

## Chem 442: Homework for lecture L31

(only turn in **BOLD** assignment first lecture next week of classes; do all assignments)

1. **Turn in** The species  $[\text{Co}(\text{NH}_3)_6]^{3+}$  has spin  $S=0$ . Draw a diagram showing how the low and high spin cases differ in MO theory when the last 3 electrons are filled in.  
[Hint: when you fill in the last three electrons, the orbital energies of the  $E_g$  and  $T_{2g}$  orbitals actually shift around, as discussed in class for  $\text{CoF}_6^{6-}$ .]