

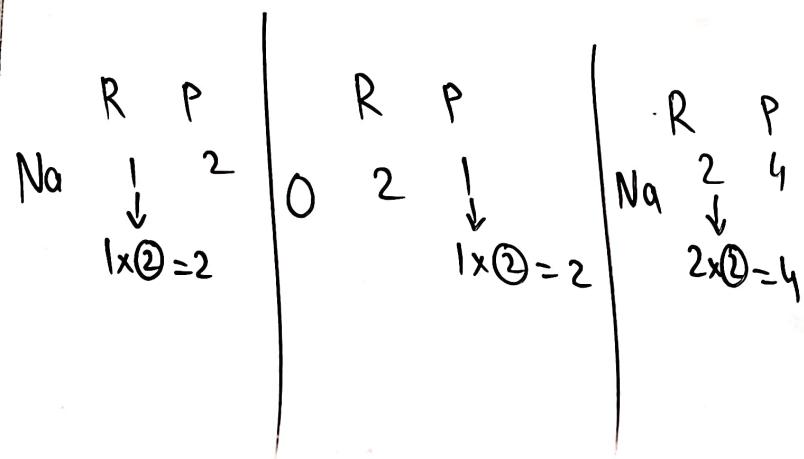
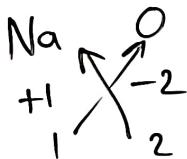
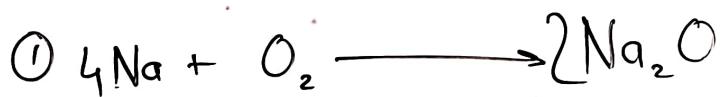
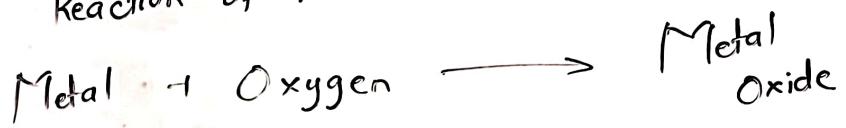
20/11/24)

Wednesday \*



### Reaction of Metals

#### I] Reaction of metals with Oxygen.

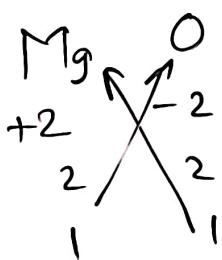
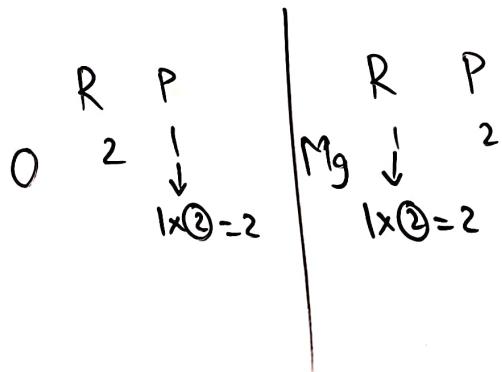
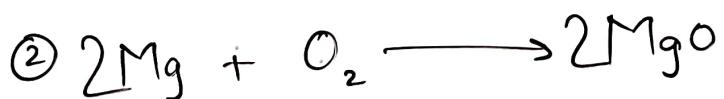


20/11/24 )

Wednesday

### Reaction of Metals

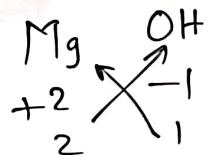
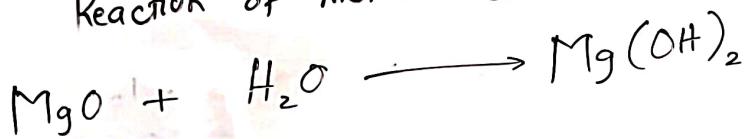
I] Reaction of metals with Oxygen.



20/11/24 )  
Wednesday \*

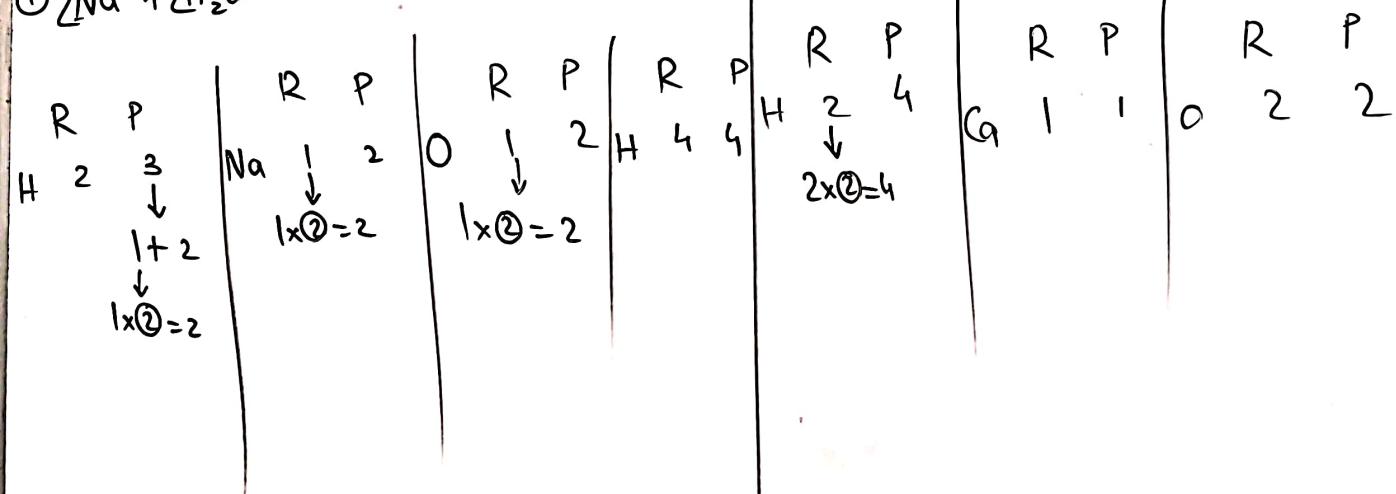
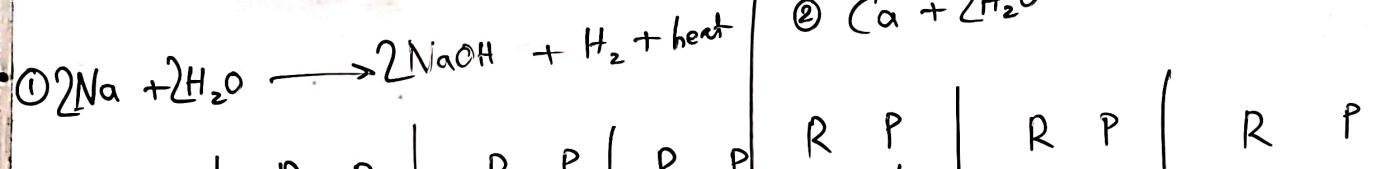
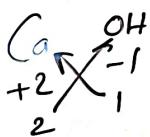
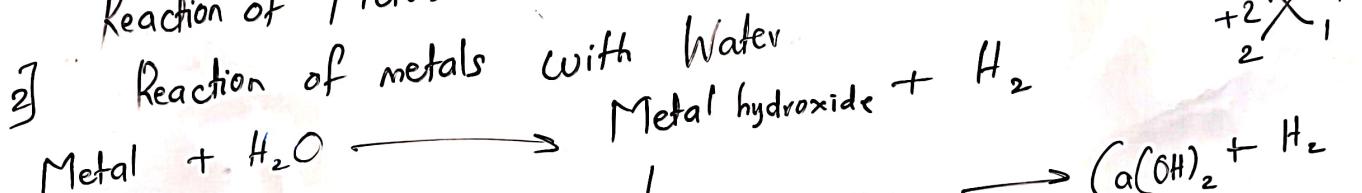
### Reaction of Metals

