Date
Page

HW - 1/7/24

ACID BASES AND SALT

(1) Distinguish between the concept of knowing acids and bases on basis of Arrehenious Theory and Lewis Theory.

Ans. An Arrehenious 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.

Ex- $HCl(aq) \rightarrow H^+(aq) + Cl^{\ominus}(aq)$

* An Arrehenious 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.

Ex- $NaOH(aq) \rightarrow Na^+(aq) + \overset{\ominus}{O}H(aq)$

LEWIS THEORY

A Lewis Acid ~~donate~~ ~~a pair~~ 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 have 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 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 Mn-atom in Potassium permanganate?

Ans- $O N_K + O N_{Mn} + 4 O N_O = O$

$+1 + O N_{Mn} + 4 \cdot (-2) = O.$

$-1+8 = ON_{Mn}$

Oxidation of Mn in $KMnO_4$ is +7.
Oxidation state of K in $KMnO_4$ is +1.