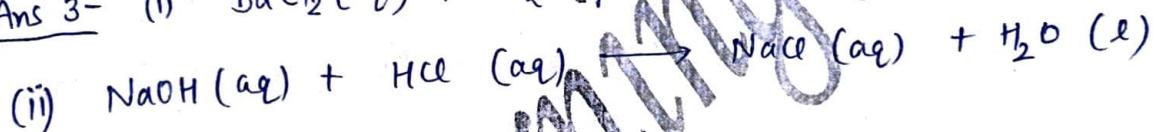
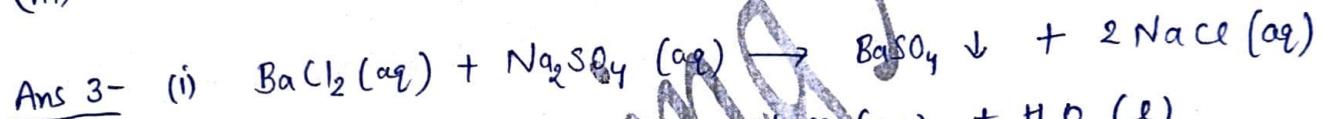
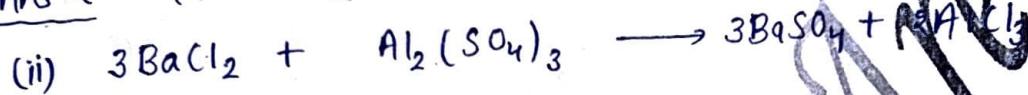
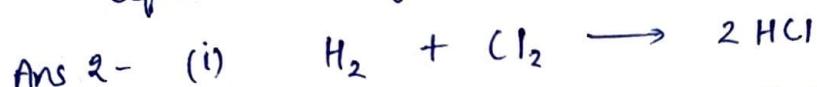


CHAPTER - I

1.

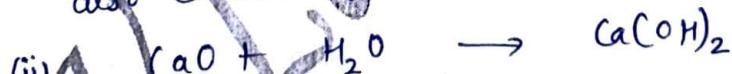
Box 1 :-

Ans 1- Magnesium ribbon reacts with air to form a protective oxide layer. This layer is unreactive & prevents the ribbon from burning. Hence magnesium ribbon needs to be cleaned with sand paper before burning in air.



Box 2 :-

Ans 1- (i) Substance X is calcium oxide (CaO). It is also called quicklime.

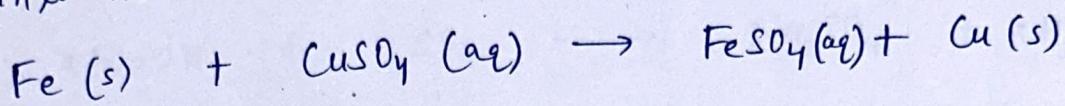


Ans 2- The chemical formula of water (H_2O) suggests that molar ratio of hydrogen & oxygen is 2:1. Therefore, when water is electrolysed, hydrogen & oxygen are produced in the same ratio i.e. 2:1. So the volume of hydrogen gas produced is double than that of oxygen gas.

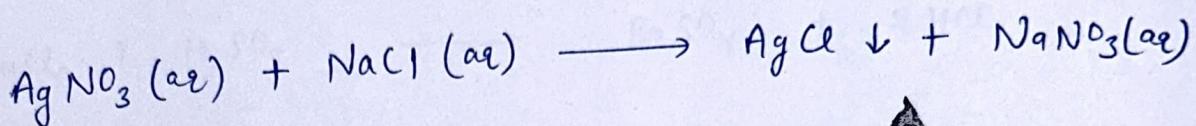
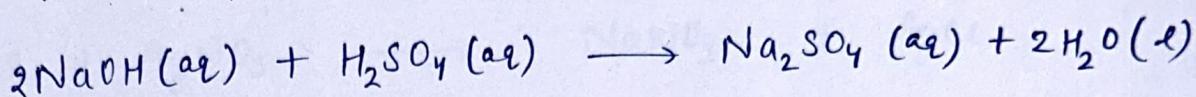
Box 3 :-

Ans 1- Iron is more reactive than copper. So iron displaces copper from its salt solution. A displacement reaction takes place. So the colour of the copper

sulphate solution changes when iron nails are dipped into it.