2] Reaction of metals with Water



20/11/24 )  
Wednesday

### Reaction of Metals

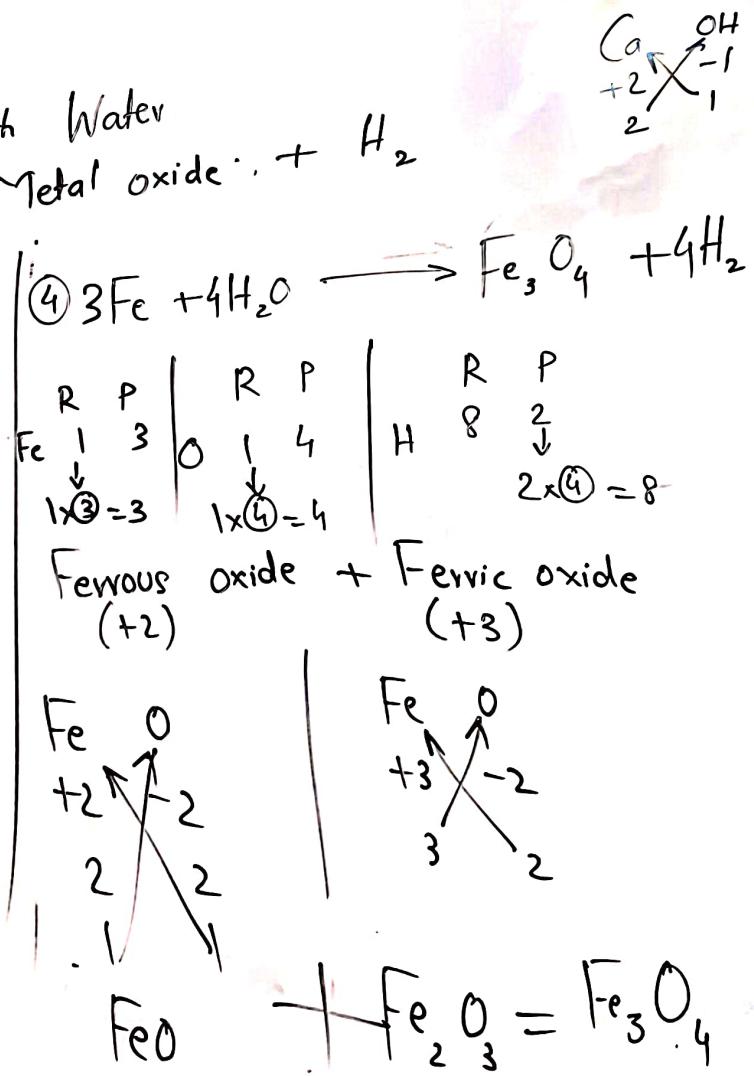
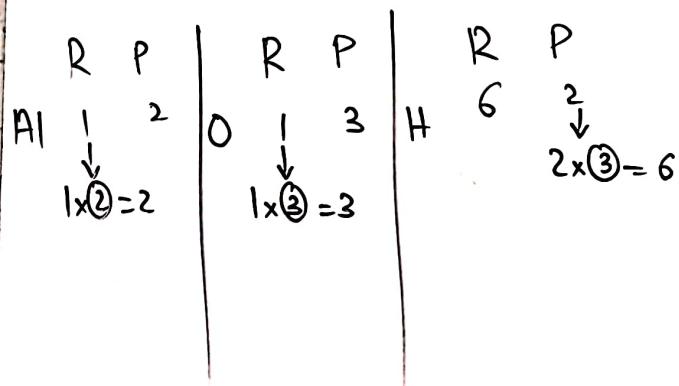
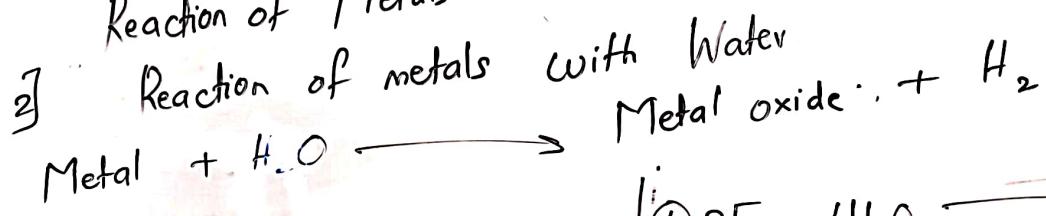


$$2 \times 2 = 4$$



20/11/24 )  
Wednesday \*

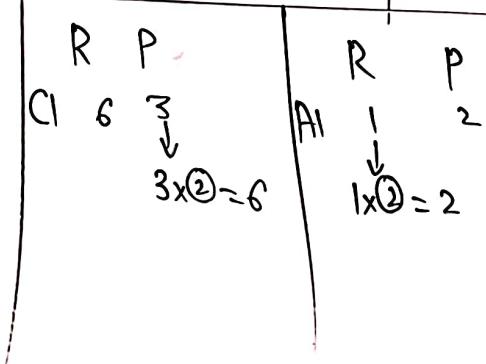
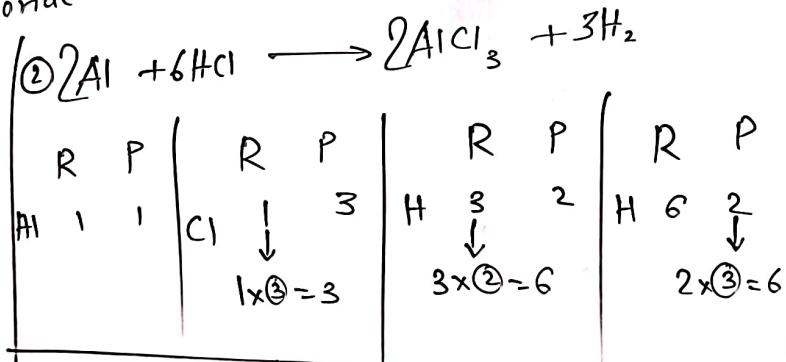
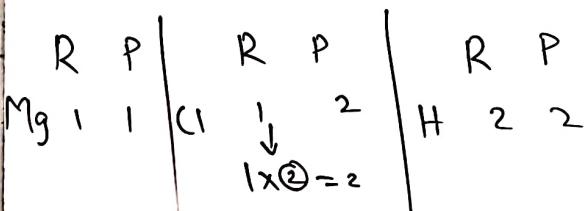
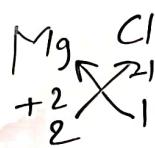
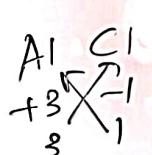
### Reaction of Metals



