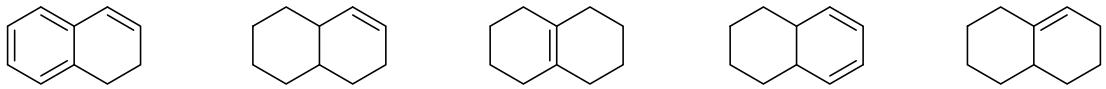
Organic Chemistry Workshop **Spring 2021**

Day 2 (1pm – 5pm on January 13th): Additions (alkenes/alkynes), organolithium and organomagnesium compounds as bases and nucleophiles

1) Rank by reactivity with acidic water. The compound that reacts the fastest with acidic water is 1, while the compound that reacts the slowest is 5.



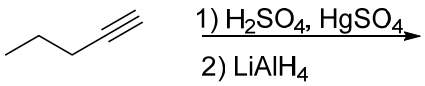
___ ___ ___ ___ ___

2) Draw all alkenes with molecular formula C_6H_{10} which when hydrogenated with H_2/Pt generate methylcyclopentane.

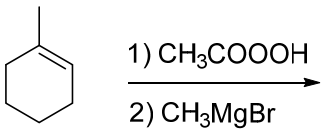
Which isomer is the most stable from part a? Circle the answer.

3) Indicate the preferred product for the following reactions. Assume proper work-up and an excess of reagents unless otherwise specified for each step.

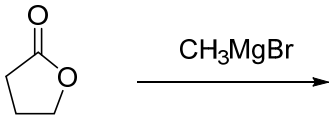
a.



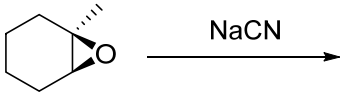
b.



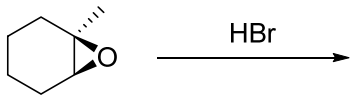
c.



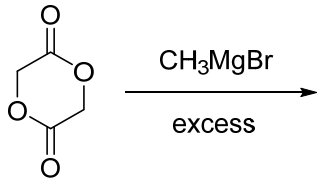
d.



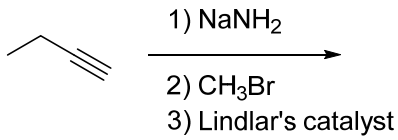
e.



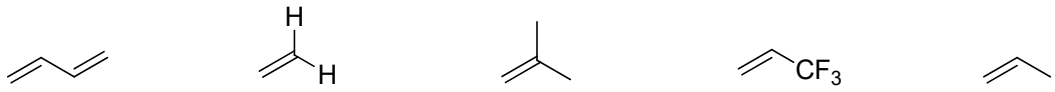
f.



g.

