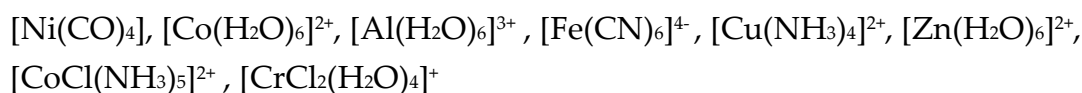


Serie No. 5

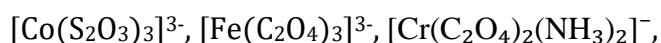
Exercice 1

Give the name of the following complex.



Exercice 2

Give the name of the following complex containing **polydentate anionic ligands**



Exercice 3

Give the structure of the following complex

Diaqua(bis(ethylenediamine))nickel(II)ion, Dichloro(bis(ethylenediamine))cobalt(III) ion,
Dinitrato(bis(ethylenediamine))iron(II), Diaqua(bis(ethylenediamine))chromium(III) ion,
Diaqua(bis(ethylenediamine))manganese(II) ion

Exercice 4

Consider the following species: $[\text{Co}(\text{NH}_3)_6]^{3+}$, $[\text{Cu}(\text{NH}_3)_4]^{2+}$, $[\text{Ag}(\text{CN})_2]^-$, $[\text{Fe}(\text{CN})_6]^{3-}$,
 Co^{3+} , Cu^{2+} , Fe^{3+} , Co^{3+} , Cu^+ , Co^{2+} , Ag^+

- 1) Form all possible donor-acceptor ligand pairs for the given species.
- 2) Provide the expression for the global formation constant K_f for each of the complexes.

Exercice 5

A solution contains 0.01 M of Cu^{2+} ions and an excess of NH_3 . The following stepwise formation constants are given for the reaction of Cu^{2+} with NH_3 : $K_1 = 10^4$, $K_2 = 10^3$, $K_3 = 10^2$

- 1) Give the stepwise reactions for the complexation of Cu^{2+} with NH_3 .
- 2) Write the overall formation constant (β_3) for the triammonia complex $[\text{Cu}(\text{NH}_3)_3]^{2+}$.
- 3) If the concentration of free NH_3 is 0.1 M, calculate the equilibrium concentration of $[\text{Cu}(\text{NH}_3)_3]^{2+}$ in the solution.