

NOTES

CLASS- 10th
SUBJECT → SCIENCE
L = CHEMICAL REACTIONS AND EQUATIONS

①

CHEMICAL CHANGE → It is a change in which new product formed, having different composition. Example Rusting of Iron, digestion of food.

PHYSICAL CHANGE → It is a change in which no new product is formed having same composition as original. Example melting of ice, melting of wax.

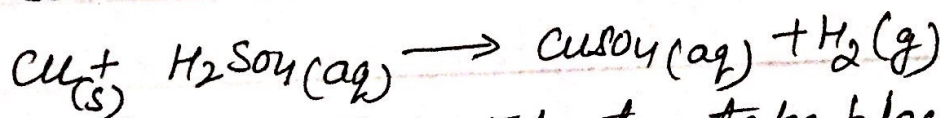
CHEMICAL EQUATIONS → A chemical equation is representation of chemical change in terms of symbols and formulas of reactant and product. Ex. $2\text{Mg} + \text{O}_2 \longrightarrow \text{MgO}$

BALANCED CHEMICAL EQU. → A chemical equation in which no. of atoms of reactant side and product side is equal. Ex. $3\text{Fe} + 4\text{H}_2\text{O} \longrightarrow \text{Fe}_3\text{O}_4 + 4\text{H}_2$

SIGNIFICANCE OF CHEMICAL EQUATIONS → ① A chemical equation tells about the names of various reactants and products,

② A chemical equation tells about the relative no. of molecules of reactants and products.

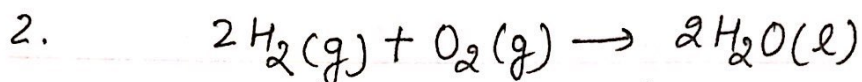
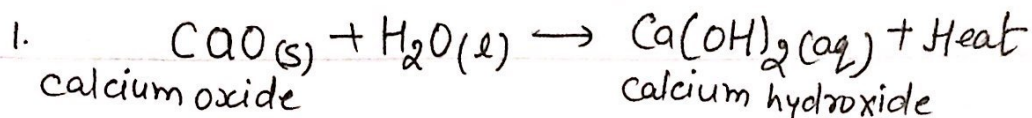
Limitations of chemical equations → ① A chemical equation fails to provide actual concentration of the reactant taken and product formed. ② it also fails to provide time taken for the completion. ③ it does not provide information whether the rxn is feasible or not, for example -



This rxn is expected to take place but actually it does not occur.

TYPES OF CHEMICAL REACTIONS

1. COMBINATION RXN → A reaction in which two or more reactants combine to form single product is called combination rxn.

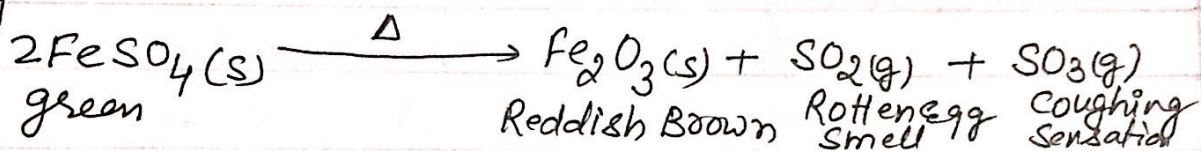


2. DECOMPOSITION REACTION $\rightarrow$ It is opposite of combination decomposition can be brought about by heat, light or Electricity. $AB \longrightarrow A + B$

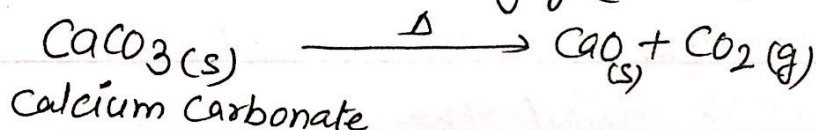
TYPES OF DECOMPOSITION

(a) THERMAL DECOMPOSITION $\rightarrow$ When decomposition Rxⁿ carried by heat is called thermal decomposition. for Example.

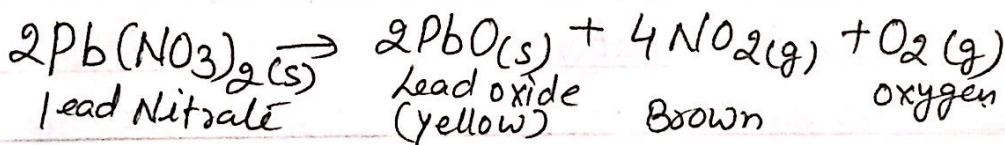
(i) When green colour Ferrous sulphate crystal heated strongly



(ii) lime stone Heated strongly (chalk powder, Egg shell)

