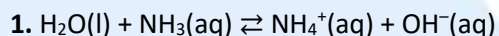
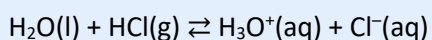


SL & HL Answers to Theories of acids & bases questions



Water is acting as a Brønsted-Lowry acid as it is donating a proton to ammonia.

Acid / conjugate base pairs: $\text{H}_2\text{O} / \text{OH}^-$ and $\text{NH}_4^+ / \text{NH}_3$



Water is acting as a Brønsted-Lowry base as it is accepting a proton from hydrogen chloride.

Acid / conjugate base pairs: HCl / Cl^- and $\text{H}_3\text{O}^+ / \text{H}_2\text{O}$

2. i. When it acts an acid it is donating a proton so the acid-conjugate base pair is $\text{OH}^- / \text{O}^{2-}$.

ii. When it acts a base it is accepting a proton so the acid-conjugate base pair is $\text{H}_2\text{O} / \text{OH}^-$.

3. i. NH_4^+ ; ii. H_2S .

4. i. CN^- ; ii. S^{2-} .

5. H_2SO_4 and H_2NO_3^+

6. ii. $\text{H}_3\text{O}^+ / \text{OH}^-$

I, II and III, show the acid and the conjugate base formed by losing one proton. The conjugate base of H_3O^+ is H_2O **not** OH^- .