Ans 2-



Ans 3-

(i) Na is oxidised & O₂ is reduced

(ii) CuO is reduced & H₂ is oxidised

Exercise Questions

Ans 1-

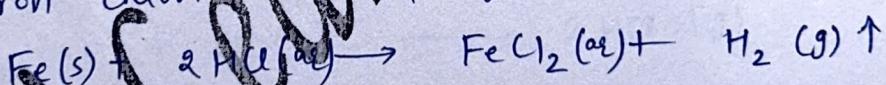
Carbon is getting oxidised & lead oxide is getting reduced.

Ans 2-

displacement reaction

Ans 3-

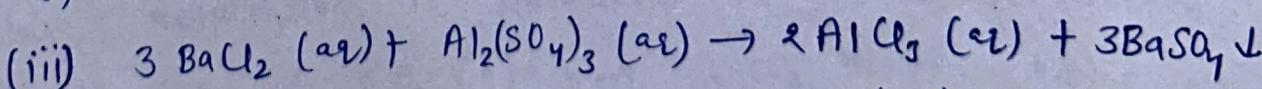
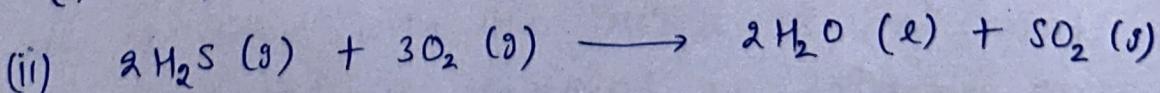
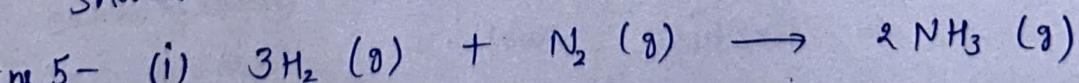
When iron filings & hydrochloric acid react, iron chloride & hydrogen gas is formed.

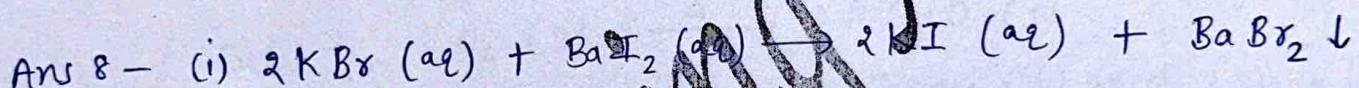
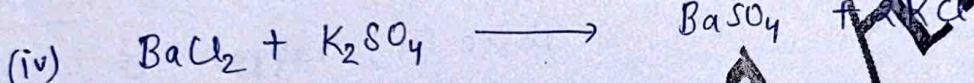
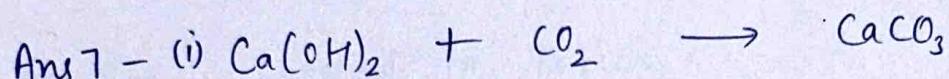
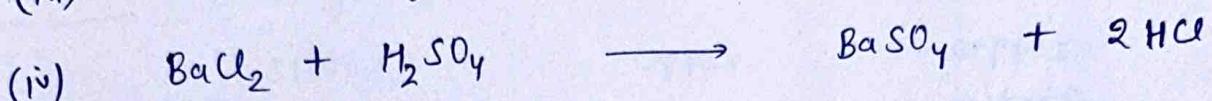
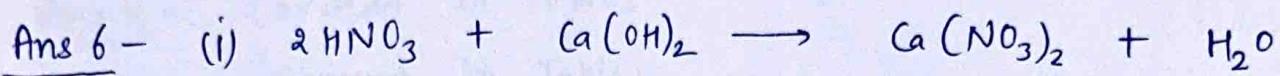


Ans 4-

If the number of atoms in the reactant is equal to the number of atoms in the product, the equation is said to be balanced chemical equation. Law of conservation of mass states that total mass of reactants is always equal to total mass of products in a chemical reaction. To validate the law of conservation of mass, the chemical equations should be balanced.

