

Questions -

P.602 # 18 ? $\rightarrow 1.015 \text{ mol/L } \text{Mg}(\text{OH})_2$
 $40 \text{ mL} \rightarrow 1.60 \text{ mol/L HCl}$

i) Moles HCl = $\frac{1.60 \text{ mol HCl} \times 0.040 \text{ L}}{14}$
 $= 0.064 \text{ mol HCl}$

ii) $\text{Mg}(\text{OH})_2 + 2\text{HCl} \rightarrow \text{MgCl}_2 + 2\text{H}_2\text{O}$
 $0.064 \text{ mol HCl} \times \frac{1 \text{ mol Mg}(\text{OH})_2}{2 \text{ mol HCl}} =$
 $0.032 \text{ mol Mg}(\text{OH})_2$

iii) Vol $\text{Mg}(\text{OH})_2 = \frac{1 \text{ L Mg}(\text{OH})_2}{1.015 \text{ mol}} \times 0.032 \text{ mol}$
 $= 0.032 \text{ L Mg}(\text{OH})_2$
 $\frac{0.032 \text{ L} \times 1000 \text{ mL}}{1} = 32 \text{ mL}$

Hydrolysis Reactions

Salt + Water \rightarrow Acid + Base

* Given a salt, predict if the solution is acidic or basic.

Examples -

1. $\text{NH}_4\text{Cl} + \text{H}_2\text{O} \rightarrow$ focus on ions
 $\text{NH}_4^+ + \text{Cl}^- + \text{H}^+ + \text{OH}^- \rightarrow \text{NH}_4\text{OH} + \text{HCl}$
 Answer: Acidic (weak base, strong acid)

2. NaF (solution)
 $\text{Na}^+ + \text{F}^- + \text{H}^+ + \text{OH}^- \rightarrow \text{NaOH} + \text{HF}$
 Answer: Basic (strong base, weak acid)

3. KNO_3 solution -
 $\text{K}^+ + \text{NO}_3^- + \text{H}^+ + \text{OH}^- \rightarrow \text{KOH} + \text{HNO}_3$
 Answer - neutral (strong base, strong acid)