

Date:

31/10/2025

class U-1 semester with. MJC 8 (T)

session 2023 to 2027.

sub: $\rightarrow$ Chemistry (inorganic)

Topic Name: $\rightarrow$ Basic concept of
Co-ordination Chemistry.

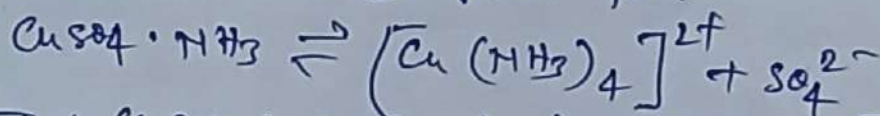
Addition ~~or~~ molecular compounds: $\rightarrow$
Double Salts and Co-ordination compounds.

Addition compounds are two types:

① Double Salts. These are the addition compounds which are stable in the solid state but give their constituent ions when dissolved in water or in any other ionic solvent. In these compounds the individual properties of the constituent ions are not lost. For example, when carnallite $KCl \cdot MgCl_2 \cdot 6H_2O$ which is a double salt gives its constituent ions namely K^+ , Mg^{2+} and Cl^- ions.

② Co-ordination compounds: $\rightarrow$ these are the addition compounds which do not give all their constituent ions. For example,

$CuSO_4 \cdot NH_3$ which is a complex compound does not give all its constituent ions Cu^{2+} and SO_4^{2-} in solution. It gives only SO_4^{2-} ion and Cu^{2+} ion is obtained as $[Cu(NH_3)_4]^{2+}$ ion is called complex ion.



Thus $CuSO_4 \cdot 4NH_3$ is formulated as $[Cu(NH_3)_4]^{2+} SO_4^{2-}$
P.T.O.

It follows from this discussion that $\text{CuSO}_4 \cdot 4\text{NH}_3$ gives the tests of SO_4^{2-} only and does not show the tests of Cu^{2+}

ions $[\text{Cu}(\text{NH}_3)_4]^{2+}$ is called a co-ordination compound. A complex compound may be composed of simple cation and complex anion, complex cation and simple anion or complex cation and complex anion as shown below.