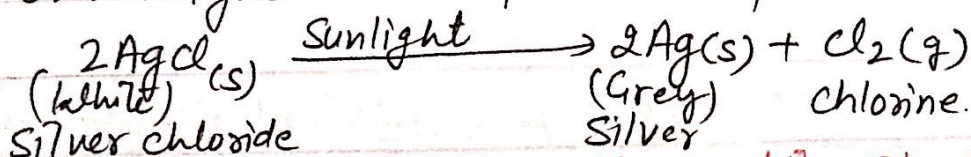


(iii) lead Nitrate heated



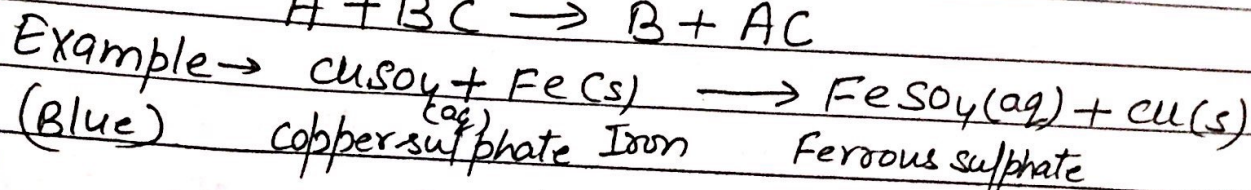
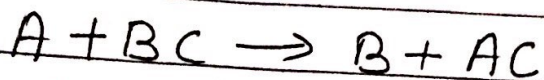
(b) Electric Decomposition $\rightarrow$ When decomposition Rxⁿ carried by Electricity. Example $2H_2O(l) \xrightarrow{\text{Electricity}} 2H_2(g) + O_2(g)$
 Cathode Anode

(c) PHOTODECOMPOSITION $\rightarrow$ When photodecomposition carried by light or sunlight is called photodecomposition. for Example.

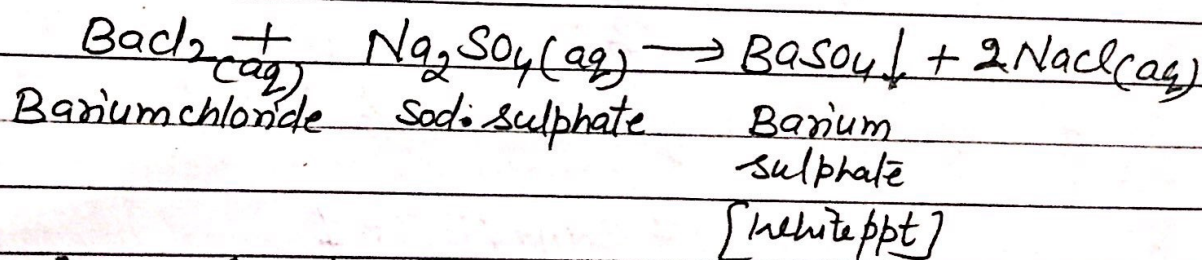
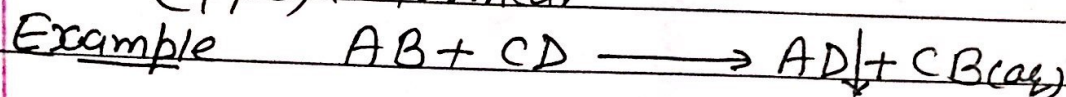


[NOTE $\rightarrow$ AgBr, AgCl salts used in Black and white photography]

③ Displacement Rxn → The Reaction in which highly Reactive metal displace less Reactive metal from their salt solution.

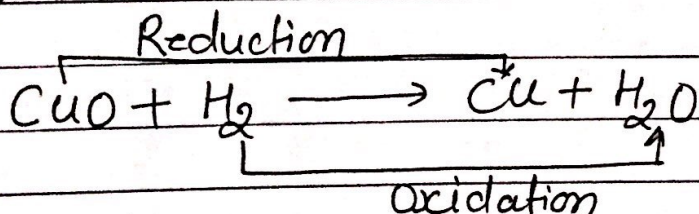


④ DOUBLE Displacement → In double displacement Rxn Exchange of ions take place b/w the Reactant and solid mass (ppt) is formed.



OXIDATION → When O_2 combines with other elements or compounds. the process is called oxidation or Removal of H_2

REDUCTION → When H_2 combine with other element or comp. the process is called Reduction (Removal of O_2 also)



CORROSION → The process of slow conversion of metals into their undesirable compound by Atmospheric gases. is called corrosion.

- Preventing methods →
- ① By applying paint
 - ② By applying Greasing
 - ③ By applying plastic coating
 - ④ By Galvanisation.

RANCIDITY → Oxidation of fats and oils develop unpleasant smell and taste in the food is called Rancidity.

Methods to Prevent Rancidity

- ① By Adding Antioxidant (chemical which slow down oxidation process)
- ② By Vacuum packing
- ③ Replacing air by Nitrogen
- ④ Refrigeration of the food stuff.

END OF CHAPTER-1