**1FLO: Relating Electronic Spectra and Ligand Field Strength of NiX42- Anions**

Insert Figure 3 from the following reference: Zheng, B.; Miranda, M. O.; DiPasquale, A. G.; Golen, J. A.; Rheingold, A. L.; Doerrer, L. H. Synthesis and Electronic Spectra of Fluorinated Aryloxide and Alkoxide [NiX4]2- Anions. *Inorg. Chem.* **2009**, *48*, 4274 - 4276. DOI: 10.1021/ic9003593

It may be advisable to zoom in on the range indicated in Question 4 (12,000 - 6100 cm-1), while still including the Figure legend.

Questions:

1. What are the units on the x and y-axes?
2. Convert 10,400 cm-1 to wavelength in units of nm. Convert 7840 cm-1 to wavelength in units of nm. Which wavelength corresponds to higher energy?
3. In which direction on the x-axis does energy increase?
4. If a d-d transition at 9,000 cm-1 is blueshifted, would it be found at a higher or lower wavenumber? Would this be a higher or lower energy transition?
5. Consider the d-d transition peaks in the range ~12,000 – 6,100 cm-1. The energy of the d-d transitions in this range correlate to the ligand field splitting energy. Based on these data, arrange the compounds in order of increasing ligand field strength in a partial spectrochemical series.
6. All of these compounds have the same geometries. What are the two possible geometries for this class of compounds?