

Quiz Free Response Practice #2 (2017 #2 (shortened) and 2018 #2 (shortened))

2. Answer the following question about fulminic acid, HCNO.

Two possible Lewis electron-dot diagrams for fulminic acid are shown below.

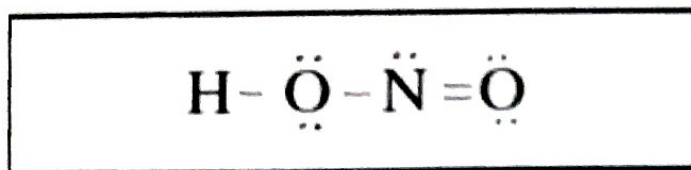


- a. Explain why the diagram on the left is the better representation for the bonding in fulminic acid. Justify your choice based on formal charges.

The diagram on the left is a better representation b/c it puts the negative formal charge on oxygen, which is more electronegative than carbon.

3. $\text{N}_2\text{O}_3(\text{g})$ reacts with water to form nitrous acid, $\text{HNO}_2(\text{aq})$, a compound involved in the production of acid rain. The reaction is represented below.

- a. The skeletal structure of the HNO_2 molecule is shown in the box below.
- Complete the Lewis electron-dot diagram of the HNO_2 molecule in the box below, including any lone pairs of electrons.



- Based on your completed diagram, identify the hybridization of the nitrogen atom in the HNO_2 molecule.
- Identify the O-N-O bond angle in nitrous acid.

ii) sp^2

iii) $\sim 118^\circ$