Sample Test Questions - Chemical math.

Consider the reaction Al + O2 ➞ Al2O3

\_\_\_\_\_1. When this equation is balanced with the lowest possible whole number coefficients, the coefficient in front of the O2 is a) 2 b) 3 c) 6 d) 8

\_\_\_\_\_2. This reaction is best described as A) synthesis B) decomposition

C) single replacement D) double replacement.

\_\_\_\_\_3. Find the mass of 2.00 mole of aluminum oxide. A) 102 grams B) 51 grams

C) 204 grams D) 408 grams

\_\_\_\_\_4. What is the mass of the quantity of water that contains the same number of moles as

220 grams of CO2 ?

\_\_\_\_\_5. Which quantity of oxygen gas has the largest mass? Ten

A) grams B) moles C) molecules D) atoms

\_\_\_\_\_6. How many moles of KOH are there in 2.80 grams of KOH?

A) 20.0 B) 0.500 C) 0.0500 D) 0.200

\_\_\_\_\_7. 36 grams of water contains the same number of *atoms*  as

A) 36 grams of CO2 B) 36 grams of CH4 B) 88 grams of CO2

D) 32 grams of CH4

\_\_\_\_\_\_8. What is the molar mass of Ba(NO3)2 ?

\_\_\_\_\_9. Consider the balanced equation 2 C2H6 + 7 O2 ➞ 4 CO2 + 6 H2O

This type of reaction is best described as A) synthesis B) decomposition

C) combustion D) double replacement

\_\_\_\_\_10. In the reaction above, how many moles of oxygen are required to react with 0.50 moles of C2H6 ? A) 1.75 B) 3.50 C) 2.00 D) 1.50

\_\_\_\_\_\_11. How many moles of NaOH are there in 500. mL of 4.00 molar NaOH?

A) 2.00 B) 8.00 C) 1.25 D) 0.800

\_\_\_\_\_\_12. What is the % sulfur by mass in SO3? A) 40 % B) 50 % C) 60 % D) 25%

\_\_\_\_\_\_13. The % water in the hydrate, MgSO4∙7 H2O is closest to

A) 25 % B) 50 % C) 75 % D) 90 %

\_\_\_\_\_\_14. What is the molecular formula of a substance that has an empirical formula of CH2 and a molar mass of 56 ?