Ans 5-

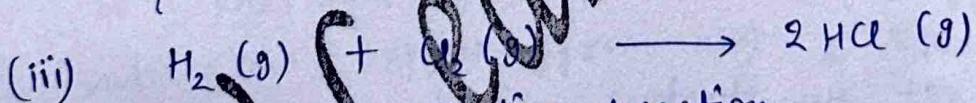




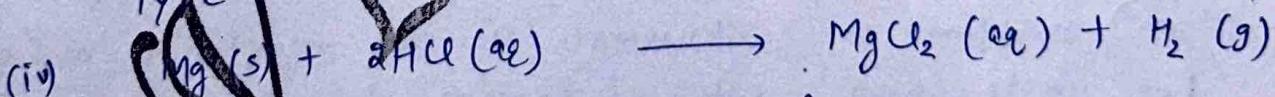
Type : Double displacement reaction



Type : decomposition reaction



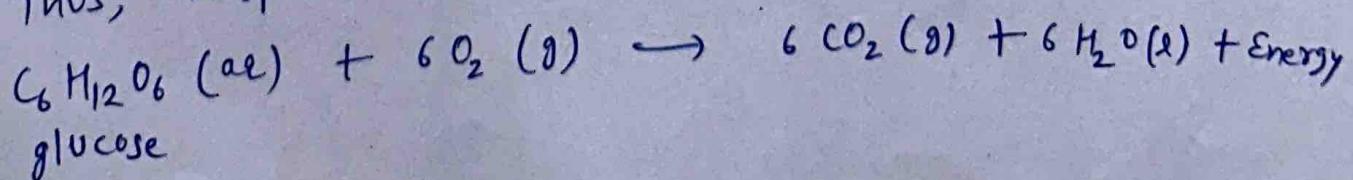
Type : combination reaction



Type : displacement reaction

Ans 9 - Covered in Topics

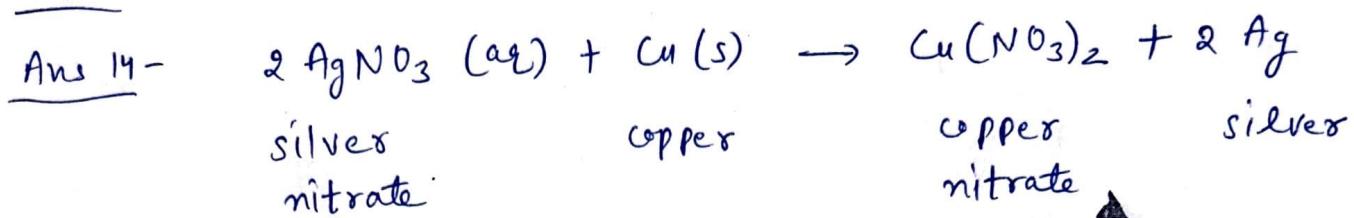
Ans 10 - The food that we eat like rice, potato, bread etc contains carbohydrates. On digestion, carbohydrates are converted to glucose. The glucose so formed is slowly oxidised to form carbon dioxide & water with the release of heat energy. Thus, respiration is considered an exothermic reaction.



Ans 11- Covered in Topics

Ans 12- Covered in Topics

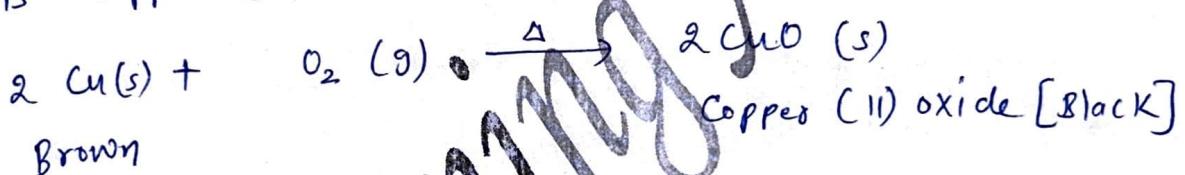
Ans 13- Covered in Topics



Ans 15- Covered in Topics

Ans 16- Covered in Topics

Ans 17- Element 'X' is copper & black coloured compound
is copper (II) oxide.



