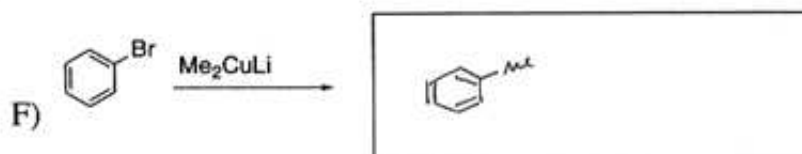
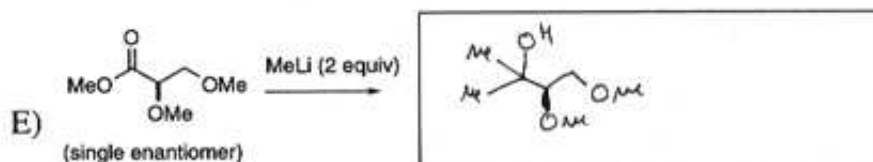
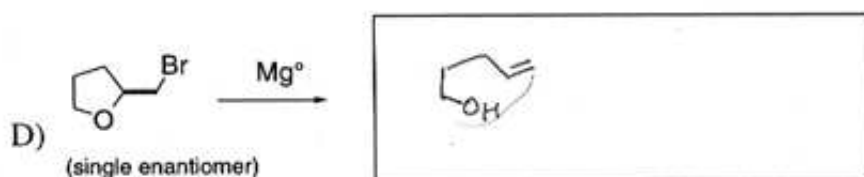
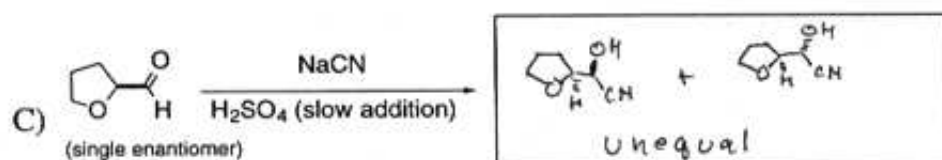
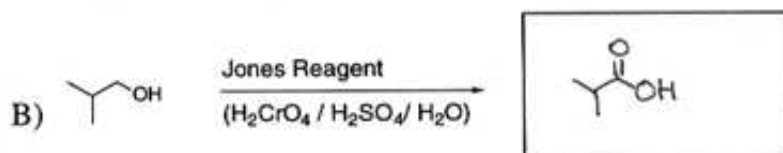
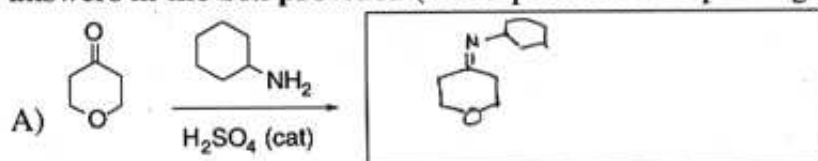
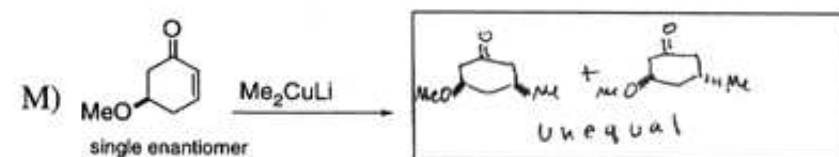
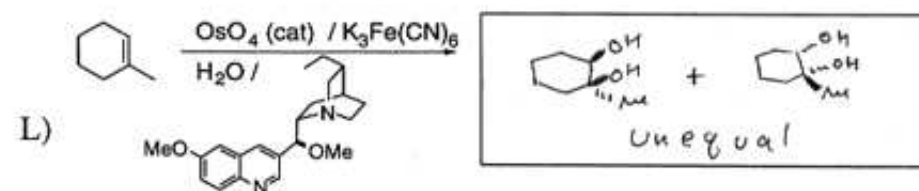
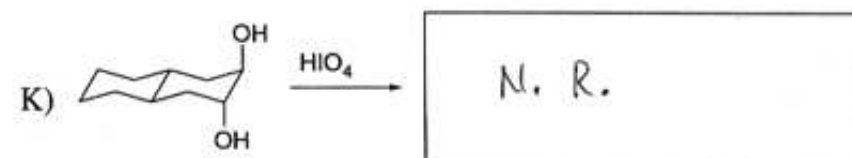
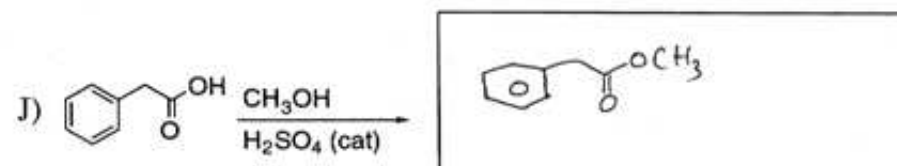
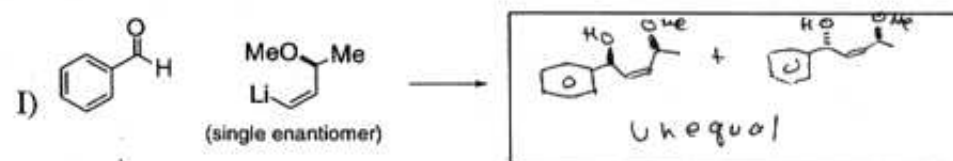
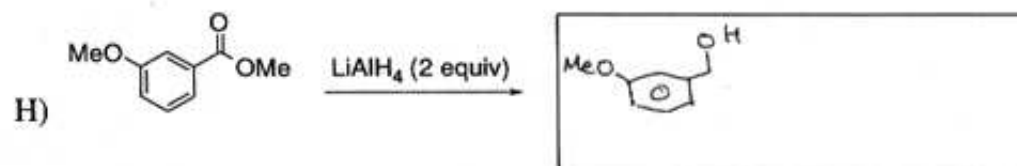
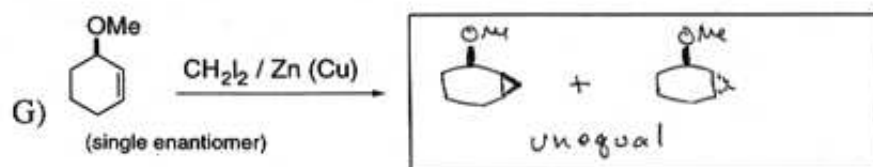
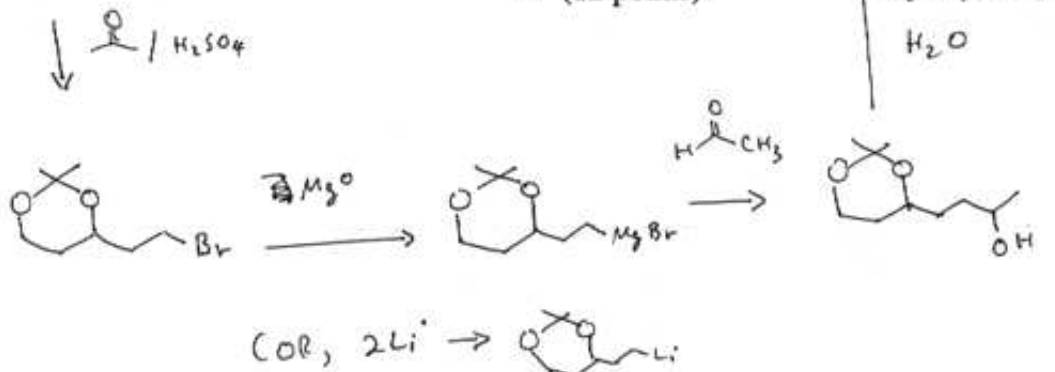
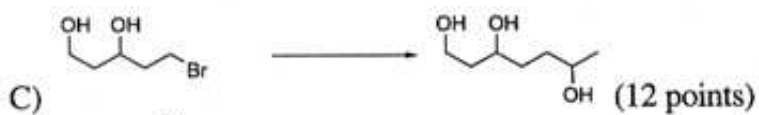
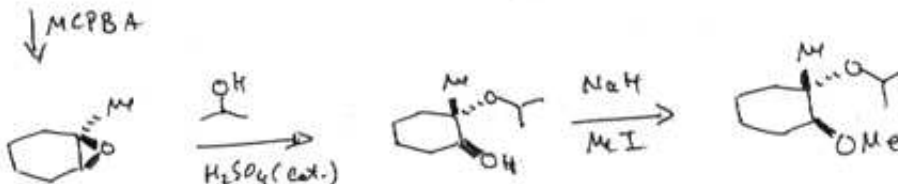
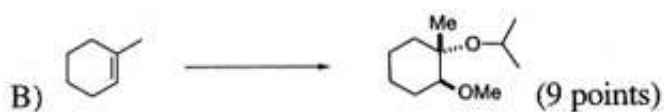
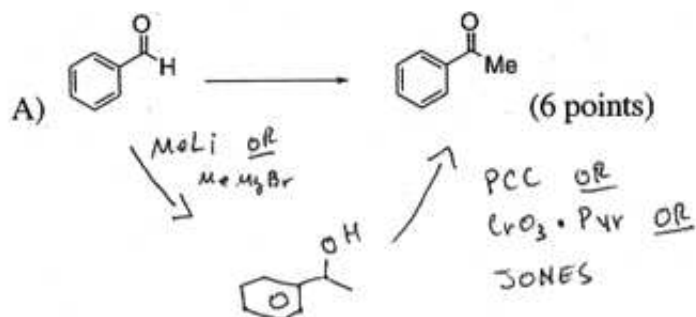


1) Provide the products of the following reactions. If no reaction would occur, then write NR. Draw all possible stereoisomers (i.e., draw dashed and bold lines as needed) and indicate if they would be produced in equal or unequal amounts. **Please write your answers in the box provided** (4 or 5 points each depending on stereochemistry).





2) Complete the syntheses shown below using organic reagents of 5 carbons or less and any inorganic reagents you wish. If your synthesis requires more than one step, you must write the product of each step. Note that all chiral compounds are racemic mixtures.



3) Provide a mechanism for the following reaction. Be sure to show all the intermediates and all the arrows required for each step of the reaction (9 points)

