

2017

## Topic - Metal and Non Metal

### Properties of Metals -

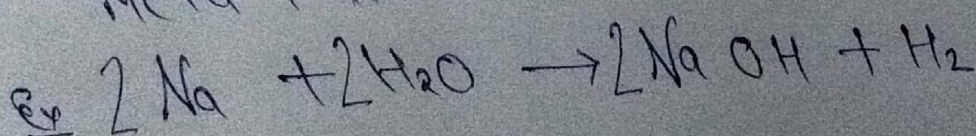
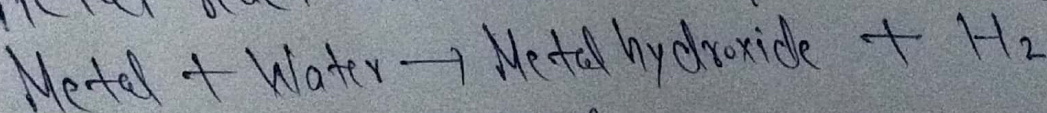
1. Hard and have high tensile strength. (Except  $\rightarrow$  Na, K are soft)
2. Solid at room temperature. (Except Mercury (Hg) is liquid)
3. Good Conductor of heat and Electricity. Ag is best
4. Malleable i.e. Can be beaten into thin sheets. Gold is highly malleable.
5. Ductile i.e. Can be drawn into thin wires. Gold is - most ductile
6. High Melting and boiling point. (Except Cesium (Cs) and Gallium (Ga))
7. They are lustrous
8. Sonorous (Ringing Sound)

### Properties of Non-metal -

1. Nonmetals are solid, liquid and gas. Br is only nonmetal found in liquid state.
2. Non metals are brittle i.e. Can be broken into thin pieces.
3. Non metals are non-malleable and non-ductile.
4. Non lustrous. (Except Iodine  $\rightarrow$  Lustrous non Metal)
5. Bad Conductor of heat and electricity (Except Graphite)
6. Soft (Except - Diamond  $\rightarrow$  Hardest natural)
7. Non Sonorous.

### Some Imp Chemical Properties of Metals -

1. Metal react with water and produce  $H_2$  gas.



Mob no

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Note - Cu, Ag Au never react with water or steam

$\downarrow$   
Silver

$\nearrow$  Gold

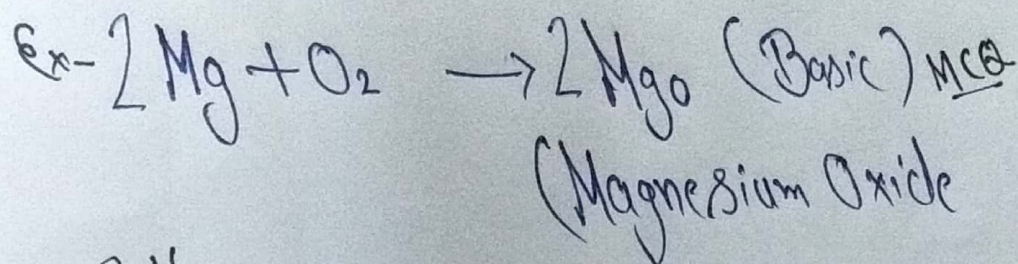
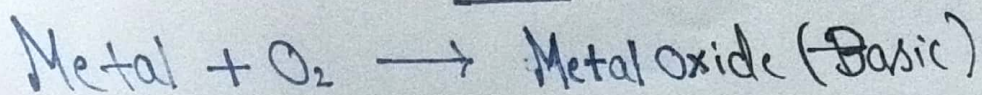


prepared by

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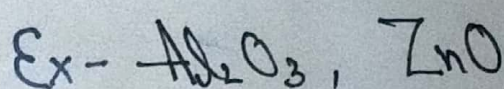


2. Metal react with oxygen and form metal oxide.  
Metal Oxide are basic.



2016

Amphoteric Oxide - Those Oxide which show both acidic as well as Basic behaviour known as Amphoteric Oxide.



Note - Non metal Oxides are Acidic.

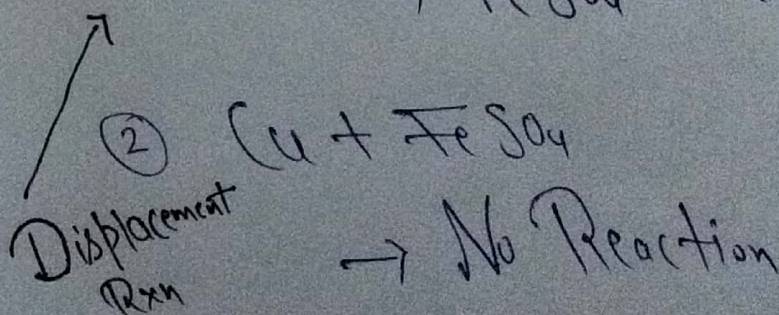
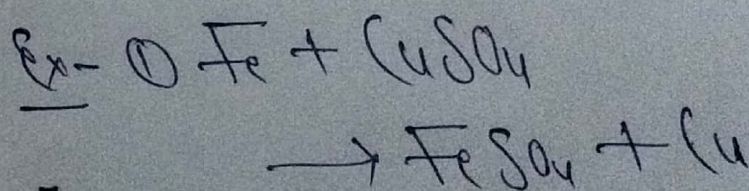
Reactivity Series -