Ans 18- By applying paint on iron articles, they can
be prevented from corrosion (rusting). Paint does
not allow oxygen (from air) & water (moisture)

to come in direct contact with the surface of iron.
Ans 19- Nitrogen gas is unreactive as compared to oxygen.
Oil & fats present in the food items get
oxidised & become rancid in presence of oxygen.
But this reaction is prevented by the presence
of oxygen. So oil & fat containing food
items are flushed with nitrogen.

Ans 20- covered in Topics.

Extra Questions

Ques 1 - What type of change is the burning of a candle wax?

Ans 1 - Chemical change

Ques 2 - What is the cause of rancidity?

Ans 2 - Oxidation of fats & oils present in the food.

Ques 3 - What does an arrow pointing downwards in a reaction indicate?

Ans 3 - Formation of precipitate

Ques 4 - Why do we keep food in refrigerator?

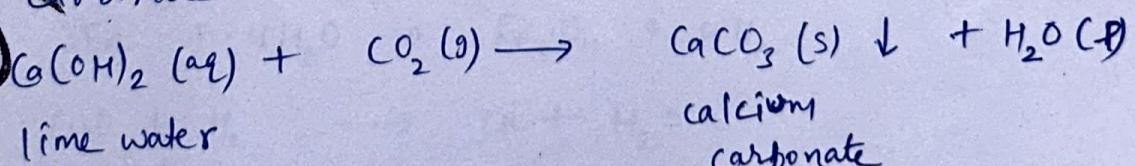
Ans 4 - To slow down oxidation & hence to prevent rancidity.

Ques 5 - Why is silver chloride stored in dark coloured bottles?

Ans 5 - In presence of light, silver chloride decomposes to form silver & chlorine. Dark coloured bottles cut off the light. So, they prevent decomposition of silver chloride.

Ques 6 - Explain what happens when CO_2 is passed through lime water.

Ans 6 - When CO_2 is passed through lime water, it turns milky due to the formation of calcium carbonate.

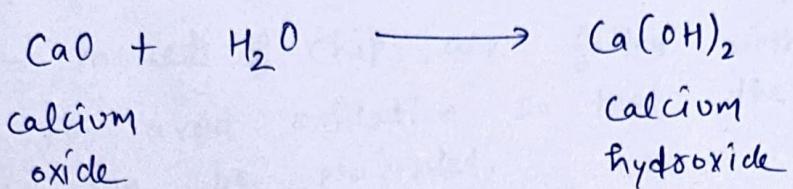


Ques 7 - Why do silver articles turn black when kept in air/open for long time?

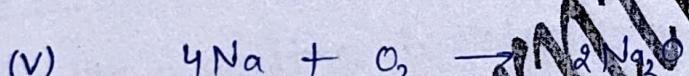
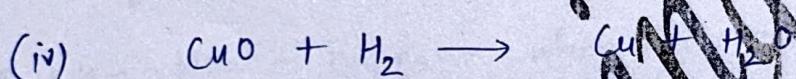
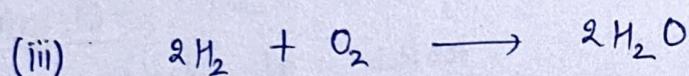
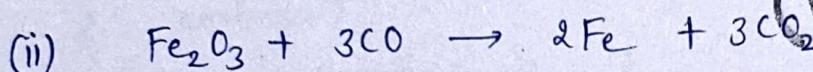
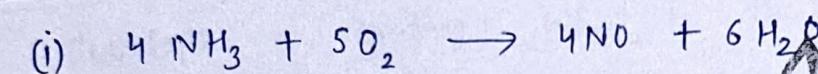
Ans 7 - Silver articles turn black when kept in air/open for long time because of corrosion. The black substance formed on the surface of silver is silver sulphide (Ag_2S).

