

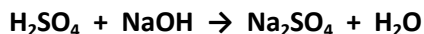
## SAMPLE QUESTIONS

### MEASURING CONCENTRATIONS

1. How many liters of nitrogen dioxide gas at STP will be produced from the reaction of 500 mL of 60% nitric acid solution with a density of 1.42 g/mL with enough phosphorus by 80% reaction yield according the following reaction? (H:1, N:14, O:16)



2. What is the volume of 2 M  $\text{H}_2\text{SO}_4$  solution which is used to neutralize completely 60 g of NaOH with 80 % purity by mass according to the reaction below? (Balance the reaction)(Na: 23, O: 16, H: 1)



3. Calculate the molarity of NaOH solution which is prepared by dissolution of 20 g of NaOH in 200 mL water. (Na: 23, O: 16, H: 1)

4. 150 g of water are added into 50 g of 40 % sodium nitrate solution. What is the mass percent of the new solution?

5. Calculate the molarity of the solution prepared by mixing 400 mL of 0.6 M  $\text{HNO}_3$  solution with 200 mL water?

6. Find the concentrations of  $\text{Na}^{+1}$  and  $\text{SO}_4^{-2}$  ions present in the solution which is prepared by dissolving 14.2 g of  $\text{Na}_2\text{SO}_4$  salt in 500 mL solution. (Na:23, S: 32, O: 16)

7. What must be the molarity of HCl solution, if a 100 mL of this solution is used to neutralize 1.48 g of  $\text{Ca}(\text{OH})_2$  according to following reaction? (Ca: 40, O: 16, H: 1)

