



Topic 15 Exercise 2 – Complex ions

1. Explain the meaning of the following terms:
 - a) complex ion
 - b) ligand
 - c) coordination number

2. Write equations to show how the following species form complex ions:
 - a) Fe^{2+} and H_2O
 - b) Fe^{2+} and CN^-
 - c) Fe^{3+} and CN^-
 - d) Cr^{3+} and NH_3
 - e) Ag^+ and $\text{S}_2\text{O}_3^{2-}$
 - f) Co^{2+} and Cl^-
 - g) Fe^{2+} and $\text{H}_2\text{NCH}_2\text{CH}_2\text{NH}_2$
 - h) Cr^{3+} and $\text{C}_2\text{O}_4^{2-}$
 - i) Cu^{2+} and edta^{4-}

In each case state whether the ligand is unidentate, bidentate or hexadentate.

3.
 - a) Draw the two isomers of $\text{Pt}(\text{NH}_3)_2\text{Cl}_2$ and state the type of isomerism shown
 - b) Draw the two isomers of $[\text{Fe}(\text{C}_2\text{O}_4)_3]^{3-}$ and state the type of isomerism shown
 - c) Draw the three isomers of $[\text{Co}(\text{C}_2\text{O}_4)_2\text{Cl}_2]^{3-}$ and state the type of isomerism shown

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