Ques 8- A substance 'X' which is an oxide of a metal present in our bones, reacts with water. Name the substance & write the reaction.

Ans 8- X = CaO (calcium is present in our bones)

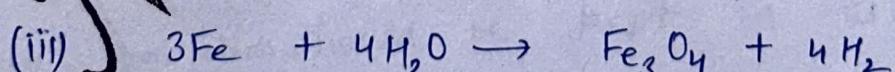
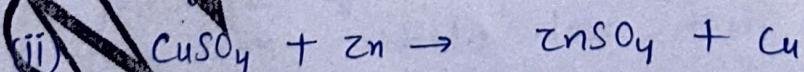
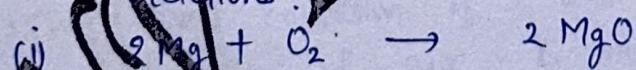


Ques 9- Name the reducing agents in the following reactions:



Ans 9- (i) NH₃ (ii) CO (iii) H₂ (iv) H₂ (v) Na

Ques 10- Identify the oxidising agents in the following reactions:

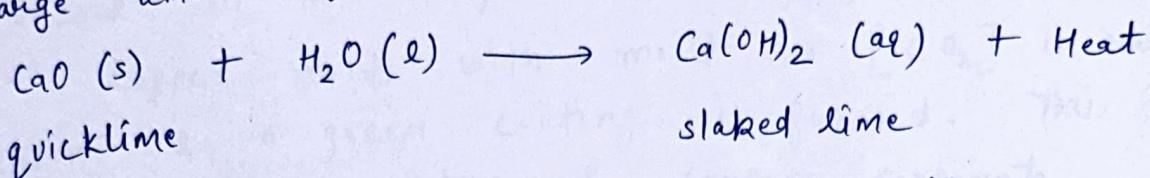


Ans 10- (i) O₂ (ii) CuSO₄ (iii) H₂O (iv) CuO (v) ZnO

Ques 11- What happens when quicklime is added to water?

Ans 11- Quicklime reacts vigorously with water to

produce calcium hydroxide (slaked lime) releasing large amount of heat.



Ques 12- Packets of chips are filled with nitrogen gas. Why?
Ans 12- To avoid oxidation so that the rancidity of chips can be prevented.

Ques 13- If copper metal is heated over a flame it develops a coating. What is the colour & composition of coating ? ~~Ques 13~~ CuO (Copper oxide). It is

Ans 13- The coating is of ~~an~~ ~~black~~ colour.

Ques 14 - What happens when limestone is heated ?
Ans 14 - Limestone is chemically CaCO_3 . When it is heated, its decomposition takes place .



Ques 15- Why do iron articles lose their shine gradually?
Ans 15- The corrosion of iron takes place due to the action of water in surrounding. So

Ans 15- The corrosion of iron articles presence of air & moisture in surrounding. So lose their shine.

Ques 16 - Food items should be kept in air tight containers.
Why?

Ques. Why ?
Ans. To avoid oxidation of food items.

Ans 16- H_2O_2 reacts with the solution with a

Ques- Can we stir silver nitrate solution with copper spoon? Why or why not?

Ans 17- We cannot stir silver nitrate solution with a copper spoon. Copper being more reactive than silver, displaces silver from silver nitrate solution.

Ques 18- A green coating develops on the copper vessel in the rainy season. Why?

Ans 18- Copper reacts with moist air [CO_2] in rainy season & a green coating is formed. This is due to the formation of copper carbonate.

Ques 19- In the electrolysis of water:

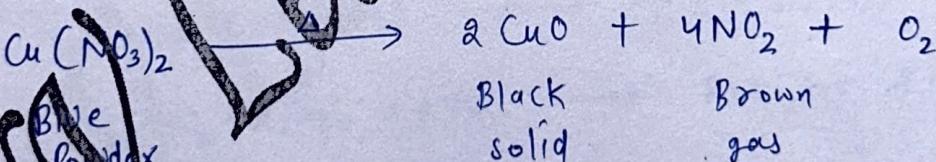
(i) Name the gas collected at cathode & anode.

