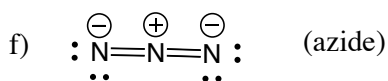
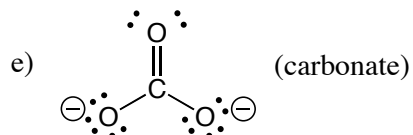
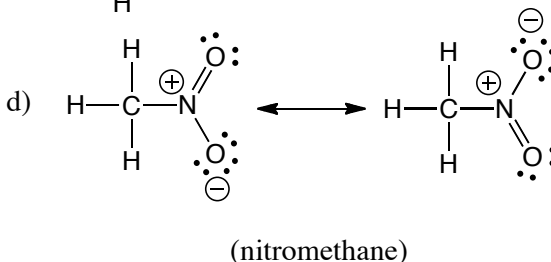
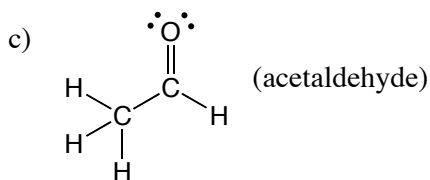
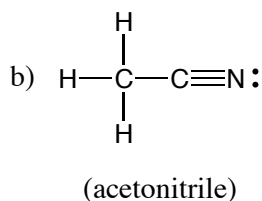
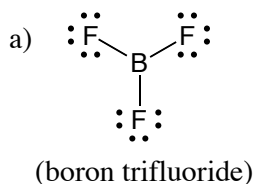


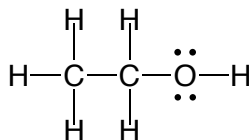
Answers to Problem Set #1

Question 1. Provide a Lewis structure for each of the following molecules. Where it might have been ambiguous, connectivity of the atoms has been provided. Include all lone pairs and label formal charges. Make sure your structures obey the octet rule (except for boron).



Question 2. Consider ethanol: $\text{CH}_3\text{CH}_2\text{OH}$

a) Draw the Lewis structure for ethanol.



b) How many σ -bonds does ethanol contain? *All of the bonds are σ -bonds (8 total)*

c) How many π -bonds? *None*

d) How many covalent bonds? *All of the bonds are covalent (8 total)*

e) Which two covalent bonds are the most polar? *The C–O and the O–H bonds*

f) How many nonbonded valence electrons? *Four*