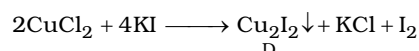
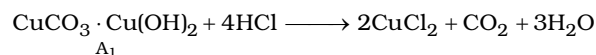
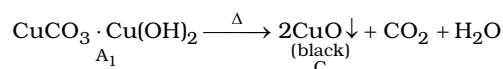


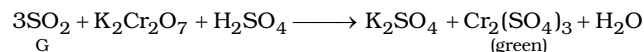
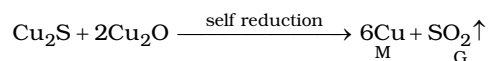
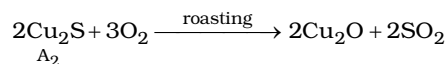
- 76.(C)** In $\text{Hg}[\text{Co}(\text{SCN})_4]$, the oxidation state of Co is +2. In Co^{2+} ; $1s^2 2s^2 2p^6 3s^2 3p^6 3d^7$, we have three unpaired electrons so its spin magnetic moment will be

$$\mu = \sqrt{3(3+2)} \text{ B.M.} = \sqrt{3 \times 5} \text{ B.M.} = \sqrt{15} \text{ B.M.}$$

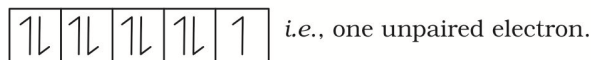
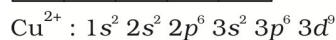
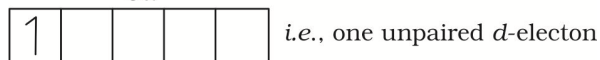
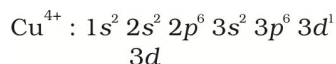
- 77.** The formation of carbon dioxide when ore A_1 is calcined indicates that ore A_1 is a carbonate. Since ore A_1 when treated with HCl and KI, evolves I_2 so A_1 would be hydroxide. From these observation we get the possible formula of ore A_1 as $\text{CuCO}_3 \cdot \text{Cu}(\text{OH})_2$. The reaction can be explained as follows :



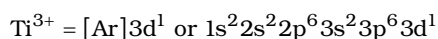
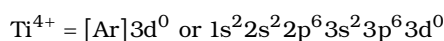
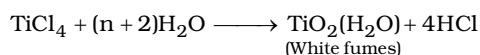
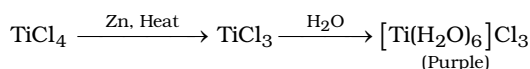
Ore A_2 when roasted gives gas G which gives green colour with acidified $\text{K}_2\text{Cr}_2\text{O}_7$ i.e. the gas G is SO_2 . Since on roasting A_2 gives SO_2 so it should be a sulphide of copper.



- 78.(B)** In transition metal salts, the appearance of colour is due to $d-d$ transitions of unpaired electrons of d -orbitals. Metal ions having similar number of unpaired electrons in d -orbitals show similar colour in aqueous medium.

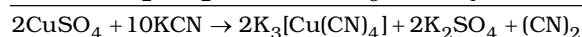
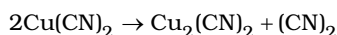
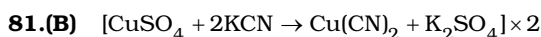
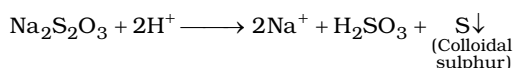
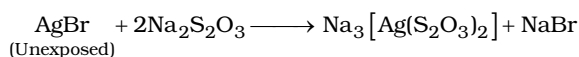
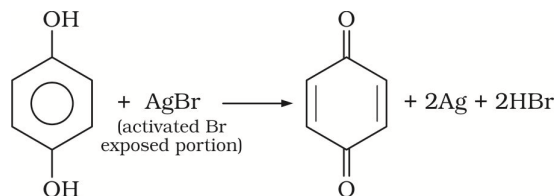


- 79.** $\text{M} = \text{Ti}$; $\text{A} = [\text{Ti}(\text{H}_2\text{O})_6]\text{Cl}_3$; $\text{B} = \text{HCl}$

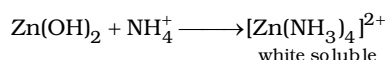
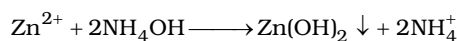


TiCl_4 is colourless because in Ti^{4+} we have no unpaired 3d-electrons ($3d^0$) and so d-d transition is not possible. In TiCl_3 we have Ti^{3+} in which there is one unpaired 3d-electron ($3d^1$) so in it d-d transition is possible. Ti^{3+} absorbs greenish yellow component of white light and in its aqueous solution its colour is purple (which is complementary colour of greenish yellow in white light).

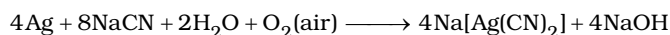
- 80.** Following reaction occurs when a black and white photographic film is developed.



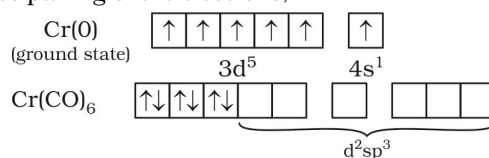
- 82.(A)** When the solution containing Zn^{2+} ions is treated with $\text{NH}_4\text{OH} / \text{NH}_4\text{Cl}$, first a white precipitate appears which dissolves in excess of $\text{NH}_4\text{OH} / \text{NH}_4\text{Cl}$.



- 83.(B)** Metallic silver dissolved in sodium cyanide solution in the presence of oxygen to form water soluble complex i.e., sodium argentocyanide.

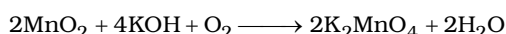


- 84.(A)** In $\text{Cr}(\text{CO})_6$, CO is a neutral ligand, so Cr is in zero oxidation state, but since CO is a strong field ligand, it causes pairing of the electrons,



$$\therefore \quad n \text{ (number of unpaired electron)} = 0 \quad \Rightarrow \quad \mu = \sqrt{n(n+2)} = 0$$

- 85.(6)** The chemical reaction of alkaline oxidative fusion of MnO_2 is :



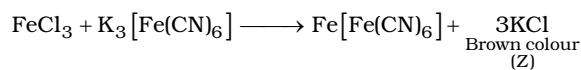
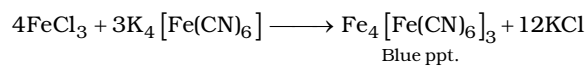
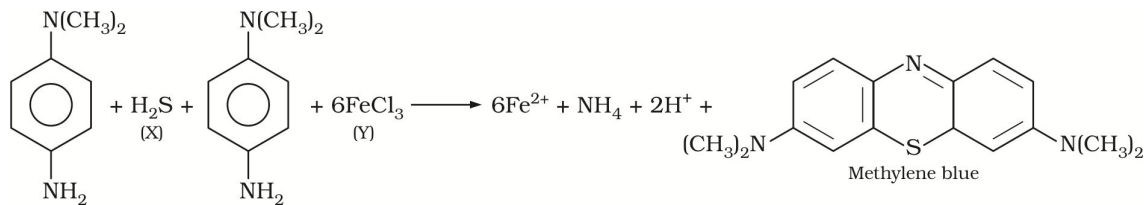
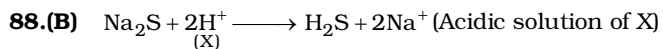
The oxidation state of Mn in product, K_2MnO_4 is :

Let O.S. of Mn be x.

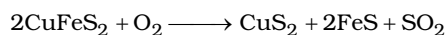
$$\therefore \quad x + 4(-2) = -2 \quad \Rightarrow \quad x = 6$$

86.(D)

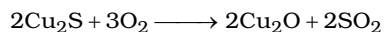
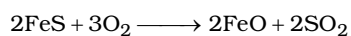
87.(C)



89.(B) The pyrite is converted into cuprous sulphide and ferrous sulphide with evolution of sulphur dioxide.



The sulphides of copper and iron are partially oxidised.



The oxide of iron obtained on roasting of chalcopyrite can react with the flux SiO_2 to give FeSiO_3 (slag).

