HOMEWORK ASSIGNMENT #7 ORGANIC CHEMISTRY I (20 pts)

**(due Monday 22 Oct 2012)**

your name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**7.1 Making RX (5 pts)**

Given the hints below, write a specific example of the reaction implied by the hint(s):

1. Old school substitution, low yield, reflux (it’s part of synthetic `boot camp’)
2. Double bond left alone; radicals and light needed (allylic thingie)
3. Pyridine or aq KHCO3 the key
4. Markovnikoff addition to RX
5. Two functionalities added; Br2 in CCL4 (wet)

7.2  **Boxes, Little Boxes (1 pt/box/ 11 pts total)**

Fill in the boxes with the correct substrate, reagent, conditions and/or products

a)





+ + H2O + Br-

 b)

 NaOH + 3-methyl-2-octanol



 c)

 +



d) CH3CH2-Br +

e) CH3 CH2 Br + H2S neat +

 {H+(HS-)}



f) +

**7.2 Making RX (5 pts)**

Given the hints below, write a specific example of the reaction implied by the hint(s):

1. Old school substitution, low yield, reflux (it’s part of synthetic `boot camp’)
2. Double bond left alone; radicals and light needed (allylic thingie)
3. Pyridine or aq KHCO3 the key
4. Markovnikoff addition to RX
5. Two functionalities added; Br2 in CCL4 (wet)

**7.3. SN2 and SN 1 vs the facts (4 pts)**

1. Briefly explain how the SN2 mechanism rationalizes the reactivity order : I- > Br- > Cl- > F-
2. Briefly explain how the SN2 mechanism rationalizes the observation that non-polar solvents speed up an SN2 reaction.
3. Briefly explain how the SN1 mechanism rationalizes the observation that polar, protic solvents

(e.g those with :O-H ) speed up SN1 reaction

1. What feature of the R (alkyl) groups explains why higher degree alcohols prefer an SN1 path over an SN2 path ?