

# Non Sibi High School

Andover's Chem 300: Accelerated/Honors Chemistry

## Chapter 9, Review Quiz 1 Answers

### 1

Write the chemical formula for each compound:

- ammonium phosphate
  - butanol
  - aluminum sulfate
  - potassium nitride
- $\text{NH}_4^+$ ,  $\text{PO}_4^{3-} \rightarrow (\text{NH}_4)_3\text{PO}_4$
  - organic alcohol  $\rightarrow \text{C}_4\text{H}_9\text{OH}$
  - $\text{Al}^{3+}$ ,  $\text{SO}_4^{2-} \rightarrow \text{Al}_2(\text{SO}_4)_3$
  - $\text{K}^+$ ,  $\text{N}^{3-} \rightarrow \text{K}_3\text{N}$

### 2

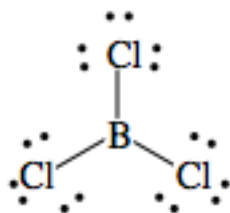
Write the name of each compound:

- $\text{Fe}(\text{OH})_3$
  - $\text{P}_2\text{O}_5$
  - $\text{Mg}(\text{HCO}_3)_2$
  - $\text{C}_6\text{H}_{14}$
- $\text{Fe}^{3+}$ ,  $\text{OH}^- \rightarrow$  iron(III) hydroxide
  - binary molecular  $\rightarrow$  diphosphorus pentoxide
  - $\text{Mg}^{2+}$ ,  $\text{HCO}_3^- \rightarrow$  magnesium bicarbonate (or hydrogen carbonate)
  - organic alkane  $\rightarrow$  hexane

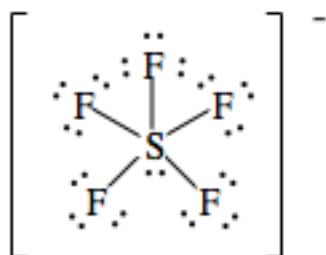
### 3

Draw Lewis structures for:

- boron trichloride

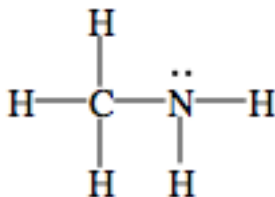
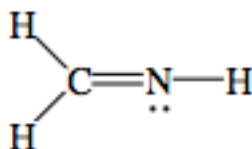


b. SF<sub>5</sub><sup>-</sup>



4

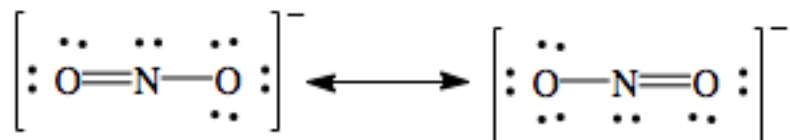
Draw Lewis structures for H<sub>2</sub>CNH and CH<sub>3</sub>NH<sub>2</sub>. Which molecule will have the longer carbon-to-nitrogen bond length?



CH<sub>3</sub>NH<sub>2</sub> has a single bond between carbon and nitrogen, whereas CH<sub>2</sub>NH has a double bond between carbon and nitrogen. Fewer bonds = longer bond length, so CH<sub>3</sub>NH<sub>2</sub> has the longer carbon-to-nitrogen bond length.

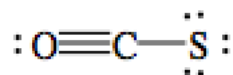
5

Draw all the resonance structures for  $\text{NO}_2^-$



6

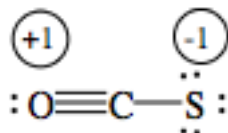
Show any non-zero formal charges on the following Lewis structure:



$$\text{FC for O} = 6 - 2 - 0.5(6) = +1$$

$$\text{FC for C} = 4 - 0 - 0.5(8) = 0$$

$$\text{FC for S} = 6 - 6 - 0.5(2) = -1$$



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