**Pre-Literature Discussion Questions**

Please complete these questions prior to our next literature article reading from *Inorganic Chemistry*.

1.The molecule FN3 (non-cyclic FNNN structure) can be depicted using 3 resonance contributors.

1. Draw these three resonance contributors.
   1. Explicitly calculate the number of valence electrons.
   2. Include all lone pairs and formal charges on individual atoms. Use only +1 and –1 formal charges.
   3. Use curved arrow notation to show the interconversion of one resonance contributor to another.
   4. Label one of the contributors as MAJOR and explain why that contributor should be the major one.
2. According to VSEPR theory, what is the geometry of the nitrogen bonded to fluorine? What would be the expected bond angle? What would be its hybridization according to Valence Bond Theory? Briefly explain how you determined your answers.
3. In the major resonance contributor, what is the geometry around the nitrogen in the middle of the other 2 nitrogens according to VSEPR theory? What would be the expected bond angle? What would be its hybridization according to Valence Bond Theory? Briefly explain how you determined your answers.

2. The cyclic Lewis structure for FN3 also has 4 resonance contributors.

1. Draw these four resonance contributors.
   1. Explicitly calculate the number of valence electrons.
   2. Include all lone pairs and formal charges on individual atoms. Use only +1 and –1 formal charges.
   3. Use curved arrow notation to show the interconversion of one resonance contributor to another.
   4. Label one of the contributors as MAJOR and explain why that contributor should be the major one.



3. Consider the FNO molecule.

1. Draw the Lewis structure for the FNO molecule.
   1. Explicitly calculate the number of valence electrons.
   2. Include all lone pairs and formal charges on individual atoms.
2. raw a no-bond resonance contributor of FNO. Use curved arrow notation to show the interconversion of the resonance contributor in 3(a) to this resonance contributor.

