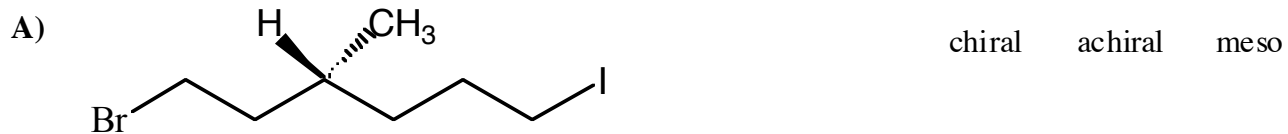
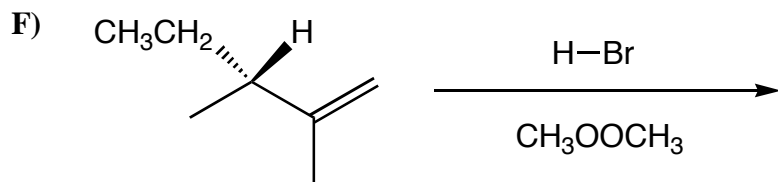
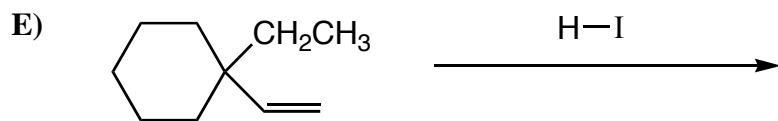
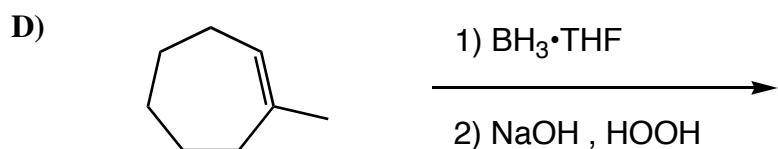
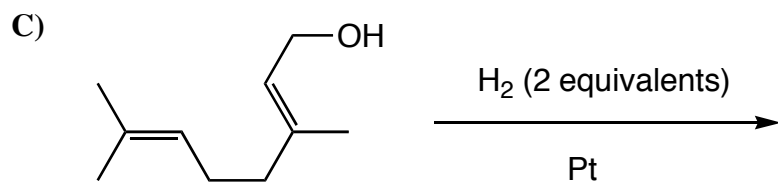
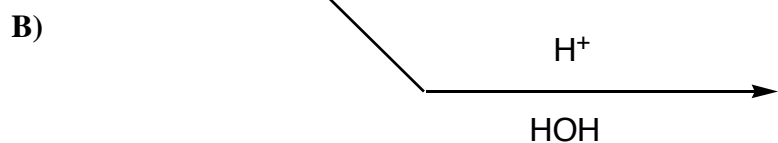
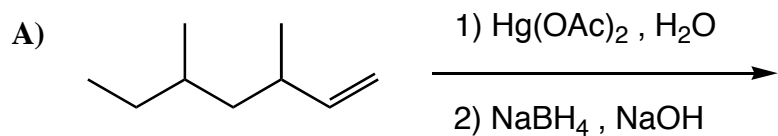


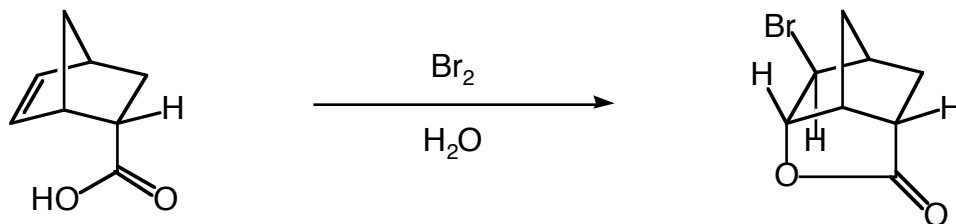
1) Provide an unambiguous name for each of the following molecules. For each structure, indicate whether they are chiral, achiral, or meso by circling the correct description. (21 points)



2) Predict the major organic product of each of the following reactions. (36 points)

