 108%
d. 0.93%

$$H_2 + Br_2 \rightarrow 2HBr$$

____ 2. If 150. grams of bromine are reacted with 6.00 grams of hydrogen gas according to the reaction shown above, what will be the theoretical yield of hydrobromic acid (HBr)?

a. 532 grams
b. 152 grams
c. 482 grams
d. 122 grams

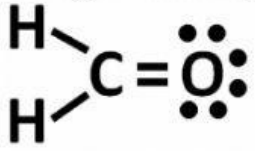
$$\mathbf{2NH_3(g) \rightarrow N_2(g) + 3H_2(g)}$$

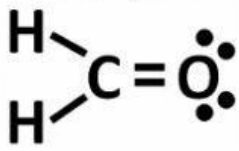
____ 3. The reaction for the decomposition of ammonia (NH_3) can be written as shown. If a student starts with 21.7 g of NH_3 how many grams of hydrogen gas (H_2) will be produced by the reaction?

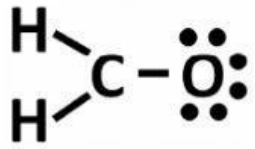
a. 1.28 g
b. 32.5 g
c. 3.85 g
d. 2.55 g

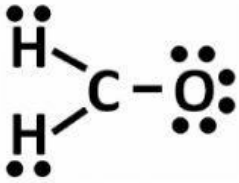
Name: _____ ID: A

____ 4. Which diagram accurately represents the structure of a compound whose formula is CH_2O?

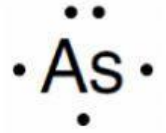
a. 

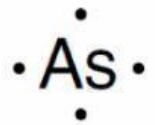
c. 

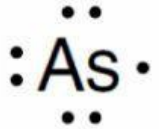
b. 

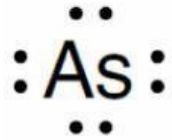
d. 

____ 5. What is the correct Lewis dot structure for arsenic?

a. 

b. 

c. 

d. 

____ 6. $$4Fe + 3O_2 \rightarrow 2Fe_2O_3$$

Iron reacts with oxygen to form iron (III) oxide according to the above reaction. During a classroom demonstration, 60.0 grams of iron are allowed to react with 30.0 grams of oxygen gas. What is the limiting reagent for this reaction, and what is the theoretical yeild for iron (III) oxide?

a. Iron is the limiting reagent producing 106 g of Fe_2O_3
b. Oxygen is the limiting reagent producing 99.8 g of Fe_2O_3
c. Oxygen is the limiting reagent producing 82.6 g of Fe_2O_3
d. Iron is the limiting reagent producing 85.8 g of Fe_2O_3

____ 7. $$5C + 2SO_2 \longrightarrow CS_2 + 4CO$$

Carbon disulfide (CS_2) is prepared industrially by reacting carbon with sulfur dioxide according to the above equation. Carbon monoxide (CO) is a toxic side product of this reaction. During one reaction, 90.0 grams of carbon (C) are reacted with 180. grams of sulfur dioxide (SO_2). Determine which of these reactants is the limiting reagent and calculate how many grams of toxic carbon monoxide will be produced.

a. carbon is the limiting reagent, and 148 grams of CO are produced
b. carbon is the limiting reagent, and 168 grams of CO are produced
c. sulfur dioxide is the limiting reagent, and 157 grams of CO are produced
d. sulfur dioxide is the limiting reagent, and 165 grams of CO are produced

Name: _____ ID: A

$$6Li + N_2 \rightarrow 2Li_3N$$

____ 8. Lithium reacts with nitrogen to form lithium nitride according to reaction shown above. During an experiment, 26.2 grams of nitrogen gas were reacted with an excess of lithium metal. What is the percent yield of this reaction if 50.7 grams of lithium nitride were recovered?

a. 77.8 %
b. 51.7 %
c. 65.4 %
d. 70.5 %

$$2H_3PO_4 + 3Mg(OH)_2 \rightarrow Mg_3(PO_4)_2 + 6H_2O$$

____ 9. Phosphoric acid, H_3PO_4, is neutralized by magnesium hydroxide according to the equation shown. How many moles of water will be produced from the neutralization of 0.24 mole of H_3PO_4?

a. 1.44 mol
b. 0.24 mol
c. 0.48 mol
d. 0.72 mol

$$Fe_2(SO_4)_3 + 6KOH \rightarrow 3K_2SO_4 + 2Fe(OH)_3$$

____ 10. During an experiment, the reaction shown above was performed and allowed to go to completion. If 125 grams of potassium hydroxide were completely reacted, how many grams of potassium sulfate were produced?

a. 194 g
b. 206 g
c. 177 g
d. 184 g

____ 11. The theoretical yield of a reaction is 82.5 grams, but the reaction actually yields 12.3 grams less than expected. What is the percent yield for this reaction?

a. 67.1 %
b. 85.1 %
c. 14.9 %
d. 118 %

Name: _____ ID: A

___ 12. $$Cu(s) + 2AgNO_3(aq) \rightarrow Cu(NO_3)_2(aq) + 2Ag(s)$$

When copper reacts with silver nitrate according to the equation, the number of grams of copper required to produce 432 grams of silver is —

a. 31.5 g
b. 127 g
c. 216 g
d. 252 g

Short Answer

13. $$2H_2S\ (g) + 3O_2\ (g) \rightarrow 2H_2O\ (g) + 2SO_2\ (g)$$

If 3.50 g of H_2S are used in the above reaction, what will be the theoretical yield of water in grams? Record your answer in the box on the back of your scantron to the correct number of significant figures.

.

14.

Mass of Filter Paper:	0.75 g
Mass of Filter Paper + Precipitate:	6.34 g
Mass of Precipitate:	

A student performed a precipitation reaction and recorded the data shown in the table above. If the theoretical yield for the precipitate was 5.87 grams, what is the percent yield of this reaction based on the data? Record your answer to the nearest tenth of a percent in the grid on the back of your scantron.