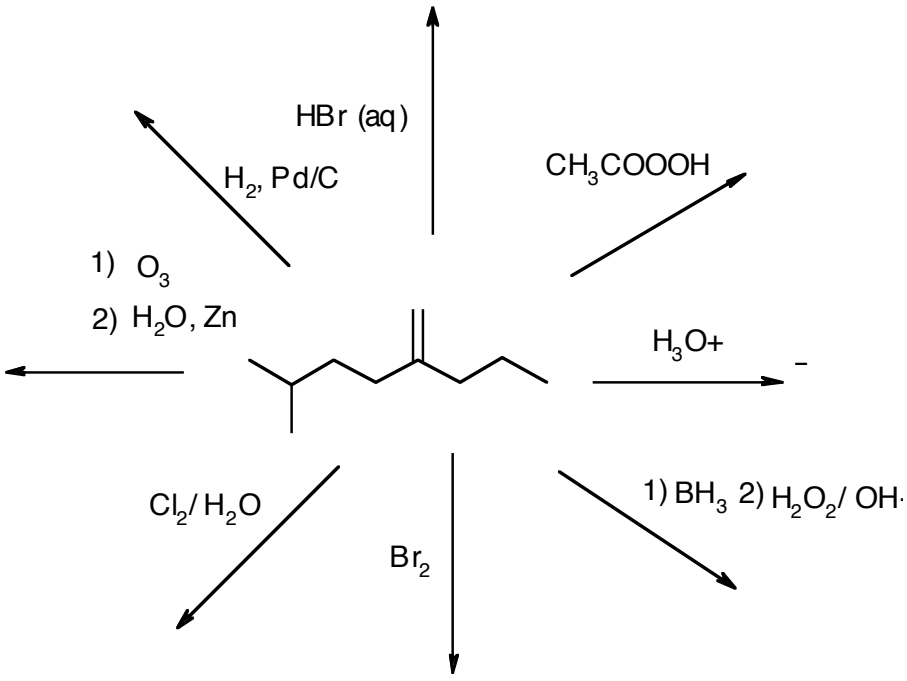
Name: _____ Section: _____

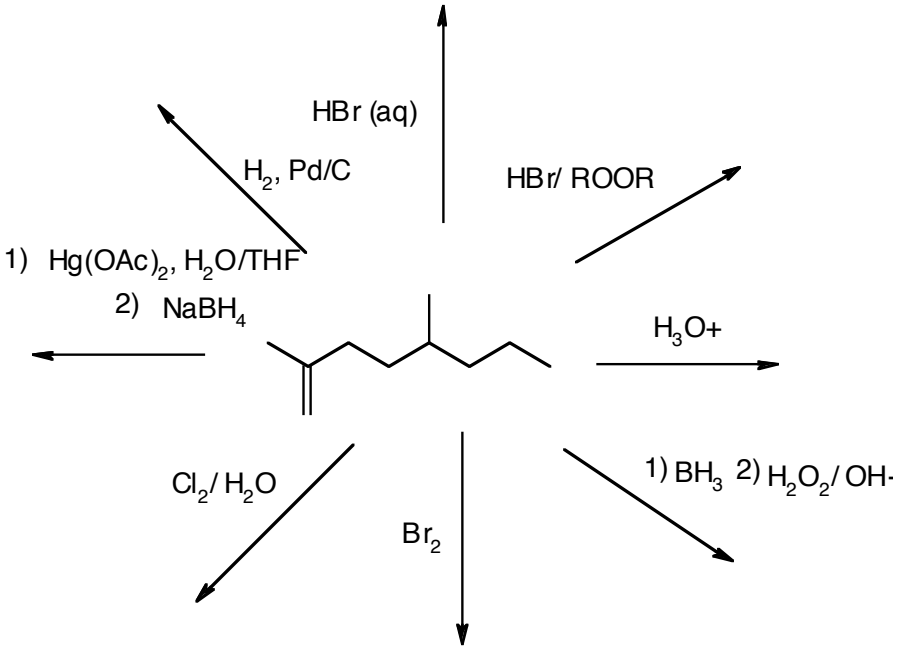
Chem 226 / Dr. Rusay
Worksheet (#8): Reactions of Alkenes

1. Provide a line drawing for the principal product in each of the following reactions. Begin at the top for the reaction of the alkene with HBr(aq) and then proceed clockwise. Circle any chiral carbon atoms in the products and note if each reaction is non-selective (**ns**), regio-selective (**rs**), stereo-selective (**ss**) or stereo-specific (**ssp**).



Worksheet (#8/Part 2): Reactions of Alkenes

Provide a line drawing for the principal product in each of the following reactions. Begin at the top for the reaction of the alkene with HBr(aq) and then proceed clockwise. Circle any chiral carbon atoms in the products and note if each reaction is non-selective (**ns**), regio-selective (**rs**), stereo-selective (**ss**) or stereo-specific (**ssp**).



Challenge Problem: **M** and **N** are isomers, C_4H_8. **M** reacts with H_2 in the presence of a catalyst to give an alkane, C_4H_{10}. **N** also reacts with H_2 under the same conditions to give C_4H_{10}, which is different from the compound obtained for **M**. Reaction of **M** with O_3 followed by treatment with Zn/H_3O^+ gives two products, CH_2O and C_3H_6O. **N** reacts under the same ozonolysis conditions to give one product, C_2H_4O. When **N** is heated with a few drops of H_2SO_4, it is converted to a mixture of **N**, **O**, and **P** in which **O** predominates. **N**, **O**, and **P** are all reduced with H_2/PtO_2 to the same alkane. Ozonolysis of **O** gives one product, C_2H_4O, the same product obtained from ozonolysis of **N**. Ozonolysis of **P** gives two products, CH_2O and C_3H_6O. This C_3H_6O compound from **P** is not the same as the C_3H_6O compound from **M**. (Attach structures for compounds **M** thru **P**.)