

Question-22

Why is sodium kept immersed in kerosene? Solution:

Sodium metal is kept immersed in kerosene to prevent their reaction with oxygen, moisture and carbon dioxide of air.

Question-23

Why do ionic compounds have high melting points? Solution:

These compounds are made up of positive and negative ions. There is a strong force of attraction between the oppositively charged ions, so a lot of heat energy is required to break this force of attraction and melt the ionic compounds. This is why ionic compounds have high melting points.

Question-24

A man went door to door posing as a goldsmith. He promised to bring back the glitter of old and dull gold ornaments. An unsuspecting lady gave a set of gold bangles to him which he dipped in a particular solution. The bangles sparkled like new but their weight was reduced drastically. The lady was upset but after a futile argument the man beat a hasty retreat. Can you play the detective to find out the nature of the solution he had used? Solution:

Aqua regia (By volume, this contains 3 parts of concentrated hydrochloric acid and 1 part of concentrated nitric acid) is the solution, which is used to sparkle the bangles like new, but their weight will be reduced drastically.

Question-25

Write equations for the reactions of

- (i) iron with water
- (ii) calcium and potassium with water Solution:
- (i) Iron reacts with steam to form magnetic oxide of Fe with the liberation of H_2

$$3Fe(s) + 4 H_2O(g) \longrightarrow Fe_3O_4(s) + 4H_2(g)$$

(ii) Calcium reacts with water to form calcium hydroxide and hydrogen.

$$Ca(s) + 2H2O(I) \longrightarrow Ca(OH)2(aq) + H2(q)$$

Potassium reacts with cold water violently immediately with evolution of H2 which catches fire.

$$2K(s) + 2H_2O(l) \longrightarrow 2KOH(aq) + 2H_2(g)$$

Question-26

What would you observe when zinc is added to a sodium of iron(II) sulphate? Write the chemical reaction that takes place? Solution:

Zinc is more reactive (more electro positive) than iron. Therefore it displaces iron from its salt solution. The colour of ferrous sulphate is pale green which becomes colourless.

FeSO₄ + Zn \longrightarrow ZnSO₄ + Fe_(s) Light green Zinc sulphate

Question-27

Pratyush took sulphur powder on a spatula and heated it. He collected the gas evolved by inverting a test-tube over the burning sulphur.

What will be the action of this gas on:

Dry litmus paper?

Moist litmus paper?

Write a balanced chemical equation for the reaction taking place. Solution:

- a) When sulphur is brunt in air then sulphur dioxide gas is formed.
- (i) Sulphur dioxide gas has no action on dry litmus paper.
- (ii) Sulphur dioxide gas turns moist blue litmus paper to red.
- b) $S_{(s)} + O_{2(g)} \rightarrow SO_{2(g)}$

