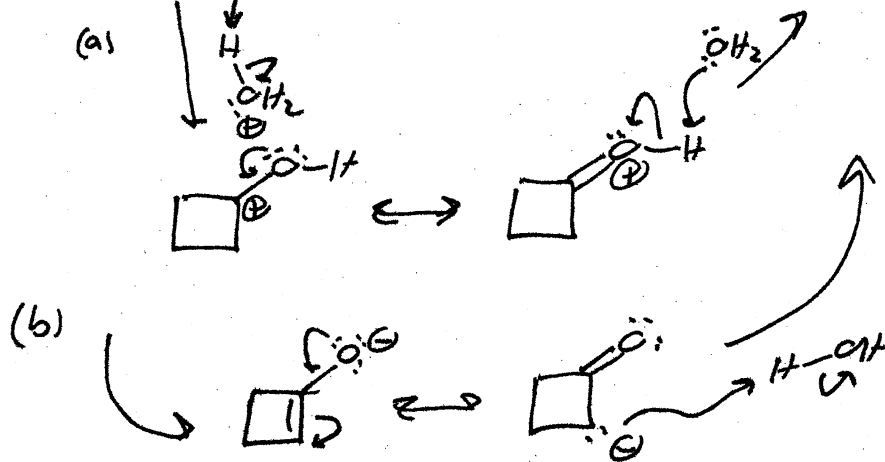
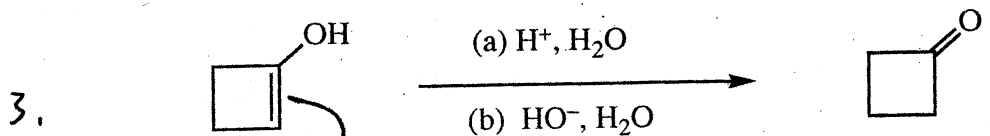
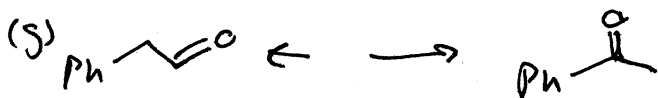
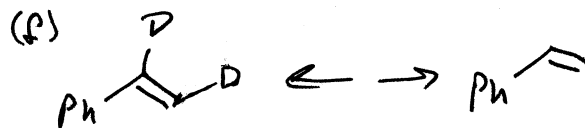
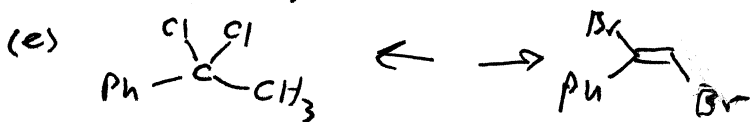
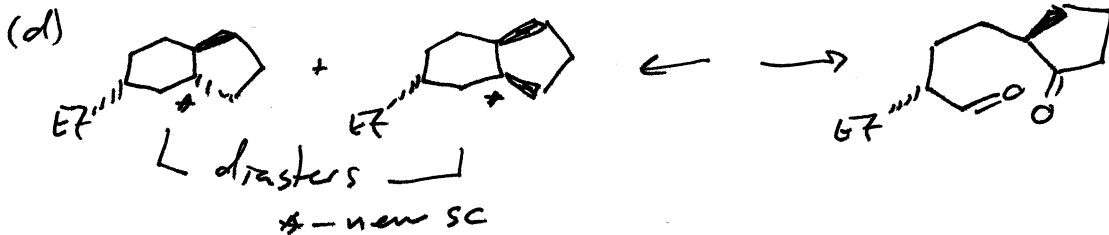
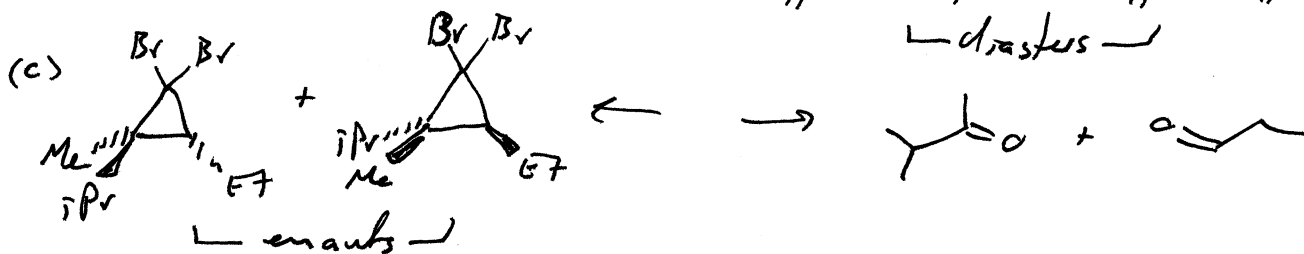
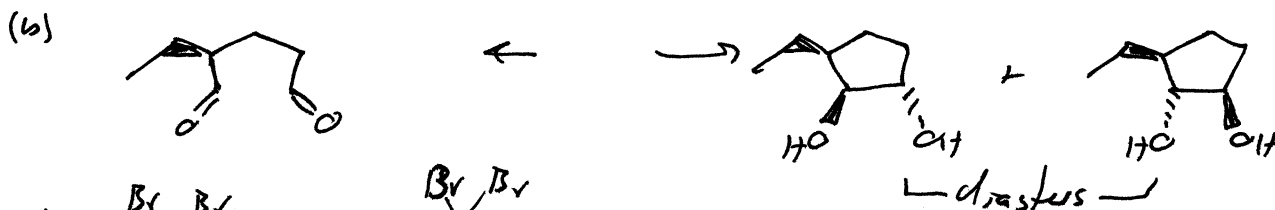
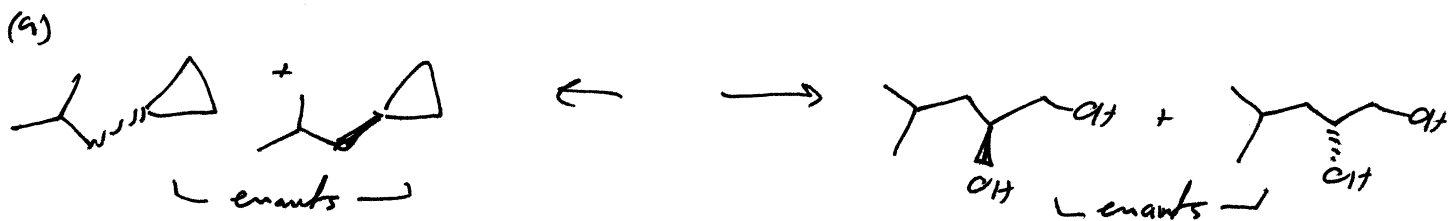
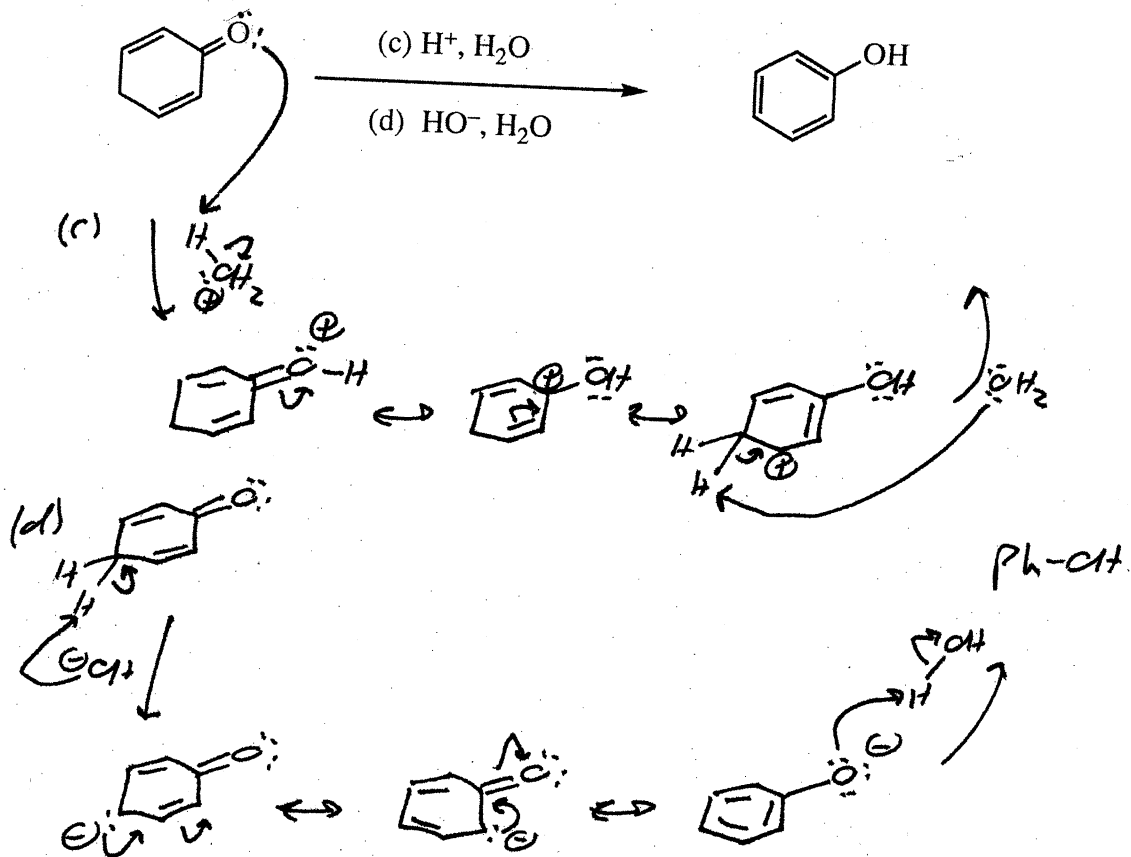