20/11/24 )  
Wednesday

### Reaction of Metals

#### Reaction of metals with Acids.

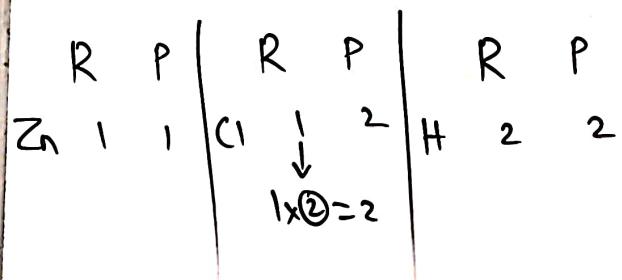
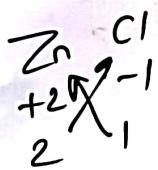
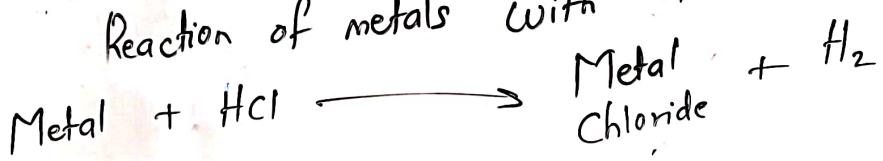


20/11/24 )

Wednesday

## Reaction of Metals

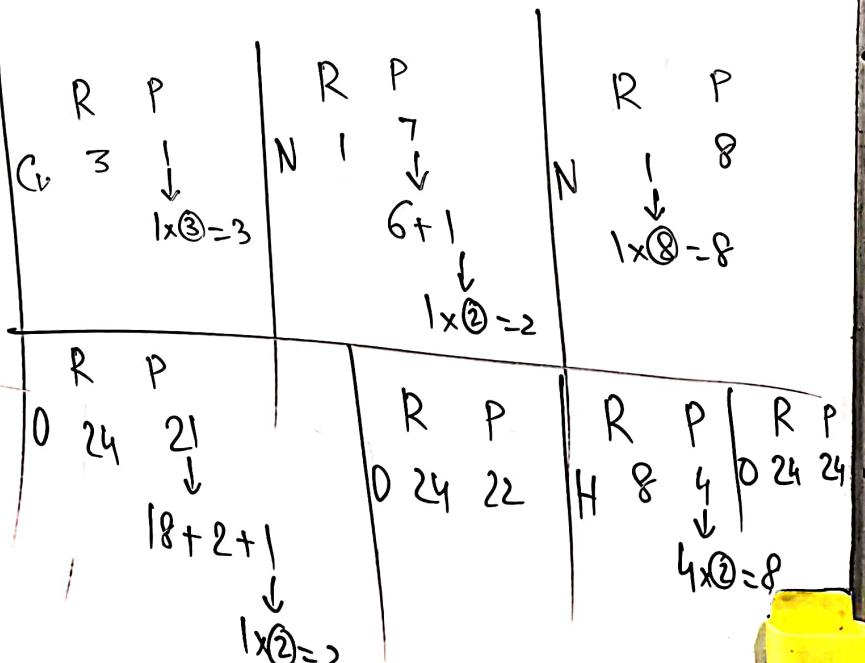
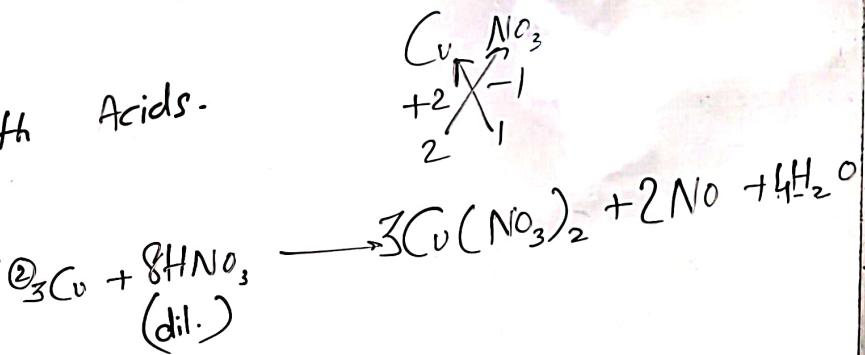
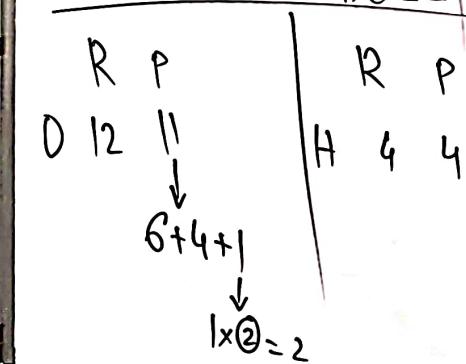
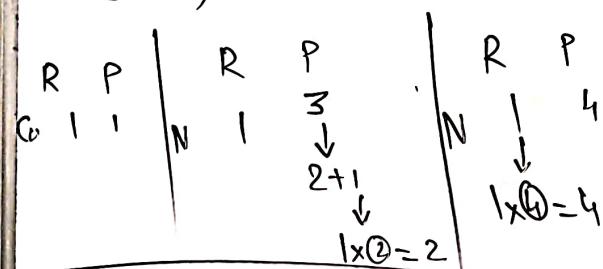
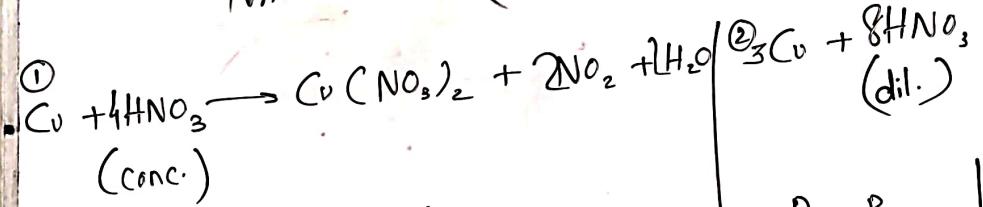
Reaction of metals with Acids.



20/11/24 )  
Wednesday 

## Reaction of Metals

Reaction of metals with Nitric Acid =  $(\text{HNO}_3)$  Acids.



