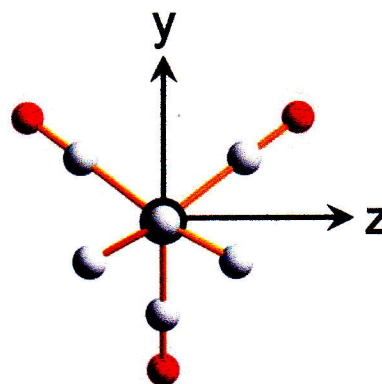
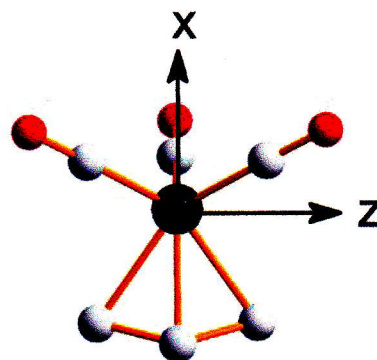
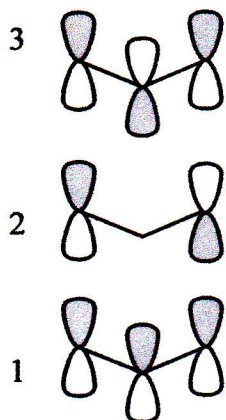


2. Shown to the right is a model of the allyltricarbonylcobalt complex $[(\text{Co}(\eta^3\text{-C}_3\text{H}_5)(\text{CO})_3)]$ (hydrogen atoms on the allyl group carbon atoms are not shown). Below are representations of the three π molecular orbitals for the allyl moiety.



a) Assign the point group symmetry for the cobalt complex.

b) In the point group symmetry selected in a) determine the symmetries of the molecular orbitals for the allyl group.

c) Which orbitals on the metal ion have the proper symmetry to combine with each of the allyl orbitals.