**HOMEWORK ASSIGNMENT #8 ORGANIC CHEMISTRY I**

(due Monday 29 Oct 2012)

 Your name:\_\_\_\_\_\_answers\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_/20

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

Starting from any alkyl halide, suggest a route to:





a)







b)



c)





d)



**8.1. 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

 vortre



2,3-dimethyl-2-butanol

 b)



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

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

*ROH + H+↔ ROH2+  protonation of alcohol*

b)Which mechanism features rearrangements and carbocations? \_\_\_\_SN1\_\_\_\_\_\_\_\_\_\_

c)t-butanol is most likely to react with HBr via which mechanism, Sn1 or Sn2 ?\_\_SN1\_\_\_\_\_

d)Which substrate 0o,1o,2o or 3o exhibits the fastest reaction via Sn2 ? \_\_\_\_0o\_\_\_\_\_\_\_\_

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 \_\_Sn2\_\_\_\_\_ mechanism

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