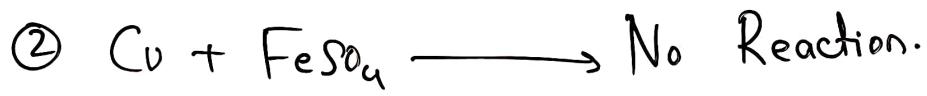
20/11/24 )

Wednesday



Reaction of Metals

Reaction of metals with salts of other metals.



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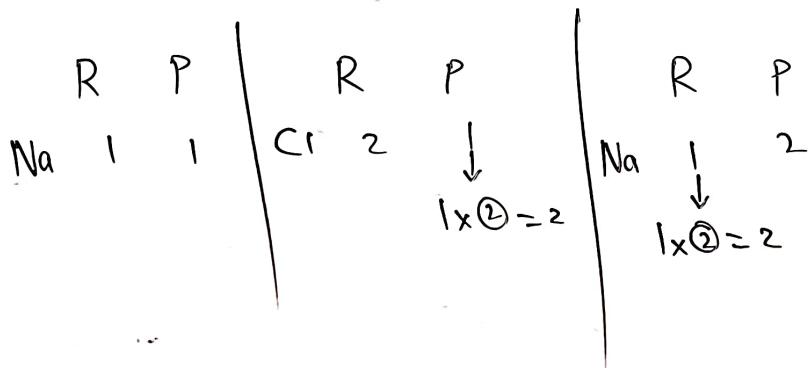
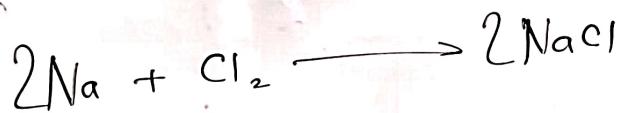
1] Fe is more than Cu.

2] Cu is less reactive than Fe

20/11/24 )

Wednesday

Reaction of metals with non-metals.

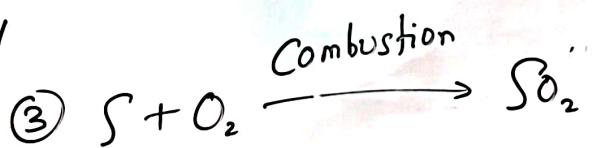
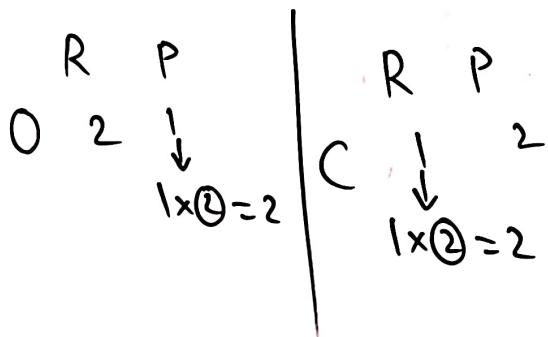
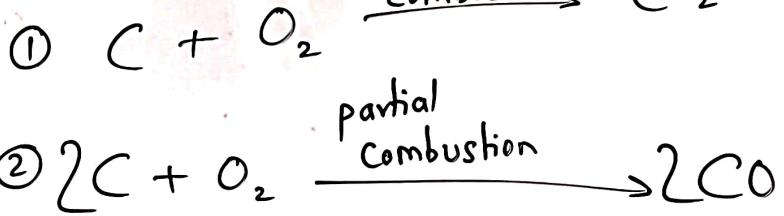


20/11/24 )

Wednesday \*

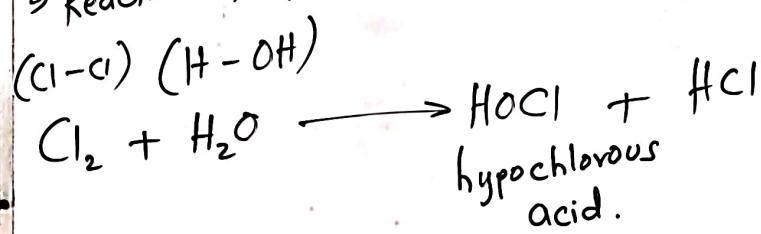


Reaction of non-metals with oxygen.  
complete combustion  $\text{CO}_2$

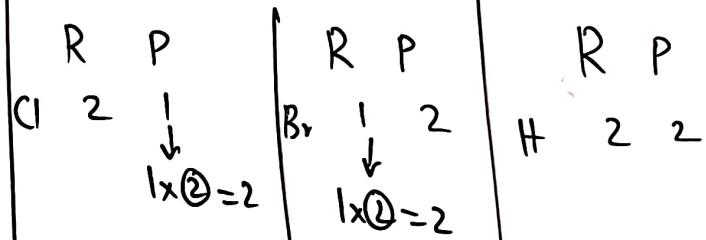
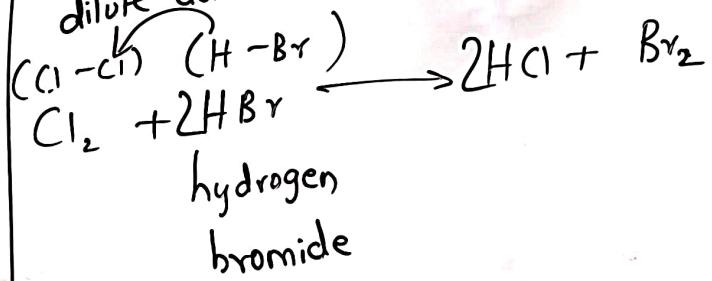


20/11/24 )  
Wednesday

2] Reaction of non-metals with water

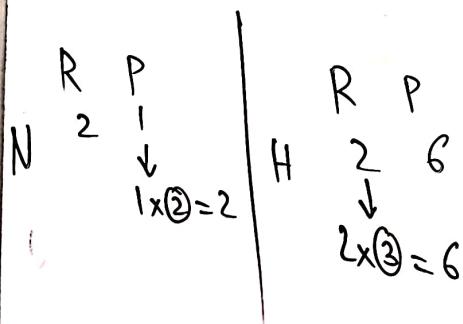
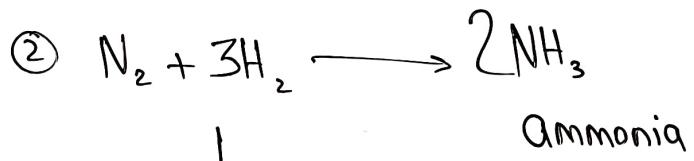
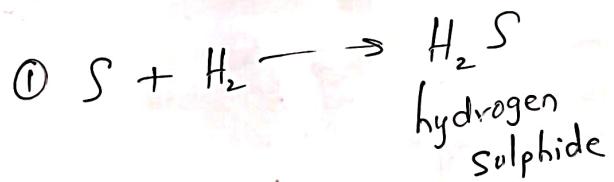


3] Reaction of non-metals with dilute acids.



