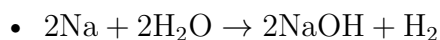


Solutions

Each answer shows the steps, then the **result**.

2.1



2.2

(a)

- basic

(b)

- (strongly) acidic

3.1 C

- Al_2O_3 is amphoteric

3.2 C

- PCl_5 hydrolyses to an acidic solution and HCl fumes

3.3

(a)

- $\text{SO}_3 + \text{H}_2\text{O} \rightarrow \text{H}_2\text{SO}_4$; pH 0–1

(b)

- amphoteric = reacts with both acids and bases; $\text{Al}_2\text{O}_3 + 6\text{HCl} \rightarrow 2\text{AlCl}_3 + 3\text{H}_2\text{O}$

3.4

- NaCl is ionic, so it just dissolves to give ions and a neutral solution; SiCl_4 is covalent and is hydrolysed by water, releasing HCl which makes the solution acidic