Quiz 1 for stoichiometry (Chapter 1 and 2)

Answer the following questions

1) When the following equation is balanced, the coefficient of nitric acid is _____.

$$N_2O_5\ (g) + H_2O\ (l) \rightarrow HNO_3\ (aq)$$

A) 5
B) 2
C) 3
D) 4
E) 1

2) There are _____ mol of carbon atoms in 4 mol of dimethylsulfoxide (C_2H_6SO).

A) 2
B) 6
C) 8
D) 4
E) 3

3) There are _____ sulfur atoms in 25 molecules of $C_4H_4S_2$.

A) 1.5×10^{25}
B) 4.8×10^{25}
C) 3.0×10^{25}
D) 50
E) 6.02×10^{23}

4) How many moles of carbon dioxide are there in 52.06 g of carbon dioxide?

A) 0.8452
B) 1.183
C) 6.022×10^{23}
D) 8.648×10^{23}
E) 3.134×10^{25}

5) A 2.25-g sample of magnesium nitrate, Mg(NO3)2, contains _____ mol of this compound.

A) 38.4
B) 65.8
C) 148.3
D) 0.0261
E) 0.0152

6) What is the maximum mass in grams of NH_3 that can be produced by the reaction of 1.0 g of N_2 with 3.0 g of H_2 via the equation below?

$$N_2\ (g) + H_2(g) \rightarrow NH_3\ (g) \quad \text{(not balanced)}$$

A) 2.0
B) 1.2
C) 0.61
D) 17
E) 4.0

7) Sulfur and fluorine react in a combination reaction to produce sulfur hexafluoride:

$$S\ (s) + 3F_2\ (g) \rightarrow SF_6\ (g)$$

In a particular experiment, the percent yield is 79.0%. This means that in this experiment, a 7.90-g sample of fluorine yields _____ g of SF_6.

A) 30.3
B) 10.1
C) 7.99
D) 24.0
E) 0.110

8) Magnesium burns in air with a dazzling brilliance to produce magnesium oxide:

$$2Mg\ (s) + O_2\ (g) \rightarrow 2MgO\ (s)$$

How many moles of O_2 are consumed when 0.770 mol of magnesium burns?

A) 0.0317
B) 2.60
C) 0.770
D) 1.54
E) 0.385

9) The total concentration of ions in a 0.250 M solution of HCl is _____.

A) essentially zero.
B) 0.125 M
C) 0.250 M
D) 0.500 M
E) 0.750 M

10) What is the concentration (M) of KCl in a solution made by mixing 25.0 mL of 0.100 M KCl with 50.0 mL of 0.100 M KCl?

A) 0.100
B) 0.0500
C) 0.0333

D) 0.0250
E) 125

11) How many grams of H_3PO_4 are in 175 mL of a 3.5 M solution of H_3PO_4?

A) 0.61
B) 60
C) 20
D) 4.9
E) 612

12) How many grams of CH_3OH must be added to water to prepare 150 mL of a solution that is 2.0 M CH_3OH?

A) 9.6×10^3
B) 4.3×10^2
C) 2.4
D) 9.6
E) 4.3

13) A 0.100 M solution of _____ will contain the highest concentration of potassium ions.

A) potassium phosphate
B) potassium hydrogen carbonate
C) potassium hypochlorite
D) potassium iodide
E) potassium oxide

14) What volume (mL) of a concentrated solution of sodium hydroxide (6.00 M) must be diluted to 200. mL to make a 1.50 M solution of sodium hydroxide?

A) 0.0500
B) 50.0
C) 45.0
D) 800.
E) 0.800