20/11/24 )  
Wednesday  
~ ~

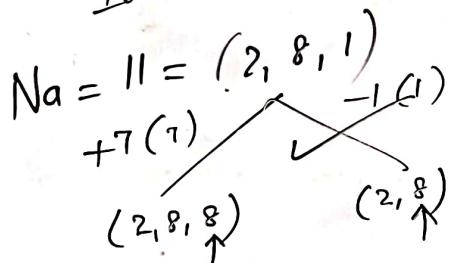
Reaction of non-metals with hydrogen.



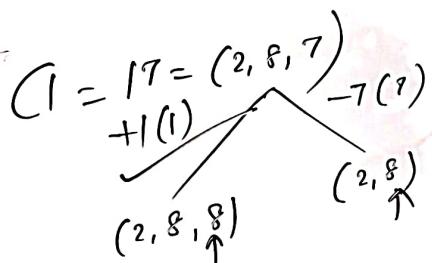
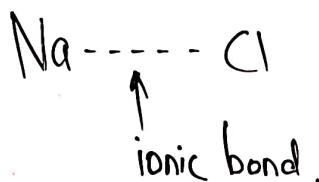
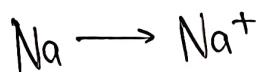
20/11/24 )

Wednesday \*

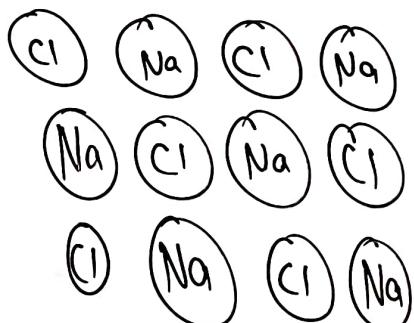
### Ionic Compounds



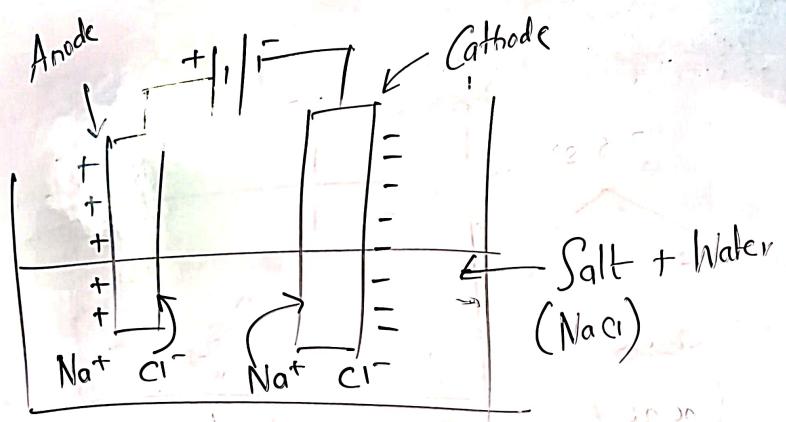
Na donates 1 electron.



Cl accepts electron



Ionic Compounds  
Electrolytes



## Metallurgy

### Occurrence of metals

Free State  
(Au, Pt, Ag)

Combined State  
( $ZnCO_3$ ,  $ZnS$ ,  $Al_2O_3$ )

Stages in Metallurgy.

- Then ore is heated to remove volatile impurities.
- ① Grinding.
  - ② Concentration — Purification of Ore.
  - ③ Conversion of ore into Oxide.
  - ④ Reduction of Ore.

Date - 27/11/24

## Sub-Sci-I

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Concentration of Ore.

I Separation Based on Gravitation.

① Wilfley Table Method.

② Hydraulic Separation Method.

2 Magnetic Separation Method.

3 Froth floatation Method.

4 Leaching

Ore = Lighter

Gangue = Heavier

Ore = Magnetic

Gangue = Non magnetic

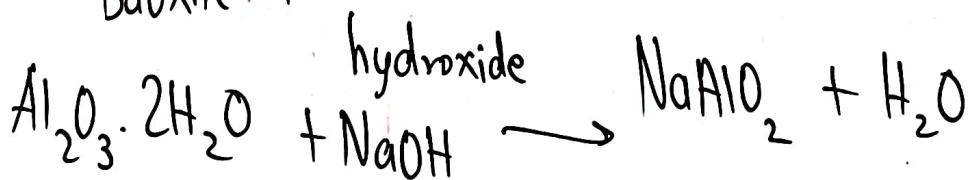
Ore = Hydrophobic

Gangue = Hydrophilic.

pine oil

eucalyptus oil

Bauxite + Sodium

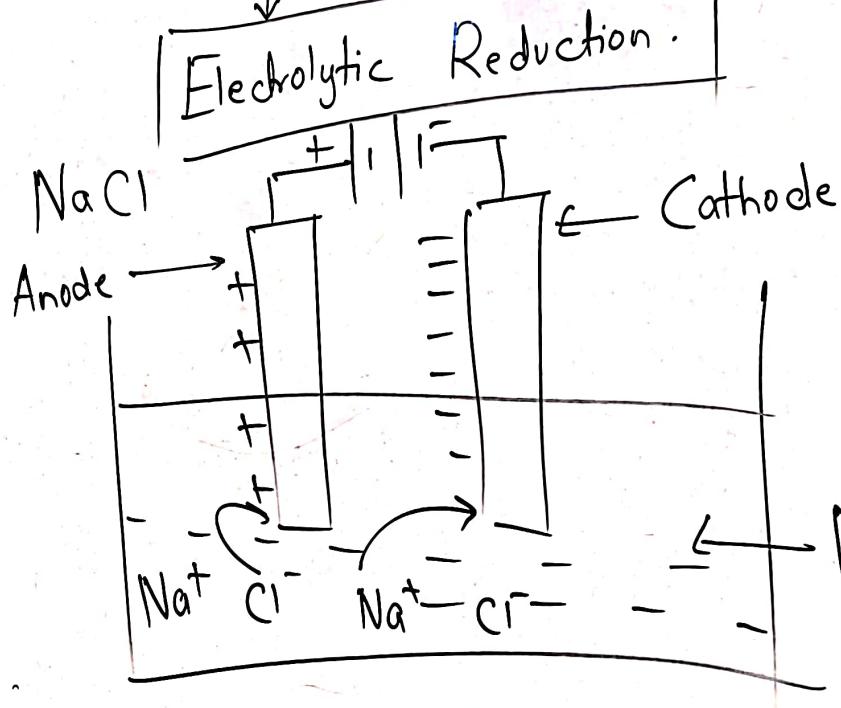


Date - 27/11/24

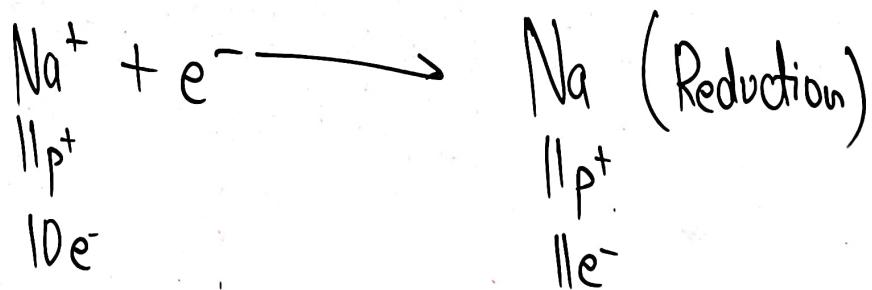
Sub-Sci-I

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I) Extraction of highly reactive metals.



