CLASS - X chapter - 3

Question - Answer - 2

1. Which gas is produced when dilute HCl is added to a reactive metal? Write the chemical reaction when Iron reacts with dilute sulphuric acid.

Ans - * When dilute HCl is added to a reactive metal, hydrogen gas is produced and salt is formed.

* When iron reacts with dilute sulphuric acid, iron (II) sulphate ($FeSO_4$) and hydrogen gas are produced.

$$Fe(s) + H_2SO_4(aq) \rightarrow FeSO_4(aq) + H_2(g$$

2. What would you observe when zinc is added to a solution of iron (II) sulphate? Write the chemical reaction that take place.

Ans When zinc is added to the solution of iron (II) sulphate, zinc displaces iron from the solution

of iron (II) sulphate. The greenish colour of $FeSO_4$ solution fades gradually due to formation of colourless zinc sulphate & iron metal is deposited on zinc.

$$FeSO_4(aq) + Zn(s) \rightarrow ZnSO_4(aq) + Fe$$

Greenish colourless

3. ① Write electron-dot structure for sodium, oxygen and magnessium.

Ans. Sodium atom has one electron in its outermost shell, so, electron dot structure of sodium is

Na.

Oxygen atom has six electrons in its outermost shell, so electron dot structure of oxygen is

:Ö:

~~Mgan~~. Magnessium atom has two electrons in its outermost

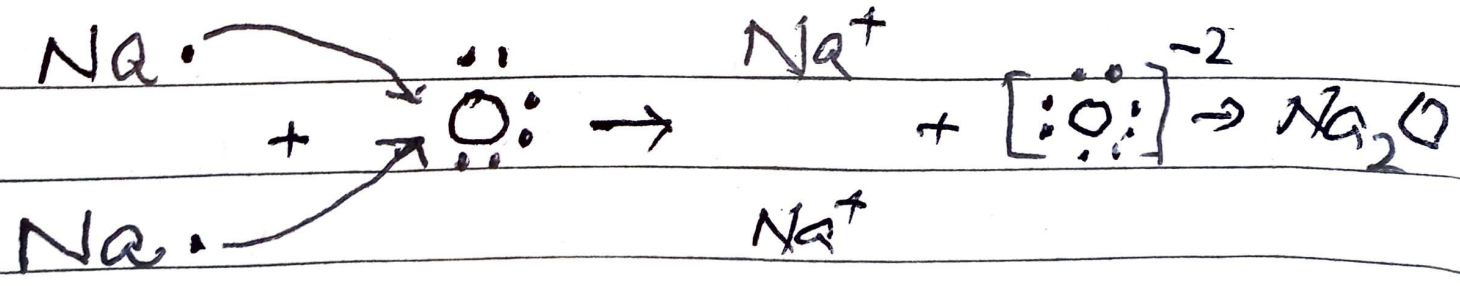
shell, so, electron dot structure of magnessium is

Mg :

(ii) Show the formation Na_2O and MgO by the transfer of electrons.

ans- formation of Na_2O (sodium oxide).

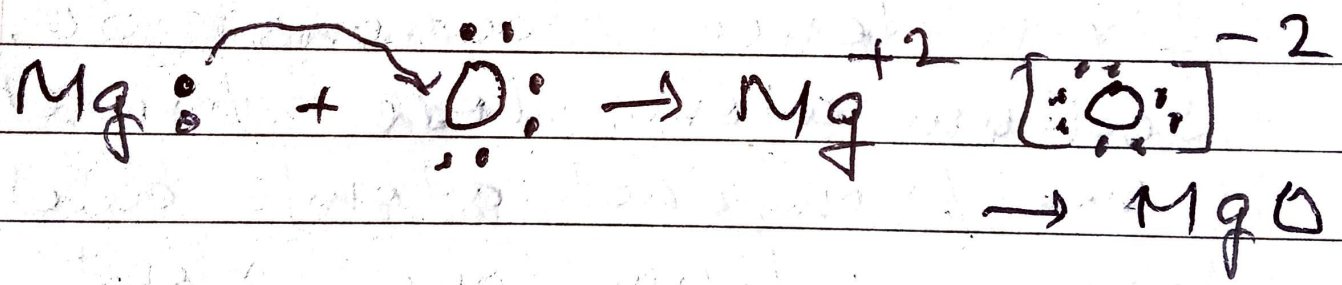
Sodium atom has one valence electron and oxygen atom has six valence electrons. So, two sodium atoms lose two electrons (one from each atom) and form two sodium ions, $2Na^+$. One oxygen atom gains these two electrons and forms one oxide ion, O^{-2}.



The oppositely charged ions are held together by strong electrostatic force of attraction to form ionic sodium oxide Na_2O.

(ii) Formation of MgO.

Magnesium atom has two valence electrons. Magnesium atom transfers its two valence electrons to oxygen atom to form MgO.



The oppositely charged Mg^{+2} and O^{-2} are held together to form ionic compound MgO.