

CHEMISTRY YEAR 10 – FINAL TEST REVISION 3

NAME _____

Use the Periodic table supplied to find relative atomic masses.

ROUND OFF ALL NUMBERS TO TWO DECIMAL PLACES OR LESS IF REQUIRED.

Avogadro's No is 6.02×10^{23}

Molar volume of a gas at STP is 22.4 L

PART A:

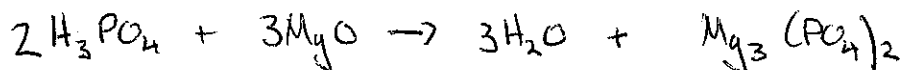
1. What is the molecular mass of:
 - a. CCl_4 154 (1)
 - b. $\text{Ru}(\text{OH})_3$ 152.1 (1)
 - c. $\text{Cr}(\text{CO}_3)_2$ ~~172~~ 172 (1)
 - d. The chromium ion from the above question combined with oxide would have what Molar Mass? $\text{Cr}^{3+} \text{O}^{2-} \rightarrow \text{Cr}_2\text{O}_3$ ~~97g~~ 152g (1)
2. In 99.75g of $\text{Zn}(\text{OH})_2$
 - a. How many moles of $\text{Zn}(\text{OH})_2$ are there? 1mol (1)
 - b. How many moles of OH ions are there are? 2mol (1)
 - c. How many moles of H atoms are present? 2mol (1)
 - d. What mass of Hydrogen is present? 2g (1)
3. What number of molecules are present in 4 moles of O_2 gas? 4mol $\rightarrow 2.408 \times 10^{24}$ (1)
4. What number of atoms are present in 4 moles of O_2 gas? 8 mol $\rightarrow 4.816 \times 10^{24}$ (1)
5. How many moles are present when there are 2.1263×10^{23} particles of any compound? 0.35mol (1)

PART B:

1. Calculate the number of moles of CO_2 gas present at STP in 16.67 L. 0.74 mol ~~378.44~~ (1)
2. What is the mass of CO_2 present in 16.67 L? 32.7g (2)
3. What is the **number** of molecules present in 16.67 L of CO_2 ? 4.45×10^{23} (2)
4.
 - a. How many moles of calcium acetate are present 695.36 g? 4.4mol (1)
 - b. How many moles of O atoms are present? 17.6mol (2)
 - c. What mass of oxygen is present? 281.5g (2)
 - d. Which element contributes the second least to the mass? Carbon (1)

PART C:

1. What is the equation between Phosphoric acid and Magnesium oxide?

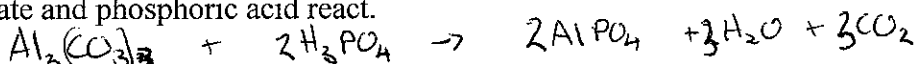


- a. Balance the equation. (2)

When 243.726g of $\overset{\text{H}_3\text{PO}_4}{\text{H}_2\text{SO}_4}$ are reacted with 170g of MgO:

- b. What mass of water is produced? $2.48\text{ mol H}_3\text{PO}_4$, 4.22 mol MgO , 66.96g (2)
 c. How many moles of magnesium oxide are consumed? 3.72 mol (1)
 d. What mass of magnesium phosphate forms? 325.9g (2)

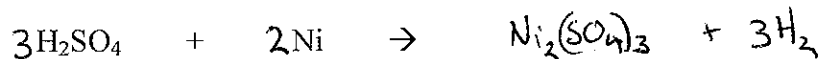
2. Aluminium carbonate and phosphoric acid react.



- a. Write a balanced equation. (2)
 b. What mass of CO_2 is released when 1.486kg of aluminium carbonate is placed in 14 moles of phosphoric acid? 914g (3)
 c. What volume does this CO_2 occupy at STP? 426L (2)

PART D:

1. Sulphuric acid and Nickel (III) combine as shown below in the unbalanced equation:

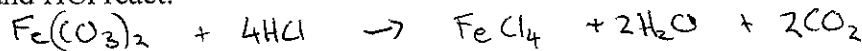


- a. Complete and balance the equation. (2)

When 0.48 moles of H_2SO_4 are reacted:

- b. How many moles of Hydrogen gas are produced? 0.48 mol (1)
 c. What mass of Nickel is consumed? 18.78g (2)
 d. What mass of the salt forms? 64.9g (2)
 → This must be Fe(IV)

2. $\text{Fe}(\text{CO}_3)_2$ and HCl react.



- a. Write a balanced equation for the reaction. 3.45 mol (2)
 b. What mass of CO_2 is released when 606.93g of $\text{Fe}(\text{CO}_3)_2$ is placed in 15 moles of HCl? 331.2g (3)
 c. What volume does this CO_2 occupy at STP? 154L (2)