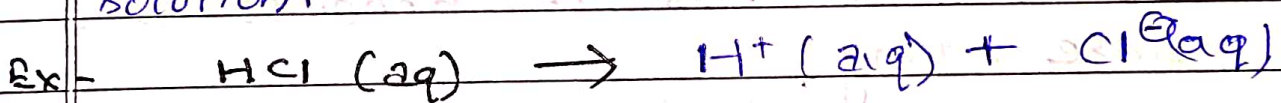


HW - 1/7/24

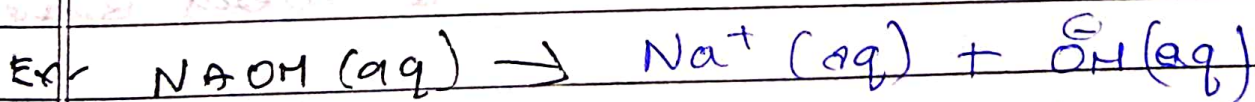
ACID BASES AND SALT

① Distinguish between the concept of knowing acids and bases on basis of Arrhenius Theory and Lewis Theory.

Ans - An Arrhenius acid is a substance that gives hydrogen ions (H⁺) after dissociation in water. An acid increases the formation of H⁺ ions in an aqueous solution.



* An Arrhenius base is a substance that gives hydroxide (OH⁻) ions after dissociation in water. A base increases the formation of OH⁻ ions in an aqueous solution.



LEWIS THEORY

A Lewis Acid ~~donate~~ ~~accept~~ accept a pair of electrons. These are the

chemical species which have empty orbitals and are able to accept electron pairs. Eg - Antimony, Arsenic.

* A Lewis Base is a chemical species which has the ability to donate an electron pair.

Eg - Ammonia, alkyl amines.

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

Ans - Ammonia doesn't contain any hydroxide ions, but when it is dissolved in water it acquires hydrogen ions from the water to produce hydroxide as well as ammonium ions.

* It is regarded as a weak base.

(3) What is the oxidation state of K atom in Potassium permanganate?

Ans - $0 \text{N}_k + 0 \text{N}_{\text{Mn}} + 4 \text{O}_{\text{N}_6} = 0$
 $+1 + 0 \text{N}_{\text{Mn}} + 4 \cdot (-2) = 0$

$$-1 + 8 = 0 \text{N}_{\text{mn}}$$

oxidation of Mn in KMnO_4 is +7.
oxidation state of K in KMnO_4 is +1.