

HW
30/06/21

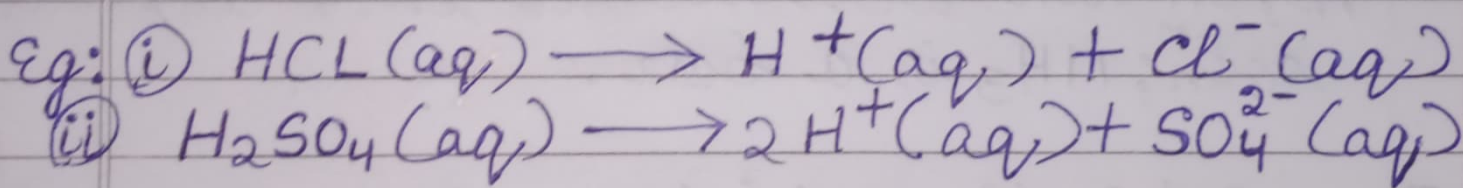
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HOME ASSIGNMENT

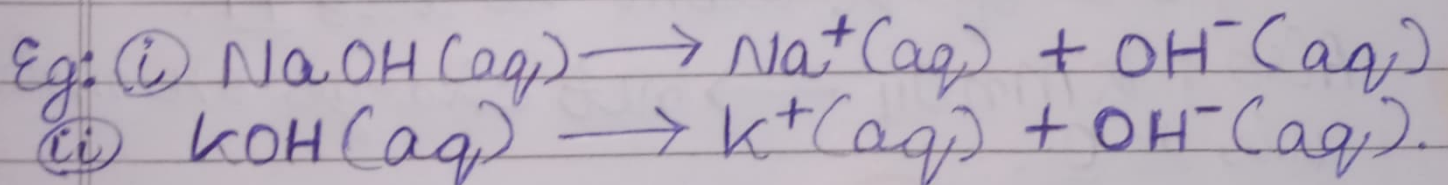
ACIDS, BASES AND SALTS

Q1. Distinguish between the concept of knowing acids and bases on basis of Arrhenius Theory and Lewis Theory.

Ans- * According to Arrhenius theory,
- An acid is a substance which when dissolved in water, ionizes & releases $[H^+(aq)]$ hydrogen ions / proton in solⁿ.



- A base is a substance that gives hydroxide or hydroxyl ions (OH^-) in their aqueous solⁿ.

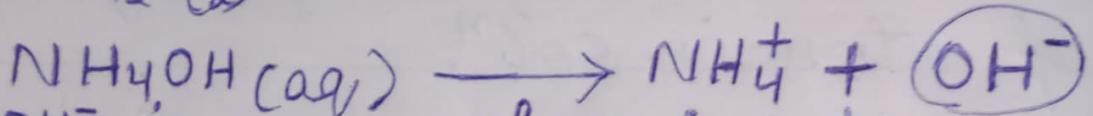
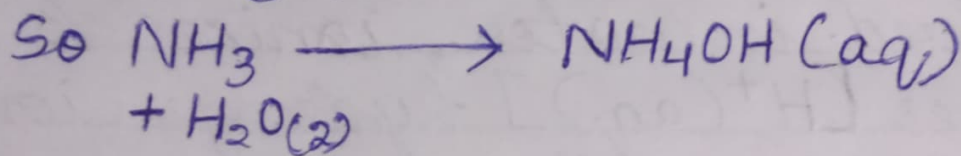


* According to Lewis theory,
- An acid is an electron acceptor.
- A base is an electron donor.

2. Although NH_3 doesn't contain any (OH^-) ions, it still behaves as a base. Why?

Ans- * Ammonia (NH_3) when dissolved in water forms an aqueous solⁿ to form ammonium hydroxide.

* NH_3 readily ionizes to form (NH_4^+) ions & (OH^-) ions.



As, OH^- ions are released into aqueous solⁿ; NH_3 is a base.

3. What is the oxidation state of K-atom in KMnO_4 ?

Ans- Oxidation state of any group I alkali metal is +1.

- So, O.S of K-atom is also +1.

Also; $\text{KMnO}_4 \longrightarrow$ net charge on molecule is 0.

$$\text{So, } \textcircled{x} + (+7) + (-2)(4) = 0$$

for K

$$\Rightarrow x + 7 - 8 = 0$$

$$\Rightarrow \textcircled{x = +1} - \text{O.S of } \underline{\text{K}} \text{ in } \text{KMnO}_4.$$

→ X →