Stoichiometry Practice MC

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

_____ 1. (#6-1) A 0.5 mole sample of Hydrobromic Acid (HBr) will have a mass of
   a. 80.9 grams
   b. 40.5 grams
   c. 22.4g
   d. 6.022 E23

   1 gram of CH_4 reacts with 1 gram of O_2 via combustion. Answer the following questions relative to the reaction.

_____ 2. (#7) A 10mL solution of 0.20M $CuCl_2$ reacts completely with solid Al forming $AlCl_3$ and ~~hydrogen gas~~. What is the concentration of the ~~Copper~~ ions
   a. 0.1M
   b. 0.2M
   c. 0.4M
   d. Need more information

   chloride
   Cl ions are a spectator ion
   .2 ×2 = .4
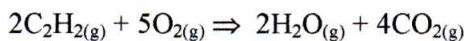
$$2C_2H_{2(g)} + 5O_{2(g)} \Rightarrow 2H_2O_{(g)} + 4CO_{2(g)}$$
Acetylene is a common fuel used in welding. Answer the following questions.

_____ 3. (#7-1) If you have 10 grams of C_2H_2 and 10 grams of O_2, which of the following correctly describes the quantites of particles?
   a. The quantities of particles are equal
   b. You have more C_2H_2
   c. You have more O_2
   d. This question would require the number of moles to answer and that was not given.

_____ 4. (#7-2) If 1 mole of each reactant were used what would be the limiting reactant?
   a. C_2H_2
   b. CO_2
   c. O_2
   d. ~~H_2O~~
   higher Rate used

_____ 5. (#7-1) Each substance used in the reaction above was analysized and the following was determined. The sample was massed to contain 13g and found to contain 0.5 moles. Which substance was being analyzed?
   a. C_2H_2
   b. O_2
   c. CO_2
   d. H_2O
   13/.5 = 26g/mol C_2H_2

_____ 6. (#7-2 & #7-1)A sample of 13 grams of C_2H_2 is reacted with excess oxygen. How much H_2O and CO_2 will be produced respectively?
   a. 0.5g and 0.5g
   b. 0.5g and 1g
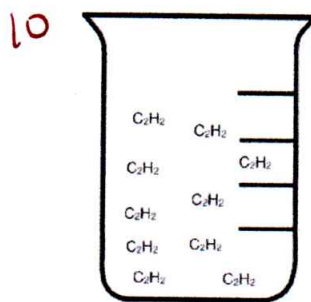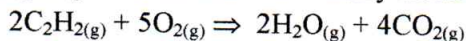   c. 0.5 mol and 1 mol
   d. 13g and 26g

   ½ mol
   $0.5 \cdot \dfrac{2}{2} = .5$
   $0.5 \cdot \dfrac{4}{2} = 1.0$
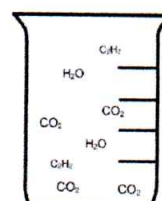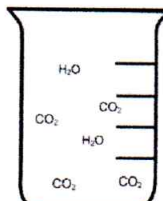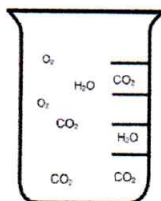
_____ 7. (#6- 2 & #6-3) A sample of C_2H_2 is going to be burned. How many molecules of O_2 would be needed here?

$$2C_2H_{2(g)} + 5O_{2(g)} \Rightarrow 2H_2O_{(g)} + 4CO_{2(g)}$$

10

C_2H_2 C_2H_2
C_2H_2 C_2H_2
C_2H_2 C_2H_2
C_2H_2 C_2H_2
C_2H_2 C_2H_2

$10 \cdot \dfrac{5}{2} = 25$

a. 0
b. 5
c. 10
d. 25

_____ 8. (#6-2 & #6-3) A sample of C_2H_2 is going to be burned. Which of the following pictures would represent the substance after the reaction has gone to completion?

$$2C_2H_2 + 5O_2 \Rightarrow 2H_2O + 4CO_2$$

O_2 O_2 O_2
O_2 C_2H_2 O_2
C_2H_2 O_2 O_2
O_2 O_2
O_2 C_2H_2
C_2H_2 O_2

a.
O_2
H_2O CO_2
O_2
CO_2
H_2O
CO_2 CO_2

b.
CO_2 CO_2
H_2O CO_2
O_2
H_2O CO_2
CO_2 H_2O CO_2
CO_2 CO_2
O_2 H_2O

c.
H_2O
CO_2
CO_2
H_2O
CO_2 CO_2

d.
C_2H_2
H_2O
CO_2
CO_2
H_2O
C_2H_2
CO_2 CO_2
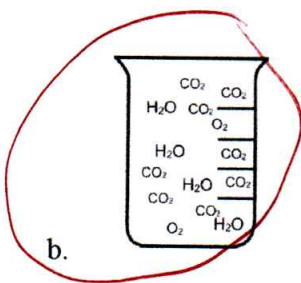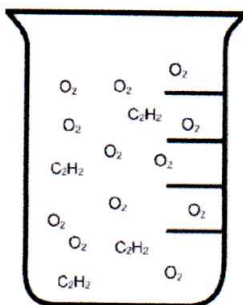
_____ 9. (#6- 1)If the 13g sample of C_2H_2 (prior to burning) were to be stored in a balloon at STP, how large would that balloon be?

$\hookrightarrow \frac{1}{2}$ mol $\cdot \dfrac{22.4L}{1M}$

a. 0.5 mol
b. 22.4L
c. 11.2L
d. 3.01 E23 L

_____ 10. (#6-1) Which of these substances contains *more* than 1 mole of particles

a. 1 mol C_2H_4 b. 20L O_2 (STP)   c. 17g H_2O d. 51g CO_2

1mol

(1mol=22.4L)

1mol=18g

1mol=44g