Assessed Homework 2

TITRATION CALCULATIONS

1) Calculate the number of moles in the following.

a) 2 dm^3 of 0.05 M HCl **(1)**

b) 50 litres of 5 M H_2SO_4 **(1)**

c) 25 cm^3 of 0.01 M NaOH **(1)**

d) 10 cm^3 of 0.25 M KOH **(1)**

2) Calculate the concentration of the following.

a) 0.400 moles of HCl in 2.00 litres of solution **(1)**

b) 12.5 moles of H_2SO_4 in 5.00 dm^3 of solution **(1)**

c) 1.05g of NaOH in 500 cm^3 of solution **(1)**

d) 2.56 g of Na_2CO_3 in 250 cm^3 of solution **(1)**

3) Calculate the concentration of a solution of sodium hydroxide given that 25.0 cm^3 of it required 18.8 cm^3 of 0.0500 mol dm^{-3} H_2SO_4.

$$H_2SO_4 + 2\ NaOH \rightarrow Na_2SO_4 + 2\ H_2O \quad \textbf{(3)}$$

4) Calculate what volume of 0.05 mol dm^{-3} KOH is required to neutralise 25.0 cm^3 of 0.0150 mol dm^{-3} HNO_3.

$$HNO_3 + KOH \rightarrow KNO_3 + H_2O \quad \textbf{(3)}$$

5) A 250 cm^3 solution of NaOH was prepared. 25.0 cm^3 of this solution required 28.2 cm^3 of 0.100 mol dm^{-3} HCl for neutralisation. Calculate what mass of NaOH was dissolved to make up the original 250 cm^3 solution.

$$HCl + NaOH \rightarrow NaCl + H_2O \quad \textbf{(3)}$$

6) What volume of 5.00 mol dm^{-3} HCl is required to neutralise 20.0 kg of $CaCO_3$?

$$2\ HCl + CaCO_3 \rightarrow CaCl_2 + H_2O + CO_2 \quad \textbf{(3)}$$

Total = (20) %= Grade =