

4/4/24

Date : \_\_\_\_\_

chapter no: 1

## Chemical reaction and Equation

\* Difference between chemical and physical change?

Physical change

i] In a physical only physical properties such as colour, Physical state density etc

Chemical change

i] In a chemical change the composition and chemical properties undergo a change

ii] no new substance is formed in a physical change

ii] A new substance is formed in a chemical change

iii] very little or no energy in the form of heat, light or sound is usually absorbed or given out in a physical change

iii] A chemical change is always accompanied by absorption or evolution of energy

iv] A physical change is temporary change and reversible

iv] chemical change is permanent and irreversible

v. Example:  
Making toys with clays

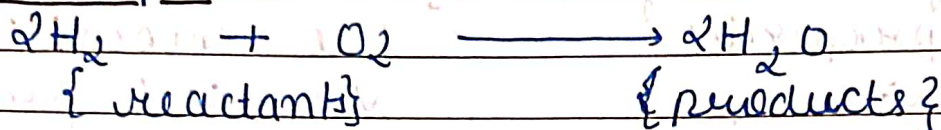
v] Rusting of iron, burning of match-sticks.



\* What is chemical change? reaction?

The process, in which a substance or substances undergo a chemical change to produce new substance or substances with entire new properties, are known as chemical reaction.

Example:

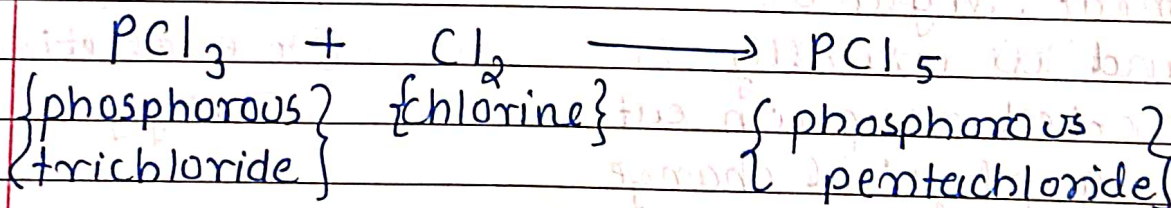


\* Types of chemical reaction -

i] Combination reaction -

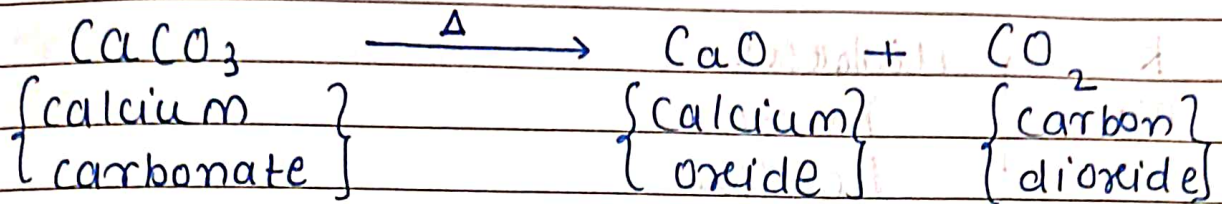
When two or more substances (element or compound) combine to form a single product, the reaction is called combination reaction.

Example:

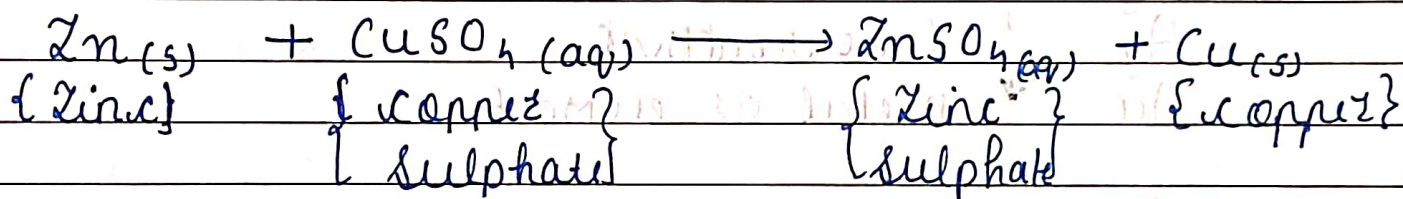


ii] Decomposition Reaction -

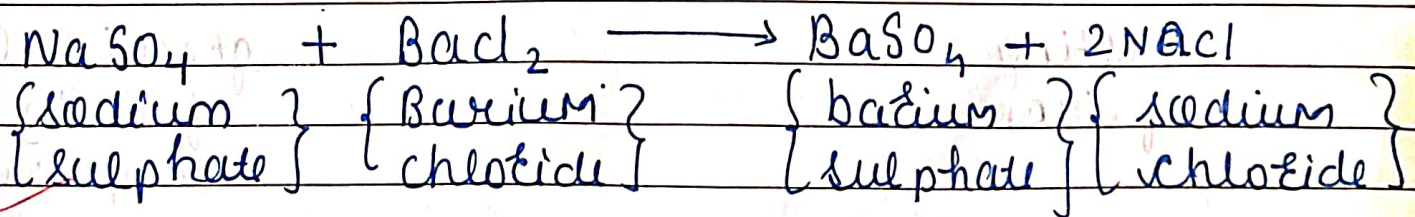
A chemical reaction in which one reaction reactant breaks down into two or more products. Any reactant's substance decomposed by the action of heat or by the application of electricity.