Cathode:



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~~Sub-Sci-I~~

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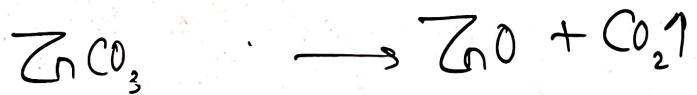
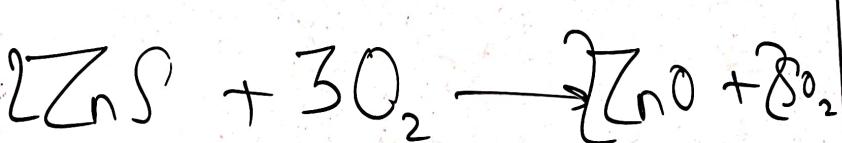
2] Extraction of moderately reactive metals.

## Roasting

# Calcination

## Sulphide Ores

## Carbonate Ores.

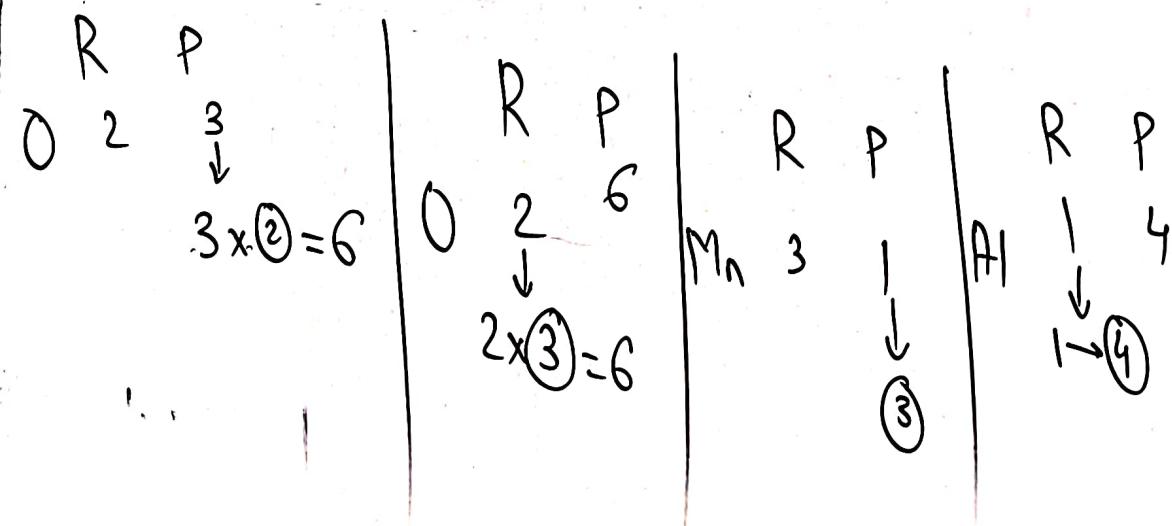


$$\begin{array}{c|c|c|c}
 R & P & R & P \\
 0 & 2 & Zn & 1 \\
 3 & \downarrow & 1 & \downarrow \\
 \downarrow & & 2 & \\
 1 & + & 2 & \\
 \downarrow & & \textcircled{1} \times 2 = 2 & \\
 1 & \times & \textcircled{2} = 2 & \\
 \hline
 S & P & R & P \\
 2 & \downarrow & 2 & \downarrow \\
 \downarrow & & 1 & \\
 1 & \times & \textcircled{1} = 2 & \\
 \hline
 R & P & R & P \\
 2 & \downarrow & 2 & \downarrow \\
 \downarrow & & 6 & \\
 0 & 0 & 0 & 3 \\
 & & & 3 \\
 & & & \boxed{6} \\
 & & & 2 \times \textcircled{3} = 6
 \end{array}$$

Date - 27/11/24 Sub-Sci-I

\* Time is Money

2] Extraction of moderately reactive metals.  
Reduction of metal oxide:

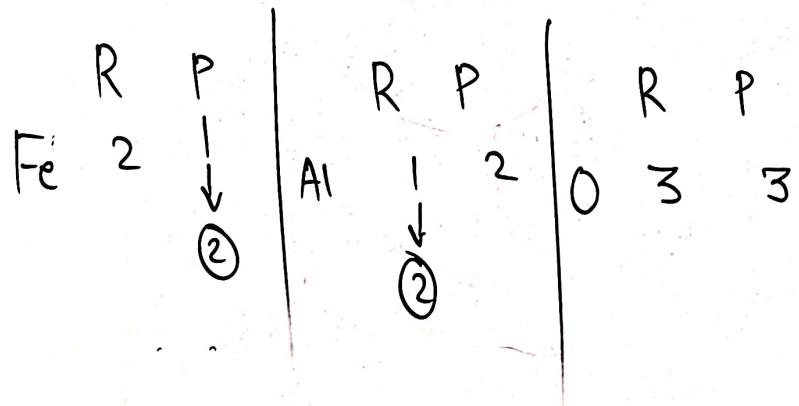
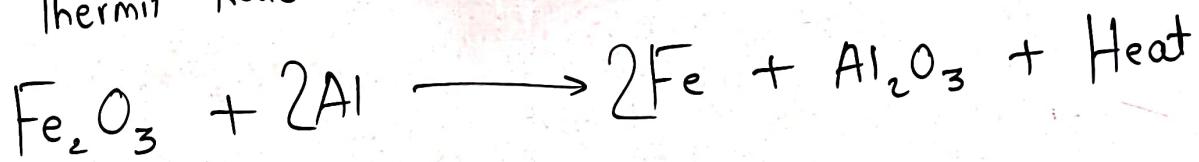


Date - 27/11/24 Sub-Sci-I

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2) Extraction of moderately reactive metals.

Thermit Reaction:





Date - 27/11/24 Sub-Sci-I

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Money

Extraction of Aluminium.

