Dougherty Valley High
Practice Quiz: Stoichiometry

1. A balanced chemical equation allows one to determine the
a) mole ratio of any two substances in the reaction
b) energy released in the reaction
c) electron configuration of all elements in the reaction
d) mechanism involved in the reaction

2. The coefficients in a chemical equation represent the
a) masses, in grams, of all reactants and products.
b) relative numbers of moles of reactants and products.
c) number of atoms in each compound in a reaction.
d) number of valence electrons involved in the reaction.

3. In the reaction $N_2 + 3H_2 ---> 2NH_3$ what is the mole ratio of nitrogen to ammonia?
a) 1:1
b) 1:2
c) 1:3
d) 2:3

4. In the reaction $2Al_2O_3 ---> 4Al + 3O_2$ what is the mole ratio of aluminum to oxygen?
a) 10:6
b) 3:4
c) 2:3
d) 4:3

5. The Haber process for producing ammonia commercially in represented by the equation
$N_2(g) + 3H_2(g) ---> 2NH_3(g)$. To completely convert 9.0 mol hydrogen gas to ammonia gas, how many moles of nitrogen are required.
a) 1.0 mol
b) 2.0 mol
c) 3.0 mol
d) 6.0 mol

6. In the equation $2KClO_3 ---> 2KCl + 3O_2$, how many moles of oxygen are produced when 3.0 mol of $KClO_3$ decompose completely?
a) 1.0 Mol
b) 2.5 Mol
c) 3.0 Mol
d) 4.5 Mol

7. For the reaction $C + 2H_2 ---> CH_4$, how many moles of hydrogen are required to produce 10 mol of methane, CH_4?
a) 2 Mol
b) 4 Mol
c) 10 Mol
d) 20 Mol

8. For the reaction $2H_2 + O_2 ---> 2H_2O$, how many grams of water are produced from 6.00 mol of hydrogen?
a) 2.00 g
b) 6.00 g
c) 54.0 g
d) 108 g

9. For the reaction $SO_3 + H_2O$ ---> H_2SO_4, how many grams of sulfur trioxide are required to produce 4.00 mol of sulfuric acid?
a) 80.0 g
b) 160. g
c) 240. g
d) 320. g

10. For the reaction $CH_4 + 2O_2$ ---> $CO_2 + 2H_2O$, how many moles of carbon dioxide are produced from the combustion of 100. g of methane?
a) 6.23 mol
b) 1.08 mol
c) 12.5 mol
d) 25 mol

11. For the reaction $Cl_2 + 2KBr$ ---> $2KCl + Br_2$, how many moles of potassium chloride are produced from 119 g of potassium bromide?
a) 0.119 mol
b) 0.236 mol
c) 0.581 mol
d) 1.00 mol

12. For the reaction $2KlO_3$ ---> $2KCl + 3O_2$, how many moles of potassium chlorate are required to produce 250 g of oxygen?
a) 2.0 mol
b) 4.3 mol
c) 4.9 mol
d) 5.2 mol

13. Which reactant controls the amount of product formed in a chemical reaction?
a) excess reactant
b) mole ratio
c) composition reactant
d) limiting reactant

14. To determine the limiting reactant in a chemical reaction involving the combination of known masses of A and B, one should first calculate
a) the mass of 100 mol of A and B
b) the masses of all products
c) the bond energies of A and B
d) the number of moles of B and the number of moles of A available.

15. What is the measured amount of a product obtained from a chemical reaction?
a) mole ratio
b) percent yield
c) theoretical yield
d) actual yield

16. In most chemical reactions the amount of product obtained is
a) equal to the theoretical yield.
b) less than the theoretical yield.
c) more than the theoretical yield.
d) more than the percent yield.

17. What is the maximum possible amount of product expected in a chemical reaction?
a) theoretical yield
b) percent yield
c) mole ratio
d) actual yield

18. For the reaction $Cl_2 + 2KBr$ ---> $2KCl + Br_2$, calculate the percent yield if 200. g of chlorine reacts with excess potassium bromide to produce 410. g of bromine.
a) 73.4%
b) 82.1%
c) 91.0%
d) 98.9%

19. For the reaction $2Na + Cl_2$ ---> $2NaCl$, calculate the percent yield if 200. g of chlorine reacts with excess sodium to produce 240. g of sodium chloride.
a) 61.2%
b) 72.8%
c) 83.4%
d) 88.4%

20. __$NaClO_3$ (s) → __$NaCl$ (s) + __O_2 (g)
12.00 moles of $NaClO_3$ will produce how many grams of O_2?
a) 256 g of O_2
b) 576 g of O_2
c) 288 g of O_2
d) 384 g of O_2

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1. (a)
2. (b)
3. (b)
4. (d)
5. (c)
6. (d)
7. (d)
8. (d)
9. (d)
10. (a)
11. (d)
12. (d)
13. (d)
14. (d)
15. (d)
16. (b)
17. (a)
18. (c)
19. (b)
20. (b)