Example:iii] Displacement Reaction -

A chemical reaction in which a more reactive element displaces a less reactive element from its compound is called a displacement reaction.

Example -iv] Double-Displacement Reaction -

Double Displacement reaction are those in which two chemical substances react by exchanging ions to produce two new molecules.

Example:



## \* Reactivity series \*

K	↑	Higher
Na		more
Ca	↓	Reactive
Mg		metal or
Al		element
Zn		
Fe		
Pb		
H		
Cu		
Hg		
Ag	↓	low reactivity
Au		metal or element

## \* Corrosion \*

When a metal is attacked by substance around it such as moisture and acids etc it said to be corrode. This process is called as corrosion.

### Corrosion

harmful

Rusting of iron

helpful

greenish layer of  $\text{CuCO}_3$  in copper vessel

formation of aluminium oxide on aluminium vessel.

## \* Prevention of Corrosion \*

### i) Electroplating

- Cu (Copper) plating
- Gold plating
- Zinc plating (Galvanisation)

### ii) Painting

## \* Rancidity \*

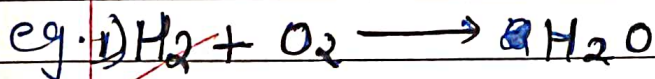
When fat and oils are oxidised they become Rancid and their smell and taste change. This change in substance is called Rancidity.

## \* Prevention of Rancidity

- i) adding antioxidants
- ii) adding preservatives.
- iii) filling chips packet Nitrogen gas.

## \* Chemical balancing \*

We balance the chemical equation in order to fulfil or satisfy law of conservation of Mass.



Reactants

Products

H

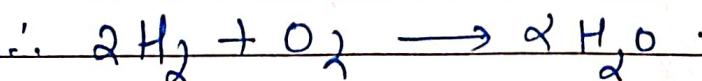
2 x 2

2 x 2

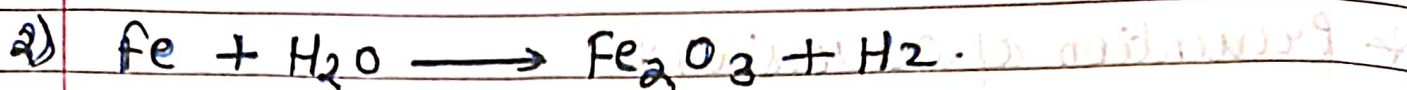
O

2

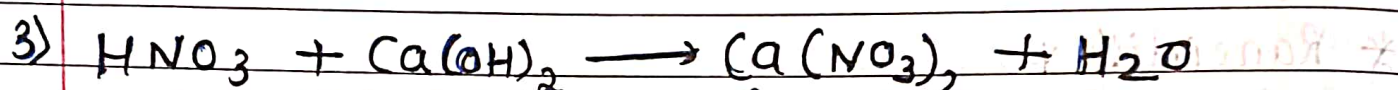
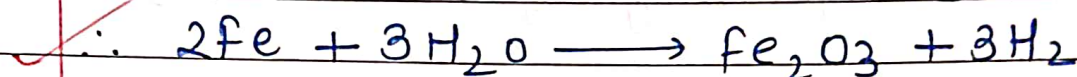
1 x 2



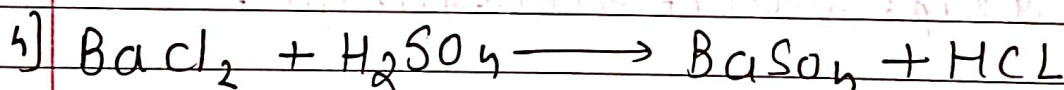
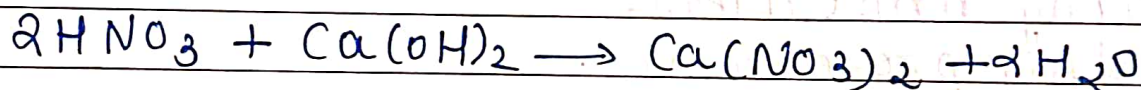




	Reactants	Product
Fe	1x2	2
H	6	3x2=6
O	1x3	3



	Reactants	Product
H	3+1=4	2+2=4
O	5+3=8	7+1=8
N	1x2=2	2
Ca	1	1



$$a = c$$

$$2a = d$$

$$2b = d$$

$$b = c$$

$$\text{if } c = 1$$

$$\text{then } a = 1$$

$$d = 2$$

$$b = 1$$

