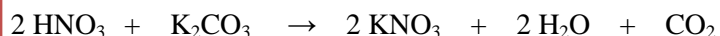


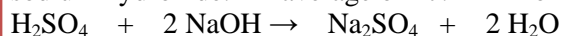
STOICHIOMETRY (VOLUME, CONC.)

Question One: 10.00 mL of 0.147 mol L⁻¹ nitric acid was titrated against potassium carbonate. The average volume of potassium carbonate required 14.85 mL



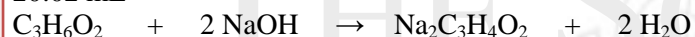
Find the concentration of potassium carbonate.

Question Two: 15.00 mL of 0.106 mol L⁻¹ sulfuric acid was titrated against sodium hydroxide. An average of 17.22 mL of NaOH was required.



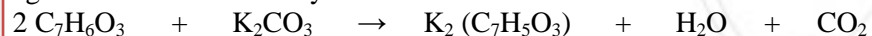
Find the concentration of Sodium Hydroxide.

Question Three: 20.00 mL 0.193 mol L⁻¹ sodium hydroxide was titrated against propanoic acid. The average volume of propanoic acid required was 20.02 mL



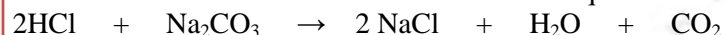
Find the concentration of propanoic acid.

Question Four: 20.00 mL of 0.105 mol L⁻¹ potassium carbonate was titrated against 10.22 mL of salicylic acid.



Find the concentration of salicylic acid

Question Five: HCl was titrated against 10.00 mL aliquots of 0.139 mol L⁻¹ solution of sodium carbonate. Volume of HCl required was 32.9 mL.



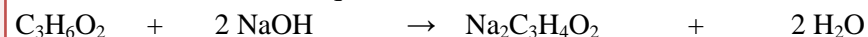
Find the concentration of HCl

Question Six: Nitric acid was titrated against 15.00 mL aliquots of 0.299 mol L⁻¹ solution of potassium carbonate. An average of 14.9 mL of nitric acid was required.



Find the concentration of nitric acid

Question Seven: 25.00 mL 0.193 mol L⁻¹ sodium hydroxide was titrated against propanoic acid. Find the concentration of propanoic acid if an average of 20.09 mL of acid was required.

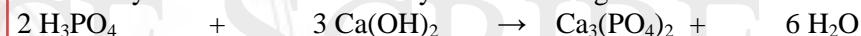


Question Eight: 5.00 mL of 0.106 mol L⁻¹ phosphoric acid was titrated against sodium hydroxide. The sodium hydroxide averaged to 17.7 mL



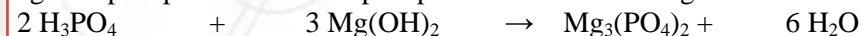
Find the concentration of sodium hydroxide

Question Nine: 15.00 mL of 0.216 mol L⁻¹ phosphoric acid was titrated against calcium hydroxide. The calcium hydroxide averaged to 17.7 mL



Find the concentration of calcium hydroxide

Question Ten: 25.00 mL of 0.337 mol L⁻¹ magnesium hydroxide was titrated against phosphoric acid. The phosphoric acid used averaged to 17.7 mL



Find the concentration of phosphoric acid

ANSWERS

Q1	$n(\text{HNO}_3) = 0.00147 \text{ mol}$	$n(\text{K}_2\text{CO}_3) = 0.000735 \text{ mol}$	$c(\text{K}_2\text{CO}_3) = 0.0495 \text{ mol L}^{-1}$
Q2	$n(\text{H}_2\text{SO}_4) = 0.00159 \text{ mol}$	$n(\text{NaOH}) = 0.00318 \text{ mol}$	$c(\text{NaOH}) = 0.185 \text{ mol L}^{-1}$
Q3	$n(\text{NaOH}) = 0.00386 \text{ mol}$	$n(\text{C}_3\text{H}_6\text{O}_2) = 0.00193 \text{ mol}$	$c(\text{C}_3\text{H}_6\text{O}_2) = 0.0964 \text{ mol L}^{-1}$
Q4	$n(\text{K}_2\text{CO}_3) = 0.00210 \text{ mol}$	$n(\text{C}_7\text{H}_6\text{O}_3) = 0.00420 \text{ mol}$	$c(\text{C}_7\text{H}_6\text{O}_3) = 0.411 \text{ mol L}^{-1}$
Q5	$n(\text{Na}_2\text{CO}_3) = 0.00139 \text{ mol}$	$n(\text{HCl}) = 0.00278 \text{ mol}$	$c(\text{HCl}) = 0.0845 \text{ mol L}^{-1}$
Q6	$n(\text{K}_2\text{CO}_3) = 0.00449 \text{ mol}$	$n(\text{HNO}_3) = 0.00897 \text{ mol}$	$c(\text{HNO}_3) = 0.602 \text{ mol L}^{-1}$
Q7	$n(\text{NaOH}) = 0.00483 \text{ mol}$	$n(\text{C}_3\text{H}_6\text{O}_2) = 0.00241 \text{ mol}$	$c(\text{C}_3\text{H}_6\text{O}_2) = 0.120 \text{ mol L}^{-1}$
Q8	$n(\text{H}_3\text{PO}_4) = 0.000530 \text{ mol}$	$n(\text{NaOH}) = 0.00159 \text{ mol}$	$c(\text{NaOH}) = 0.0898 \text{ mol L}^{-1}$
Q9	$n(\text{H}_3\text{PO}_4) = 0.00324 \text{ mol}$	$n(\text{Ca}(\text{OH})_2) = 0.00486 \text{ mol}$	$c(\text{Ca}(\text{OH})_2) = 0.275 \text{ mol L}^{-1}$
Q10	$n(\text{Mg}(\text{OH})_2) = 0.00843 \text{ mol}$	$n(\text{H}_3\text{PO}_4) = 0.00562 \text{ mol}$	$c(\text{H}_3\text{PO}_4) = 0.317 \text{ mol L}^{-1}$