

### Problems in stereo chemistry

1. The dichlorotetrammincobalt(III) ion exists as a green and a violet isomer. None of these can be separated in enantiomers. Describe the possible isomers assuming that it is prismatic and that it is an octahedral di(X)tetra(Y)M-compound and conclude which of the two geometries are best in accord with experiment.
2. An octahedral complex with 6 monodentate ligands, 4 of which are different, may be found in several isomeric forms. Draw the geometrical isomers and indicate in each case if there is optical isomerism as well.
3. If the dichlorobis(1,2-propanediamine)cobalt(III) ion was synthesised from racemic amine, which geometrical and optical isomers would exist in the system.
4. The monomer rinitritotriammincobalt(III) may have polymerisation isomers. Draw all of these and give each of them a systematic name.
5. Draw all possible isomers of  $(\text{NH}_3)_2\text{Cl}_2\text{Ru}(\mu\text{-Cl})_2\text{RuCl}_2(\text{NH}_3)_2$