Ore : Bauxite ( $\text{Al}_2\text{O}_3 \cdot 2\text{H}_2\text{O}$ )

Impurities : ① Sand [Ferric oxide =  $\text{Fe}_2\text{O}_3$ ]  
② Silica ( $\text{SiO}_2$ )  
③ Titanium oxide ( $\text{TiO}_2$ )

Concentration of Ore = Leaching

1] Bayer's Process [ $\text{NaOH}$ ]

2] Hall's Process. [ $\text{Na}_2\text{CO}_3$ ]

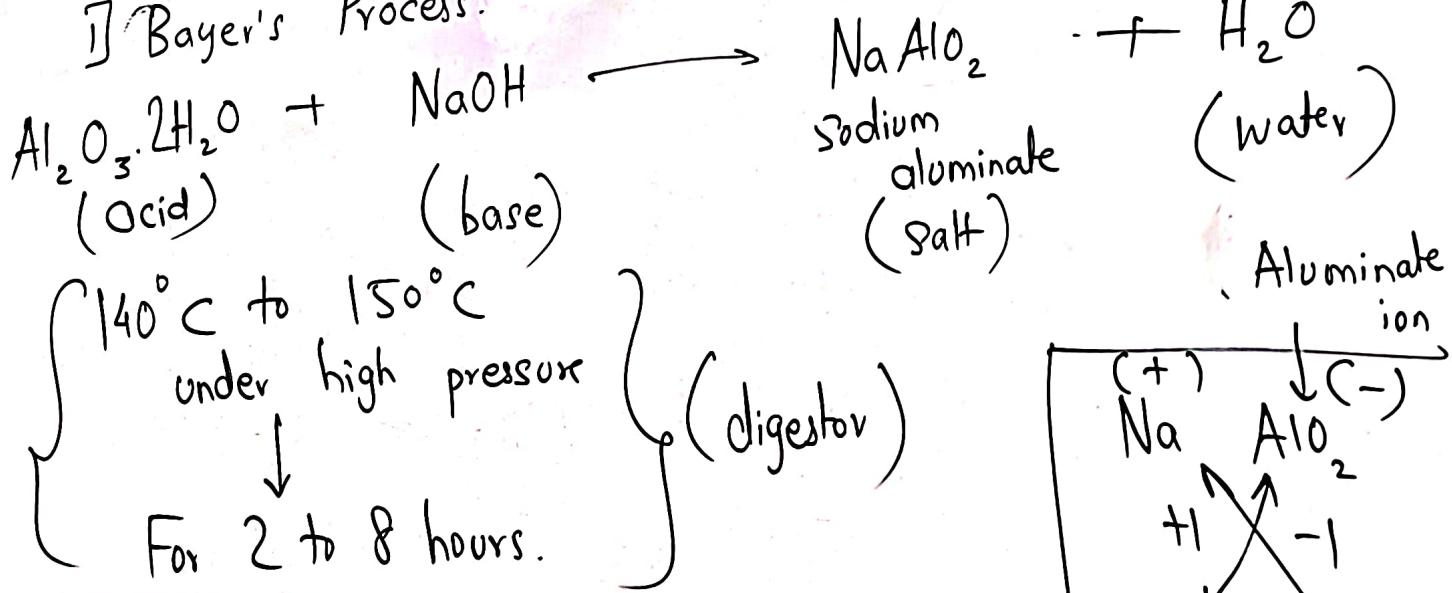
Date - 27/11/24

Sub-Sci-I

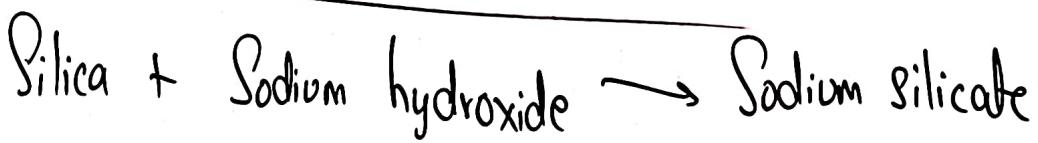
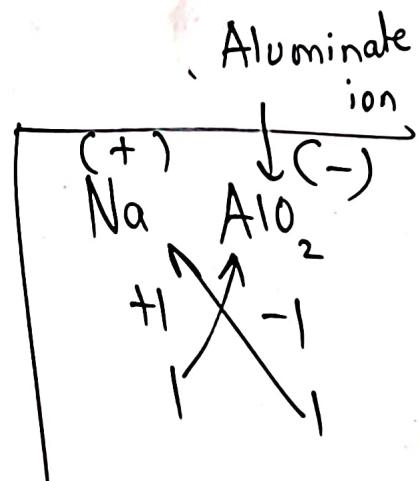
1 \* Time is  
Money

### Extraction of Aluminium.

#### I] Bayer's Process.



$\text{Al}_2\text{O}_3$  is amphoteric in nature



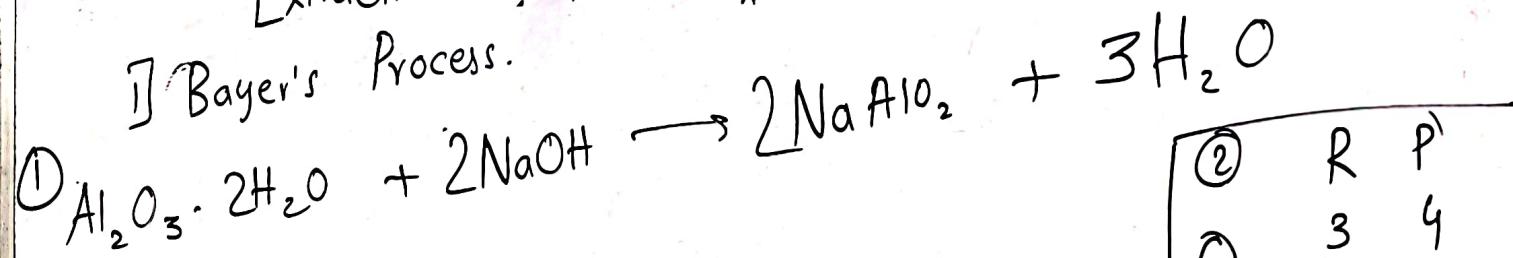
Date - 27/11/24

Sub-Sci-I

\* Time is  
Money

Extraction of Aluminium

i) Bayer's Process.



Precipitation:



$$\begin{array}{c} \textcircled{2} & R & P \\ O & 3 & 4 \\ \downarrow & & \\ 2+1 & & \\ \downarrow & & \\ 1 \times \textcircled{2} = 2 & & \end{array}$$

| ①  | R            | P | R            | P | R | P | R | P |
|----|--------------|---|--------------|---|---|---|---|---|
| Al | 2            | 1 | Na           | 1 | H | 6 | O | 7 |
|    | $\downarrow$ |   | $\downarrow$ | 2 | 6 | 2 | 7 | 7 |

