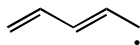
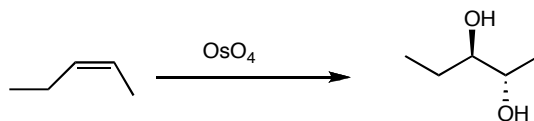


1. Sketch the HOMO and LUMO for pentadienyl radical (consider an orbital with a single electron to still be the HOMO).



2. Show the stereochemistry of the product below, and briefly explain the stereochemical outcome of the reaction. You should use the structure of a transition state or intermediate in your explanation.



3. Give a starting material that will afford the following products by ozonolysis:

