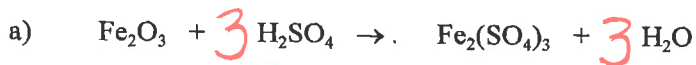


SCH4U1 Review Quiz

Name Answers

1. Balance each equation. Identify the type of chemical reaction. (4)



Type
Double Displacement
Complete Combustion

DO
ONE
Bonus

(B)
(+1)

2. Solve one of the following mole calculations. (3)

a) How many molecules are in 25 grams of NH_3 ?

b) How many grams are in 8.2×10^{22} molecules of N_2I_6 ?

3. Solve one of the following concentration calculations. (4).

a) If I make a solution by adding 83 grams of sodium hydroxide to 750 mL of water...

i) What is the concentration in mol/L of sodium hydroxide in this solution?

ii) What is the mass/mass percent (m/m %) of sodium hydroxide in this solution? (Density of water is 1g/mL)

b) If I make a solution by adding water to 35 mL of methanol (CH_3OH) until the final volume of the solution is 275 mL...

i) What is the concentration in mol/L of methanol in this solution? (The density of methanol is 0.792 g/mL)

ii) What is the volume/volume percent (v/v %) of methanol in this solution?

c) Calculate percentage composition by mass of $\text{Al}_2(\text{SO}_4)_3$.

(B)
(+1)

4. Solve one of the following stoichiometry calculations. (6)

a) Consider the following reaction: $3\text{CaCO}_3 + 2\text{FePO}_4 \rightarrow \text{Ca}_3(\text{PO}_4)_2 + \text{Fe}_2(\text{CO}_3)_3$

Assuming we start with 100 grams of calcium carbonate and 45 grams of iron(III)phosphate, how many grams of

* Discuss accuracy throughout!
 or answer is still wrong - even with 8 sig figs

2. a) $\frac{25g}{17.03g/mol} \times 6.02 \times 10^{23} = \boxed{8.84 \times 10^{23}}$

3 b) $\frac{8.2 \times 10^{23}}{6.02 \times 10^{23}} \times 789.42g = \boxed{107.5g}$

3. a) i) $\frac{83g}{40g/mol} = 2.075 \text{ mol} \therefore \frac{2.075 \text{ mol}}{0.75L} = \frac{2.77}{\text{mol/L}}$

ii) $\frac{83g}{83.75g} \times 100 = \frac{11.07}{9.96\%} \text{ m/m\%}$

b) i) 27.72g methanol = mol

ii) $\frac{35mL}{275mL} \times 100 = \text{v/v\%}$

c) $\text{Al}_2(\text{SO}_4)_3$ %Al = $\frac{53.96}{342.14} \times 100 = \boxed{15.77\%}$

%S = $\frac{96.18}{342.14} \times 100 = \boxed{28.11\%}$

%O = $\frac{192}{342.14} \times 100 = \boxed{56.12\%}$

