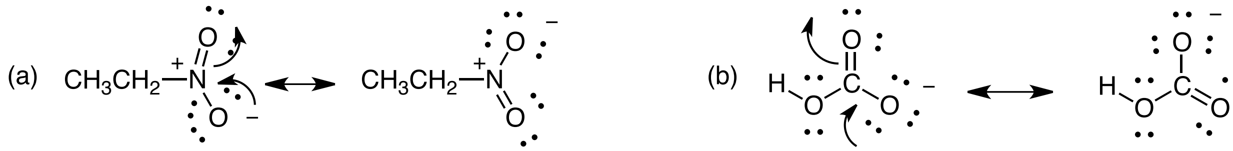
Name..

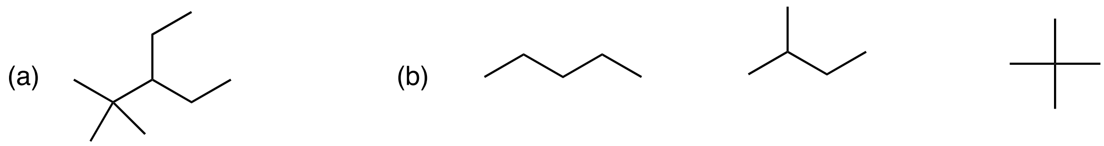
L. I. U. **ANSWER KEY**

Chem. 121, Sect 005, Quiz 1 Fall, 2011, 50 points

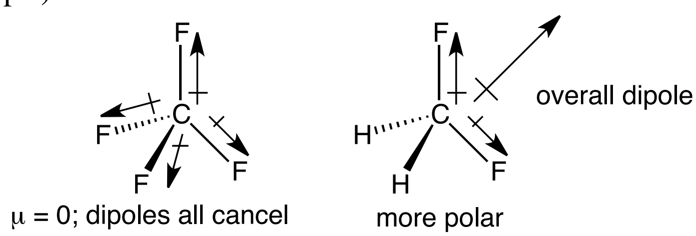
1. Write Lewis structures for the following compounds. Assign formal charges, if any, to the correct atom(s). Show all unpaired electrons and also show all possible resonance structures. (10 pts.) (a) $C_2H_5NO_2^-$ (b) HCO_3^- (10 pts)



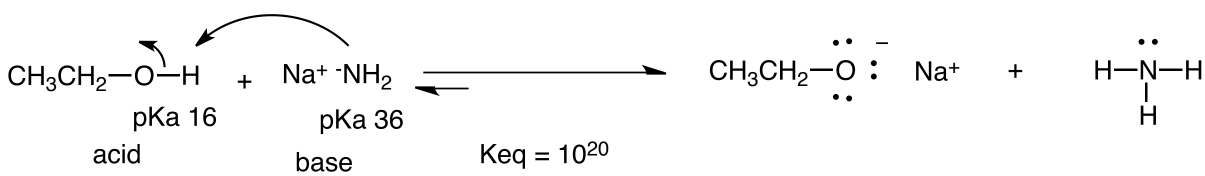
2. (a) Draw the bond line formula for $(CH_3)_3CCH(CH_2CH_3)CH_2CH_3$. (b) Draw two structural isomers of C_5H_{12}. (10 pts)



3. Which is more polar, CF_4 or CH_2F_2? Explain by making careful 3-dimensional drawings showing all individual dipole moments and the overall dipole moment for each molecule. (10 pts)



4. For the following acid-base reaction, identify the acid and the base, give the product and the equilibrium constant. Be sure to use the arrow formalism to show the correct movement of the electrons. (10 pts)



5. One student tried to synthesize urea (m.p. 101-102°C) in the lab. She got a white solid with an m.p. of 121-128°C. She was not sure that she had the correct compound. (a) Was her compound a pure substance? Explain briefly. (b) How could she prove with certainty that her compound is the correct one? Explain briefly. (10 pts)

(a) Compound is impure since the mp is lower and the mp range is fairly braod. (b) She coulddo the mixed mp expt; mix some of the unknown with known urea and see if the mp changes; if not, hoer compound is urea.