HOMEWORK ASSIGNMENT #7 ORGANIC CHEMISTRY I (25 pts)

**Due Monday 2 November 2015**

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

**7.1 RX hints (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 Synthetic pathways using RX (8 pts total/2 pts each)**

Starting from any alkyl halide, suggest a route to the compounds on the right:



a)



b)

c)



d)



**7.3. Synthetic pathways starting with alcohols (6 pts total/ 3 pts each)**

Starting from any <4-carbon alcohol(s), (and if necessary, a <4 carbonyl compound(s)) suggest routes to:



octane



2,3-dimethyl-2-butanol

 b)

**7.4 Mechanistic Fact Checking** (6 pts)

a)What common initial reaction is shared by the Sn1 and Sn2 reaction: ROH +X- 🡪RX ?

b)Which mechanism features rearrangements and carbocations? \_\_\_\_\_\_\_\_\_\_\_\_\_\_

c)t-butanol is most likely to react with HBr via which mechanism, Sn1 or Sn2 ?\_\_\_\_\_\_\_

d)Which substrate 0o,1o,2o or 3o exhibits the fastest reaction via Sn2 ? \_\_\_\_\_\_\_\_\_\_\_\_

e)I like soft, fuzzy, non-O bearing solvents, am moved by both substrate and nucleophile concentrations and am into weird 5-coordinated transition states. I am the \_\_\_\_\_\_\_ mechanism

f) Will 1-butanol rearrange during bromination ? YES NO