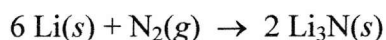


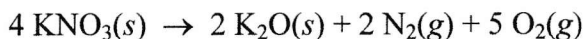
Stoichiometry Homework**Multiple Choice**

Identify the choice that best completes the statement or answers the question. Please show all work for full credit. This assignment is due 11/14/18 by 5:40 pm.

- _____ 1. How many grams of Li_3N can be formed from 1.75 moles of Li ? Assume an excess of nitrogen.



- a. 18.3 g Li_3N
b. 20.3 g Li_3N
c. 58.3 g Li_3N
d. 61.0 g Li_3N
e. 15.1 g Li_3N
- _____ 2. How many moles of oxygen are formed when 58.6 g of KNO_3 decomposes according to the following reaction? The molar mass of KNO_3 is 101.11 g/mol.

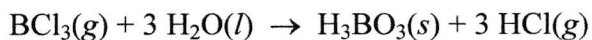


- a. 0.290 mol O_2
b. 0.580 mol O_2
c. 18.5 mol O_2
d. 0.724 mol O_2
e. 1.73 mol O_2

- _____ 3. A 12.39 g sample of phosphorus reacts with 42.54 g of chlorine to form only phosphorus trichloride (PCl_3). If it is the only product, what mass of PCl_3 is formed?

- a. 30.15 g
b. 54.93 g
c. 140.01 g
d. 79.71 g
e. 91.86 g

- _____ 4. Determine the theoretical yield of HCl if 60.0 g of BCl_3 and 37.5 g of H_2O are reacted according to the following balanced reaction. A possibly useful molar mass is $\text{BCl}_3 = 117.16$ g/mol.

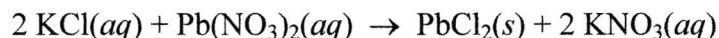


- a. 75.9 g HCl
b. 132 g HCl
c. 187 g HCl
d. 56.0 g HCl
e. 25.3 g HCl

- _____ 5. Determine the molarity of a solution formed by dissolving 3.00 moles of NaCl in enough water to yield 4.00 L of solution.
- 1.33 M
 - 2.00 M
 - 0.750 M
 - 3.00 M
 - 12.00 M

- _____ 6. How many molecules of sucrose ($C_{12}H_{22}O_{11}$, molar mass = 342.30 g/mol) are contained in 14.3 mL of 0.140 M sucrose solution?
- 8.29×10^{22} molecules $C_{12}H_{22}O_{11}$
 - 1.21×10^{21} molecules $C_{12}H_{22}O_{11}$
 - 6.15×10^{22} molecules $C_{12}H_{22}O_{11}$
 - 1.63×10^{23} molecules $C_{12}H_{22}O_{11}$
 - 5.90×10^{24} molecules $C_{12}H_{22}O_{11}$

- _____ 7. According to the following reaction, what volume of 0.244 M KCl solution is required to react exactly with 50.0 mL of 0.210 M $Pb(NO_3)_2$ solution?



- 97.4 mL
 - 116 mL
 - 43.0 mL
 - 86.1 mL
 - 58.1 mL
- _____ 8. Determine the number of grams H_2 formed when 250.0 mL of 0.743 M HCl solution reacts with 3.41×10^{23} atoms of Fe according to the following reaction.

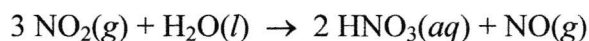


- 0.374 g
 - 1.33 g
 - 1.14 g
 - 0.187 g
 - 1.51 g
- _____ 9. What mass (in g) of AgCl is formed from the reaction of 75.0 mL of a 0.078 M $AgC_2H_3O_2$ solution with 55.0 mL of 0.109 M $MgCl_2$ solution?

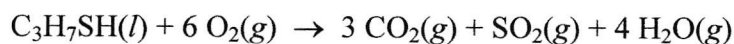


- 0.838 g
- 1.72 g
- 0.859 g
- 2.56 g
- 1.70 g

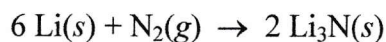
- _____ 10. According to the following balanced reaction, how many moles of NO are formed from 12.66 moles of NO₂ if there is plenty of water present?



- a. 37.98 moles NO
 - b. 18.99 moles NO
 - c. 12.66 moles NO
 - d. 8.44 moles NO
 - e. 4.22 moles NO
- _____ 11. Consider the following reaction. How many moles of oxygen are required to produce 4.00 moles of water? Assume that there is excess C₃H₇SH present.

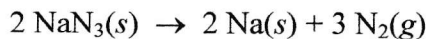


- a. 2.67 moles O₂
 - b. 6.00 moles O₂
 - c. 4.00 moles O₂
 - d. 16.0 moles O₂
 - e. 1.00 moles O₂
- _____ 12. Lithium and nitrogen react to produce lithium nitride:



How many moles of N₂ are needed to react with 0.550 mol of lithium?

- a. 3.30
 - b. 0.550
 - c. 0.183
 - d. 1.65
 - e. 0.0917
- _____ 13. Automotive air bags inflate when sodium azide decomposes explosively to its constituent elements:



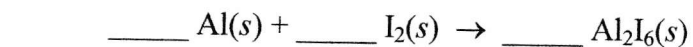
How many grams of sodium azide are required to produce 25.0 g of nitrogen?

- a. 1.34
- b. 0.595
- c. 58.0
- d. 38.7
- e. 87.0

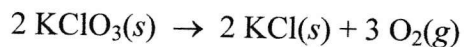
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- ____ 14. Balance the chemical equation given below, and determine the number of moles of iodine that react with 40.0 g of aluminum.



- a. 0.988 mol
 - b. 2.22 mol
 - c. 2.97 mol
 - d. 4.45 mol
- ____ 15. If the percent yield for the following reaction is 65.0%, how many grams of KClO_3 are needed to produce 4.00 g of O_2 ?



- a. 6.63 g
- b. 10.2 g
- c. 15.7 g
- d. 35.3 g