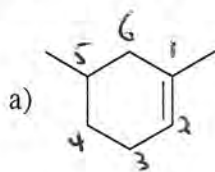
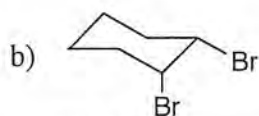


1. (4 Points, 2 each) Provide IUPAC names for the following compounds.



1,5-Dimethylcyclohexene

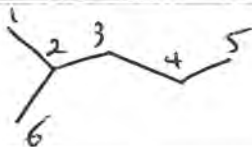


Include *cis/trans*

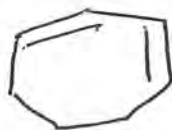
cis-1,2-Dibromocyclohexane

2. (4 Points, 2 each) Provide the structure for the following compounds.

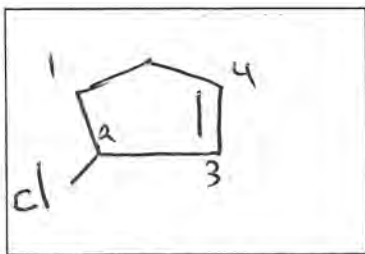
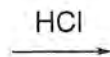
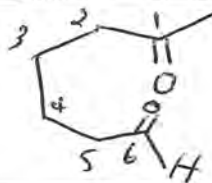
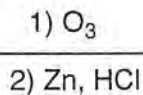
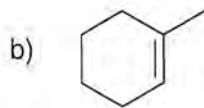
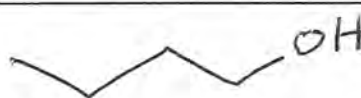
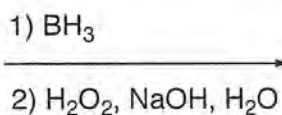
a) Isohexane



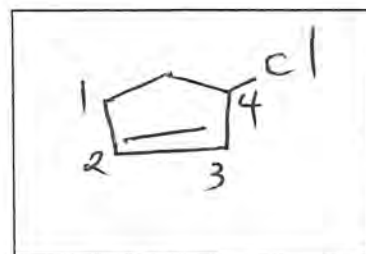
b) 1,3-Cycloheptadiene



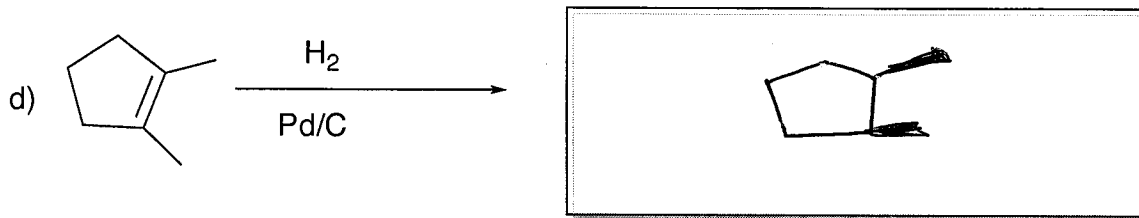
3. (10 Points, 2 each box) Complete the following reactions.



1,2-Product

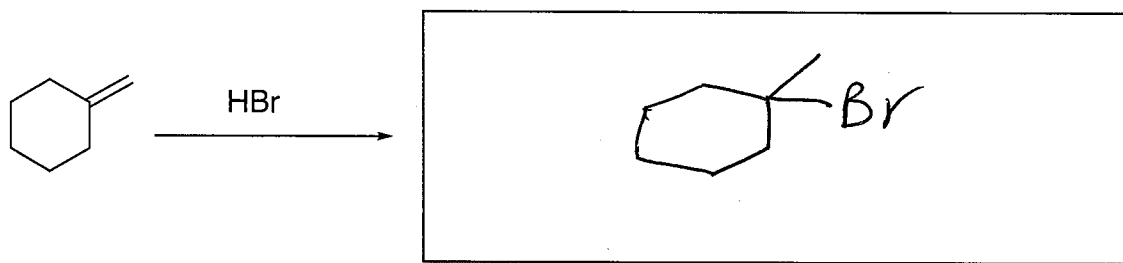


1,4-Product



Show Stereochemistry

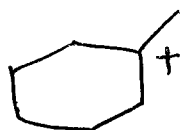
4. (7 Points) Complete the following reaction, and provide an energy diagram indicating the position of reactants, products, reaction intermediate, heat of reaction (ΔH), Gibb's Free Energy (ΔG), transition states, and activation energy; assuming an exothermic process.



Product (2 Points)

a) (2 Points) Provide the structure of the product.

b) (2 Points) Provide the structure of the carbocation intermediate.



c) (3 Points) Provide the energy diagram for the above reaction.