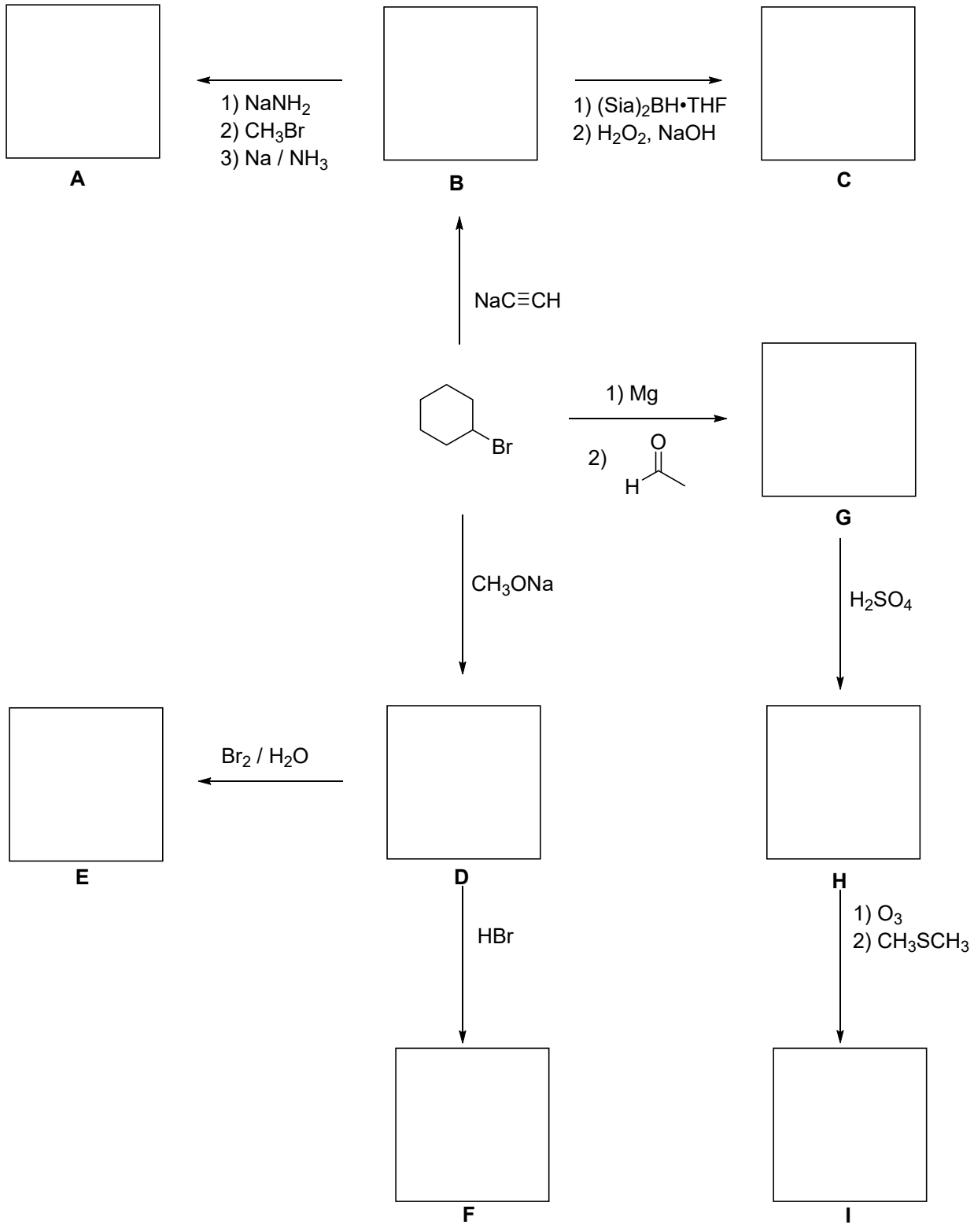


4) Rank by reaction with HCl. Alkene which reacts fastest with HCl is 1, while compound which reacts slowest is 5.



___ ___ ___ ___ ___

5) Indicate the preferred product for each step in the following roadmap. Assume proper work-up for each step. Draw the structures in the provide boxes.



Keys

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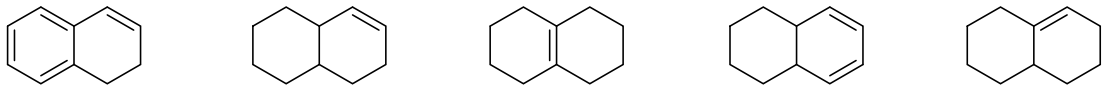

1 5 3 2 4

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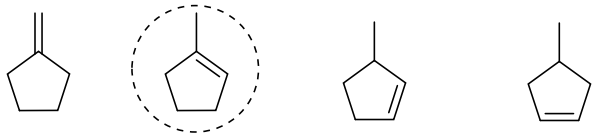

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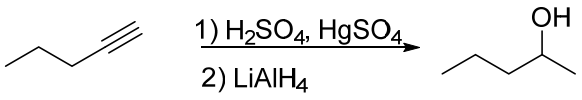
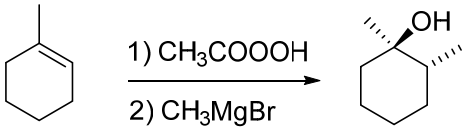
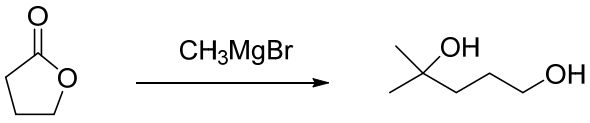


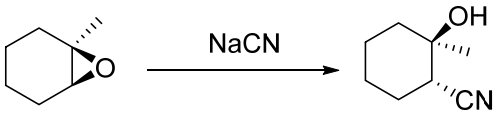
b.



c.

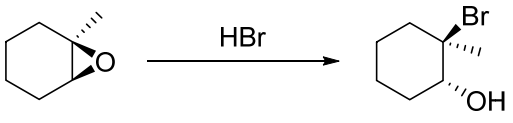


d.



3 points wrong regio; 3 points wrong stereo

e.



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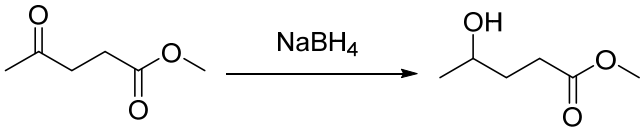
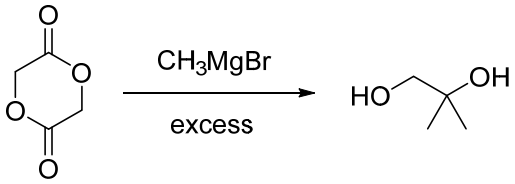
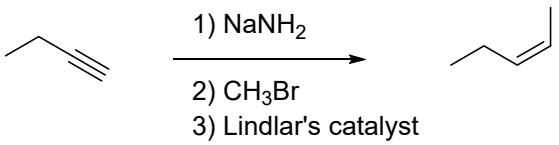
i.



f.



g.



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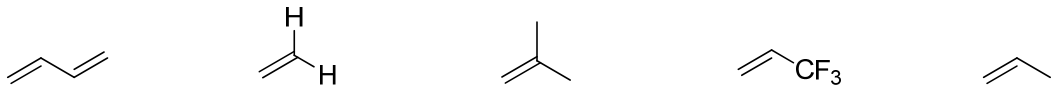

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