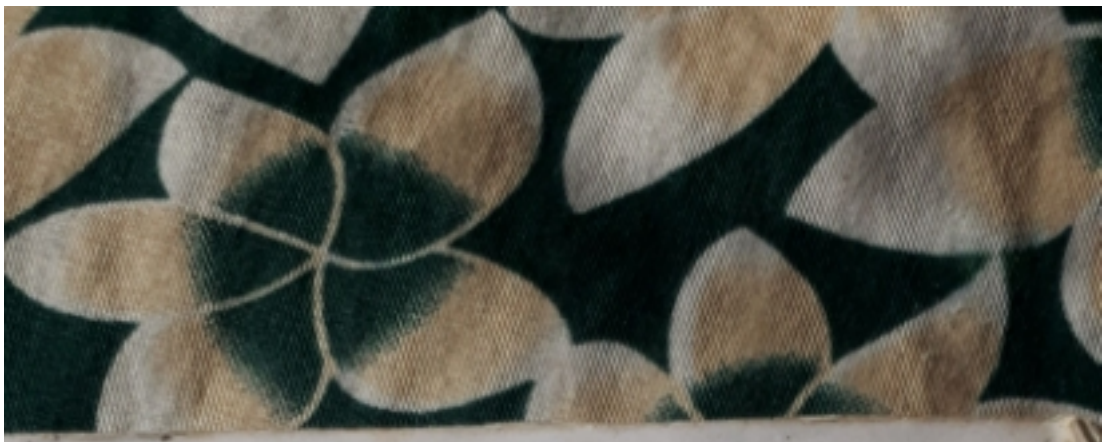

(iii) $2FeCl_3 + H_2S \rightarrow 2FeCl_2 + 2HCl + S$

oxida

redn

* Addition of electropositive element is called reductio

$HgCl_2 + Hg \rightarrow Hg_2Cl_2$

redn

here $HgCl_2$ is reduced in Hg_2Cl_2

(i) $CuCl_2 + Cu \rightarrow Cu_2Cl_2$

Redn

here $CuCl_2$ is reduced in Cu_2Cl_2.

MODERN CONCEPT OF OXIDATION AN REDUCTION

* Oxidation and Reduction on the basis of electron

OR

Electronic theory of Oxidation and Reduction.

* **Oxidation**:- Oxidation is a chemical process that involv loss of the electron or electrons by the ato or ion.

Redn

$H_2O + C \rightarrow CO + H_2$ (water gas)

oxidn

oxidn

$Fe_3O_4 + 4H_2 \rightarrow 3Fe + 4H_2O$

redn

* Addition of hydrogen is called reduction

oxidn

i) $C_2H_4 + H_2 \rightarrow C_2H_6$

redn

ii) $Cl_2 + H_2 \rightarrow 2HCl$

redn

redn

iii) $S + H_2 \rightarrow H_2S$

oxidn

Here S is reduced in H_2S

* Removal of electronegative element is called Reduction

Oxidn

i) $2HgCl_2 + SnCl_2 \rightarrow Hg_2Cl_2 + SnCl_4$

Redn

oxidn

ii) $2FeCl_3 + H_2 \rightarrow 2FeCl_2 + 2HCl$

Redn

Here $FeCl_3$ is reduced in $FeCl_2$

(iv) $2Fe + 3F_2 \rightarrow 2FeF_3$ here Fe is Oxidised to FeF_3
(Fe: oxidn; FeF_3: ↑)

(v) $H_2 + Cl_2 \rightarrow 2HCl$ here H_2 is Oxidised to HCl
(H_2: oxidn; HCl: ↑)

$N_2 + 3H_2 \rightarrow 2NH_3$ here H_2 is Oxidised to NH_3
(H_2: oxidn; NH_3: ↑)

* Removal of electropositive element is called Oxid

① $2KI + H_2O_2 \rightarrow 2KOH + I_2$ here KI is Oxi... in I_2
(KI: oxidn; I_2: ↑)

② $2K_2MnO_4 + Cl_2 \rightarrow 2KMnO_4 + 2KCl$ here K_2M... Oxidised in...
(K_2MnO_4: ↑; $KMnO_4$: ↑)

*Reduction :- It is a chemical process in which

(i) Removal of Oxygen takes place.
(ii) Addition of Hydrogen takes place.
(iii) Removal of electronegative element takes place.
(iv) Addition of electropositive element takes place.

x Oxidation is reverse process of Reduction and Versa.

* Removal of Oxygen is called reduction

① $CuO + \overset{0}{C} \rightarrow Cu + \overset{+2}{C}O$
(C: oxidn; CuO: Redn)

$+O_2 \rightarrow 2CO_2$ Here CO is Oxidised in CO_2
(Oxidn)

$Na_2SO_3 + H_2O_2 \rightarrow Na_2SO_4 + H_2O$ here Na_2SO_3 is Oxidised in Na_2SO_4
(Oxidn)

oval of hydrogen is called Oxidation :-

$S + Cl_2 \rightarrow 2HCl + S$ here H_2S is Oxidised in S
(oxidn)

$HI + O_2 \rightarrow 2H_2O + 2I_2$ here HI is Oxidised in I.
(oxidn)

$HCl + MnO_2 \rightarrow MnCl_2 + 2H_2O + Cl_2$
(oxidn)
ere HCl is Oxidised in Cl_2.

ion of Electronegative element is called idation

$+S \rightarrow H_2S$ here H_2 is Oxidised in H_2S
(Oxidn)

$SnCl_2 + Cl_2 \rightarrow SnCl_4$ here $SnCl_2$ is Oxidised in $SnCl_4$
(Oxidn)

$FeCl_2 + Cl_2 \rightarrow 2FeCl_3$ here $FeCl_2$ is Oxidised in $FeCl_3$
(Oxidn)

REDOX REACTION

Redox

Reduction — Oxidation

OLD CONCEPT OF OXIDATION AND REDUCTION:-

Oxidation :- It is a chemical process in which:-

(i) Addition of Oxygen takes place.
(ii) Removal of hydrogen taken place.
(iii) Addition of electronegative element takes places.
(iv) Removal of electropositive element takes place.

* Addition of Oxygen is called Oxidation.

(i) $C + O_2 \rightarrow CO_2$ (Oxygen) here C is oxidised in CO_2.

(ii) $S + O_2 \rightarrow SO_2$ (Oxygen) here S is oxidised in SO_2.

(iii) $2Mg + O_2 \rightarrow 2MgO$ (Oxygen) here Mg is oxidised in MgO.