Class- X

Chemistry

Topic-Question-Ans:-1

Chapter-1

Q- Why should a magnesium ribbon be cleaned before burning in air?

Ans. A protective layer basic magnesium carbonate ~~is~~ gets deposited on magnesium ribbon after some time. Due to this, it is essential to remove this protective layer to facilitate burning of magnesium ribbon in air.

Q- Write balanced chemical ~~equations~~ equations for the following chemical reactions:

Ans.

Hydrogen + chlorine → Hydrogen chloride

$$H_2 + Cl_2 \longrightarrow 2HCl$$

Barium Chloride + Aluminium Sulphate → Barium Sulphate + Aluminium chloride

$$3BaCl_2 + Al_2(SO_4)_3 \rightarrow 3BaSO_4 + 2AlCl_3$$

Sodium + water → Sodium hydroxide + Hydrogen

$$2Na + 2H_2O \longrightarrow 2NaOH + H_2$$

* Solutions of barium chloride and sodium sulphate in water react to give insoluble barium sulphate and sodium chloride.

$$BaCl_2(aq) + Na_2SO_4(aq) \rightarrow BaSO_4(s)$$ white ppt.

$$+ 2NaCl(aq)$$

* Sodium hydroxide solution (in water) reacts with hydrochloric acid solution (in water) to produce sodium chloride and water.

$$NaOH(aq) + HCl(aq) \rightarrow NaCl(aq) + H_2O(l)$$

It is neutralisation reaction.

Q. A solution of substance X is used for white washing.

(a) Name the substance X.

Ans. The substance X is calcium oxide, CaO, (also known as lime, quick lime or choona) whose solution in water is used for white washing.

(b) Write the reaction of the substance X with water.

$$CaO(s) + H_2O(l) \rightarrow Ca(OH)_2(s)$$

Calcium oxide. Calcium hydroxide.

Q. Why is double the amount of gas collected in one of the test-tubes in the ~~to~~ electrolysis of water activity? Name this gas.

Ans. Water, $H_2O$, is a compound obtained by the combination of hydrogen and oxygen in ratio 2:1 by mass. It mean water contains 2 parts of hydrogen and 1 part of oxygen in it. Due to this during electrolysis of water, ~~hydrog~~ hydrogen gas is obtained in double amount.

Q- Why does the colour of copper sulphate solution change when an iron nail is dipped in it?

Ans. Iron is more reactive than copper. So, when iron nail is dipped in copper sulphate solution, it displaces copper from copper sulphate solution. Due to this colour of copper sulphate solution is changed

$$CuSO_4(aq) + Fe(s) \rightarrow FeSO_4(aq) + Cu(s)$$

Blue — green — Red-brown

Q. Give an example of a double displacement reaction.

Ans. When Barium chloride solution reacts with sodium sulphate solution, double displacement reaction takes place. Both the compounds exchange their ion and form white precipitate of barium sulphate and sodium chloride solution

$$BaSO_4(aq) + 2NaCl(aq) \rightarrow BaSO_4(s) + 2NaCl$$

white ppt.

Q. Identify the substances that are oxidised and the substances that are reduced in the following reactions.

Ans (a) $4Na(s) + O_2(g) \rightarrow 2Na_2O(s)$

Substance oxidised — Na

substance reduced — $O_2$

(b) $CuO(s) + H_2(g) \rightarrow Cu(s) + H_2O(l)$

Subtance reduced → CuO

Substance oxidised → $H_2$

Q- Which of the statements about the reaction below are incorrect?

$$2PbO(s) + C(s) \longrightarrow 2Pb(s) + CO_2(g)$$

(a) Lead is getting reduced.
(b) Carbon dioxide is getting oxidised.
(c) Carbon is getting oxidised.
(d) Lead oxide is getting reduced.

Ans- Statements (a) and (b) are incorrect. This is due to the reason that PbO is reduced into Pb and C is oxidised into $CO_2$.

Q. $Fe_2O_3 + 2Al \longrightarrow Al_2O_3 + 2Fe$
The above reaction is an example of

Ans. The above reaction is an example of displacement reaction, because in this reaction, Al displaces Fe from $Fe_2O_3$.

Q. What happen when dilute HCl acid is added to iron filings? Tick correct answer.

(a) Hydrogen gas and iron chloride are produced.
(b) Chlorine gas and iron hydroxide are produced.
(c) No reaction takes place.
(d) Iron salt and water are produced.

Ans. Option (a) is correct – hydrogen gas and iron chloride are formed.

$$Fe + 2HCl \longrightarrow FeCl_2 + H_2$$