$1 \times \textcircled{2} = 2$

$1 \times \textcircled{2} = 2$

$2 \times \textcircled{3} = 6$

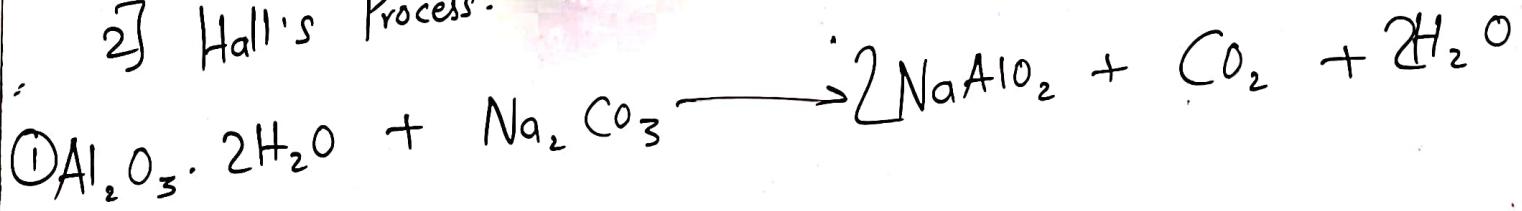
Date - 27/11/24

# Sub-Sci-I

\* Time is  
Money

## Extraction of aluminium.

## 2] Hall's Process.



## Precipitation :



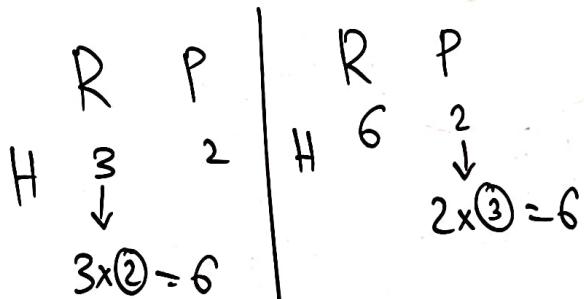
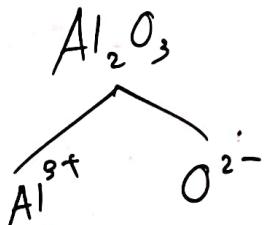
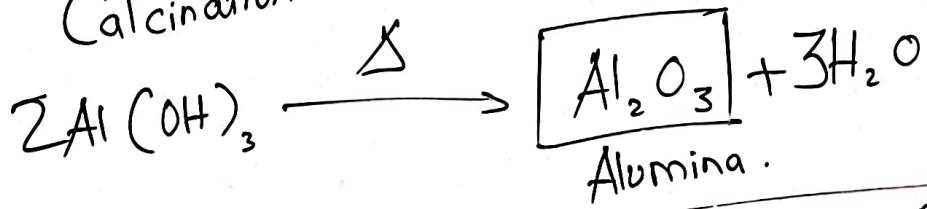
Date - 27/11/24

Sub-Sci-I

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Extraction of Aluminium.

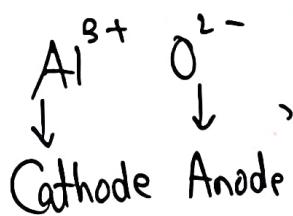
Calcination



Electrolytic Reduction of  
Alumina.

Cryolite ( $\text{Na}_3\text{AlF}_6$ )  
+

Fluorspar ( $\text{CaF}_2$ )



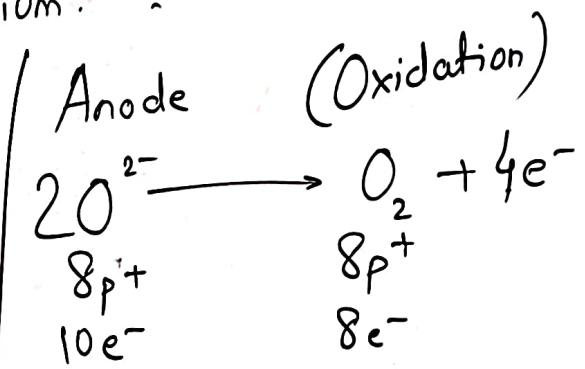
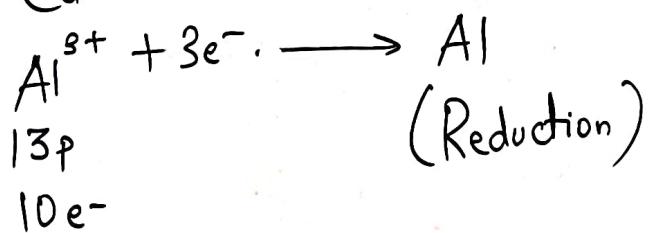
Date - 27/11/24

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| \* Time is  
Money

## Extraction of Aluminium

Cathode:



Date - 27/11/24

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\* Time is  
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Corrosion of ~~metals~~.

Corrosion of iron → Rusting

" " Copper → Pitting.

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Prevention of Corrosion.

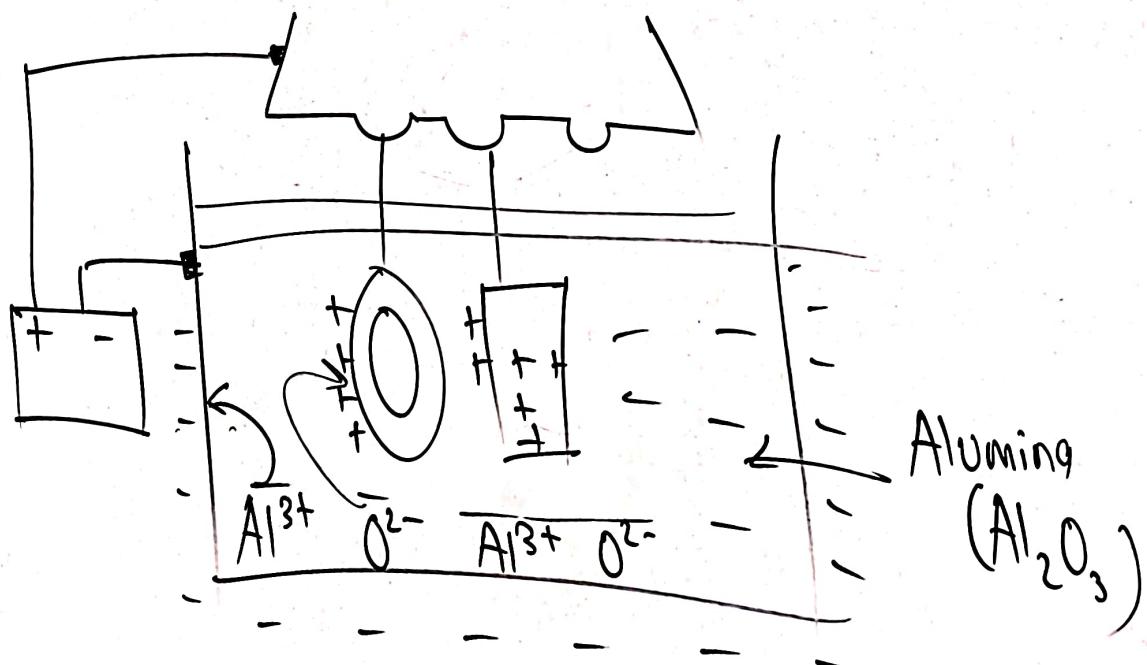
Date - 27/11/24

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Anodization -

- ① Used for aluminium articles  
② Layer of aluminium oxide is applied.



Date - 27/11/24

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Time is Money

Electroplating