(ii) Why are a few drops of dilute H_2SO_4 added to water?

Ans 19- (i) At Cathode \rightarrow hydrogen At Anode \rightarrow oxygen
(ii) Pure water does not conduct electricity. A few drops of dilute H_2SO_4 are added to make water conducting.

Ques 20- What happens when blue coloured powder of copper nitrate is heated in a test tube?

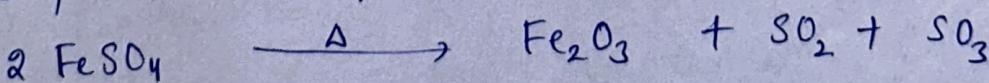
Ans 20- The thermal decomposition of copper nitrate takes place.



* CuO is red in colour.

Ques 21- What happens when ferrous sulphate (FeSO_4) is heated in a hard glass test tube?

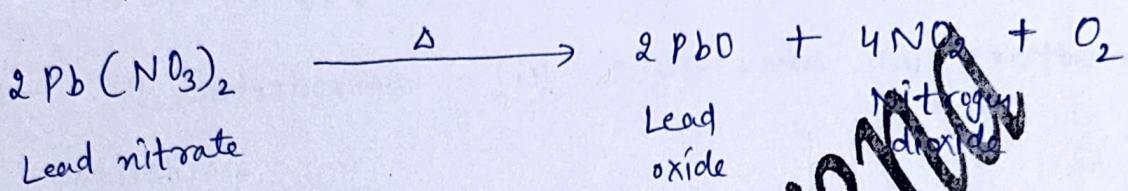
Ans 21- When ferrous sulphate is heated, its thermal decomposition takes place.



The colour of ferrous sulphate is green. When it is heated, it becomes black.

Ques 22- What happens when lead nitrate is heated? 9-

Ans 22- Lead nitrate $[Pb(NO_3)_2]$ is a white coloured compound. When it is heated, it gives lead oxide nitrogen dioxide & oxygen gas. It is a thermal decomposition reaction.



Ques 23- Name the type of reactions:

- (i) $Al_2O_3(l) \xrightarrow{\text{Electrolysis}} 4 Al(l) + 3 O_2(g)$
- (ii) $2 HI(aq) + Cl_2(g) \longrightarrow I_2(s) + 2 HCl(aq)$
- (iii) $CH_4(g) + O_2(g) \longrightarrow CO_2(g) + 2 H_2O(g) + \text{Heat}$
- (iv) $CaO(s) + H_2O(l) \longrightarrow Ca(OH)_2(aq) + \text{Heat}$
- (v) $Fe_2O_3(s) + 2 Al(s) \xrightarrow{\Delta} 2 Fe(l) + Al_2O_3(s)$
- (vi) $Mg(s) + 2 HNO_3(aq) \longrightarrow Mg(NO_3)_2(aq) + H_2(g) \uparrow$
- (vii) $(CH_3COO)_2Pb(aq) + 2 HCl(aq) \longrightarrow PbCl_2(aq) + 2 CH_3COOH(aq)$
- (viii) $2 Na(s) + 2 C_2H_5OH(l) \longrightarrow 2 C_2H_5ONa + H_2(g)$
- (ix) $2 Mg(s) + O_2(g) \longrightarrow 2 MgO$
- (x) $NH_3(g) + HCl(g) \longrightarrow NH_4Cl(s)$

- Ans 23- (i) Electrolytic decomposition (ii) Displacement
(iii) Exothermic (iv) Combination & exothermic
(v) Displacement (vi) displacement
(vii) double displacement (viii) displacement
(ix) combination (x) combination

Ques 24- Identify the exothermic & endothermic processes : 16.

- (i) Decomposition of ferrous sulphate
- (ii) Dilution of sulphuric acid
- (iii) Dilution of sodium hydroxide in water
- (iv) Reaction of quicklime & water

Ans 24- (i) Endothermic (ii) exothermic (iii) exothermic
(iv) exothermic

Ques 25- Balance the following skeletal equations :

