Wade, Chapter 7,8 Problems

1. (32) Give the major products of the following reactions:

a) \[
\text{1) } \text{Hg(OAc)}_2 \quad \text{in H}_2\text{O, THF} \\
\text{2) } \text{NaBH}_4
\]

b) \[
\text{Br}_2, \text{H}_2\text{O} \\
\text{phase transfer cat.}
\]

c) \[
\text{CH}_2=\text{CH}_2 \quad \text{1) } \text{O}_3 \\
\text{2) } \text{Zn, HOAc}
\]

d) \[
\text{2 mol equiv. HBr with} \\
\text{ROOR, h}_\nu
\]

e) \[
\text{2 eq. CH}_2\text{I}_2, \text{Zn-Cu} \\
\text{in ether}
\]

f) \[
\text{1) } \text{BH}_3\text{-THF} \\
\text{2) } \text{H}_2\text{O}, \text{OH}^-
\]

g) \[
\text{excess HCl}
\]

h) \[
\text{H}_2, \text{5%Pd/C}
\]

2. (10) Propose a **polar mechanism** that justifies the formation of the product(s) shown in the reaction below. Show all intermediates and use arrows to indicate electron flow. Your mechanism should clearly explain the stereochemistry shown.

\[
\text{Br}_2, \text{H}_2\text{O} \quad \text{Br}^\text{OH} + \text{HBr}
\]
1.(16) Give the name of the following compounds. Be sure to indicate stereochemistry where appropriate (e.g. E or Z).

a) 

b) 

c) CH₃CH₂CH₂C≡CH₂CH₂CH₃

d) 

4.(10) Propose a clear mechanism for the following reaction: vinylcyclopentane reacts with HBr to yield 1-bromo-1-methylcyclohexane.

5.(6) Draw a zig-zag structure of 3,4,6-trimethyl-3(E),5(Z)-octadiene.