K  
Na  
Ba  
Mg  
Al  
Zn  
Fe  
Ni  
Pb  
H  
Cu  
Ag  
→ Au → Pt

High Reactive  
↓  
Decreasing  
Reactivity

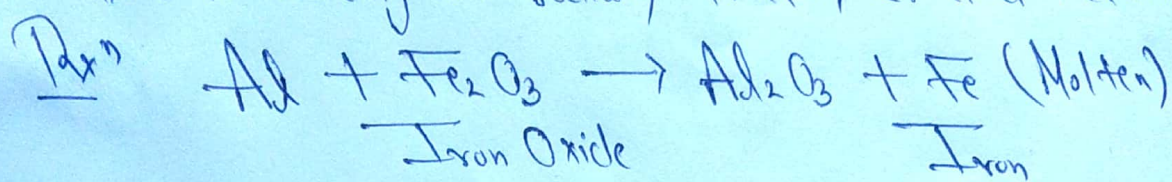


A high reactive Metal displace least reactive metal from its salt





Thermite Reaction - In this reaction Aluminium is reacted with Iron Oxide and Molten Iron is obtained. This reaction is used in welding of railway track, cracked machine parts.



Occurrence of Metals - Most of the elements (metals) occur in nature in the Compound state. Some found in free state.

Minerals - All the compound in earth crust in which metal present are known as minerals.

Ores - The minerals from which metal can be extracted profitably and easily are known as ores.

Some Imp Metals and their Ores -

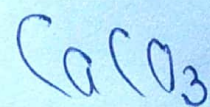
Metal	Ores	Chemical formula
1. Na	Common Salt	NaCl
2. Al (Aluminium)	Bauxite	$\text{Al}_2\text{O}_3 \cdot 2\text{H}_2\text{O}$
3. Fe (Iron)	Haemetite	$\text{Fe}_2\text{O}_3$
	Iron Pyrite	$\text{FeS}_2$
	Magnetite	$\text{Fe}_3\text{O}_4$
4. Cu (Copper)	Cuprite	$\text{Cu}_2\text{O}$
	Copper glance	$\text{Cu}_2\text{S}$





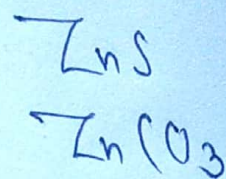
5. Ca  
(Calcium)

Limestone



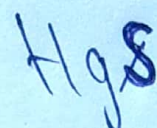
6. Zn  
(Zinc)

{ Zinc blende  
Calamine



7. Hg  
(Mercury)

Cinabar



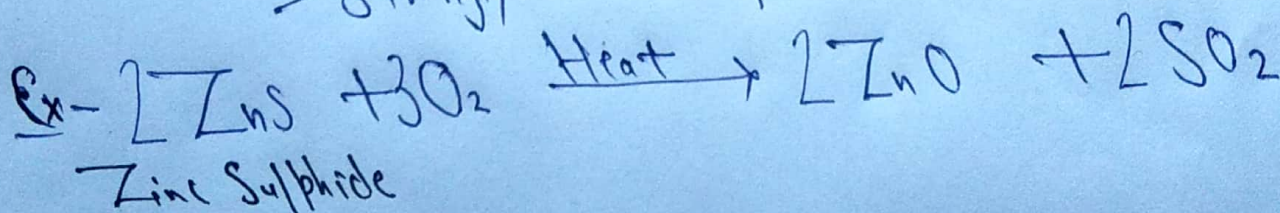
Note - Gold (Au), Platinum (Pt) are the metals which found in free state.

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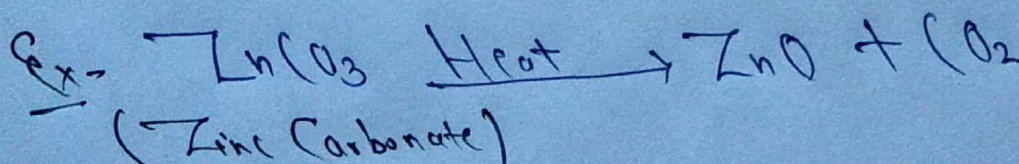
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Some Imp process -

2016 Roasting - The process in which sulphide ore is heating strongly in the presence of air.



2014 Calcination - The process in which carbonate ore is heated in the absence of air.



2020 Ques - Why <sup>is</sup> Na (Sodium) kept immersed in kerosene oil?

Ans - Sodium is highly reactive metal and react with oxygen at room temperature so it kept immersed in kerosene oil.