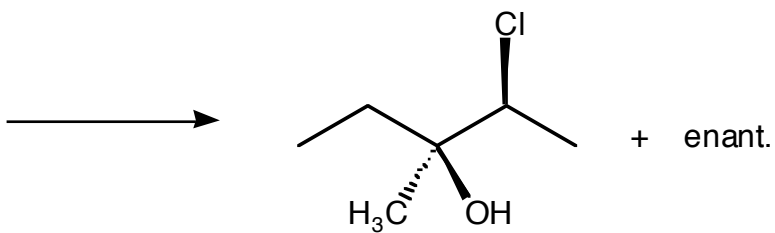


3) Provide a mechanism for the following transformation. For full credit, be sure to show all intermediates and formal charges along the way. (9 points)

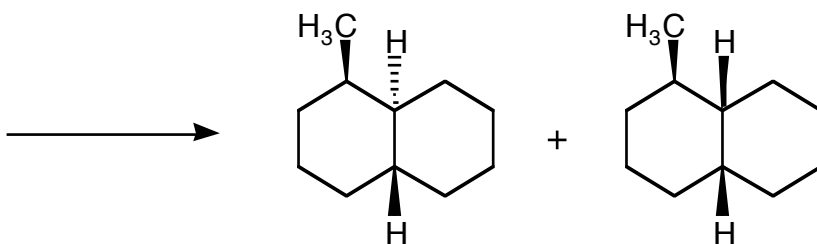


4) Provide the compound and reagents needed to synthesize the following products? (16 points)

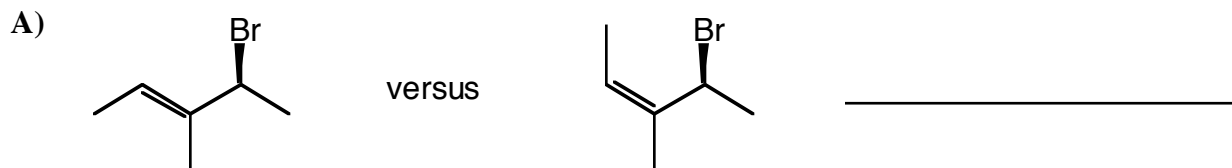
A)



B)

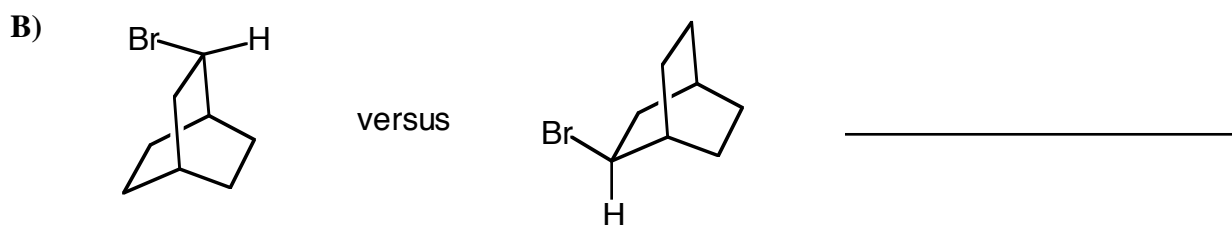


5) Define the relationship between the following pairs of compounds by choosing from the following: enantiomers, diastereomers, identical, constitutional isomers, or nonisomers. Then answer the questions that follow each pair. (18 points)



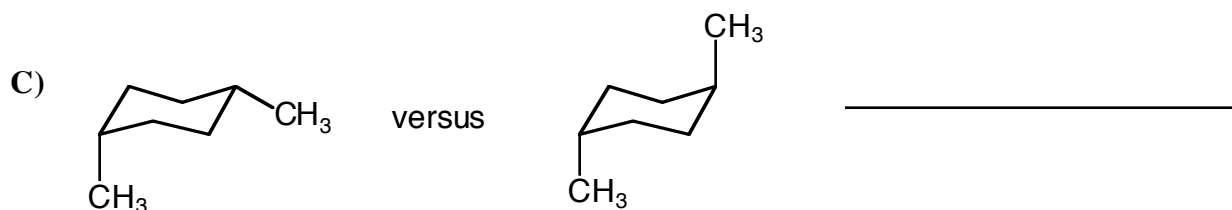
Will a 50:50 mixture of these two rotate plane polarized light? yes or no

Why or why not?



Will a 50:50 mixture of these two rotate plane polarized light? yes or no

Why or why not?



Will a 50:50 mixture of these two rotate plane polarized light? yes or no

Why or why not?