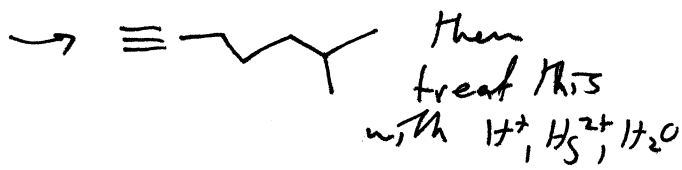
1. see HW set for reactants & reagents





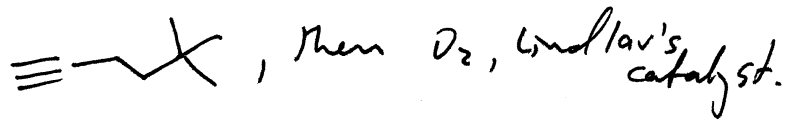
4. (a) write these out!

deprotonate $\text{HC}\equiv\text{CH}$,
add 1-bromo-4-methylpentane



(b) make 1-hexyne,
reduce to 1-hexene,
then hydroborate

(c) usual route to make



(d) via $\text{C}\equiv\text{C}-\text{CH}_2-\text{Ph}$, then H_2 , Lindlar's cat \rightarrow cis alkene

5. (a) reduce to cis alkene, then Br_2

(b) reduce to trans " , then O_2 , Pd

(c) " " , then $\text{CCl}_4, \text{HO}^\ominus$ [via $\text{Cl}_2\text{C}^\ominus$]