**Homework #5: Chemistry 1013 Spring 2014**

**Due Monday 3 March 20 pts**

**5.1. Draw the bond line versions of the organic compounds below (2 pts each)**



**a)CH3 -CH2 -CH2 –OH b) CH2-CH2 c)**

**| |**

**CH2-CH2**

**5.2 Given the bond line forms below, write chemical formula for the molecule drawn (2 pt each)**

**Example: = C4H10**





1. **b)**



**5.3 Draw the best structures for the molecule and ion below. Include all lone pairs !: (2 pts each)**

1. AsF5 (all 5 F are attached to As which is at the center of the molecule)
2. BrO3- (all O are attached to a central Br. Note that the compound here is an anion with one extra electron)

**5.4. Describe the shapes of the simple molecules below (1 pt each)**

1. **:NH3 b) H2O**

**5.5. Draw the equivalent resonance structures for the molecules below assuming they strictly obey the**

**octet rule (2 pts each)**

**a) O3 b) CO32-**

**5.6.** We have previously associated salts with the property of melting only at high temperatures. Sodium chloride, for example, melts at ~800 C and boils at a still higher temperature of ~1475 oC. However, in chapter 4.1, Waldron begins with a discussion about `ionic liquids’ which are salts that are liquid at room temperature and which boil at temperatures as alow as 200 oC. One example she uses is **[bmin]+[PF6]-.**

1. Briefly describe why the latter salt is so much more low melting than NaCl.
2. What is `peculiar’ about the anion PF6 -? hint: see Figure 4.2 and count the valence electrons around P.
3. What is one useful, practical application of ionic liquids like **[bmin]+[PF6]-?**