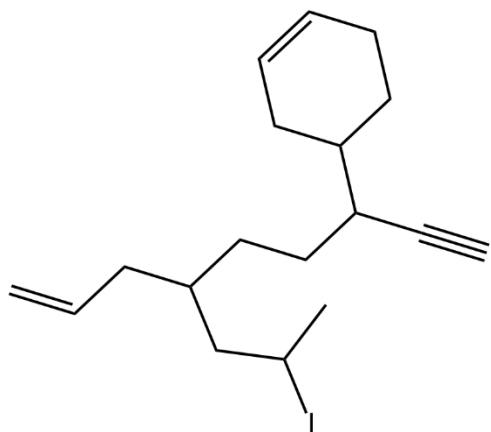


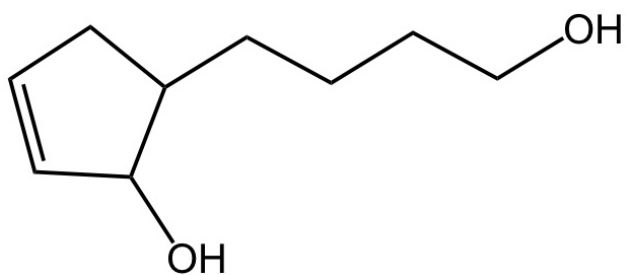
A. Nomenclature:

Give an acceptable IUPAC name for each of the following compounds. Be sure to indicate the **stereochemistry** where appropriate.

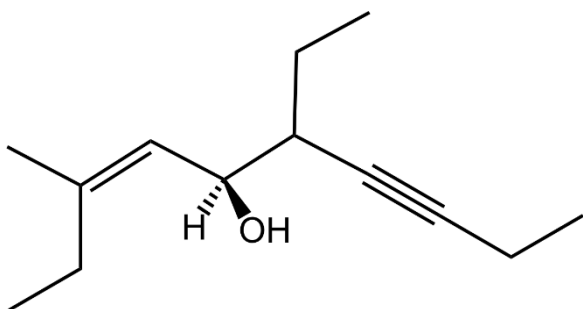
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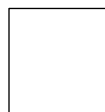
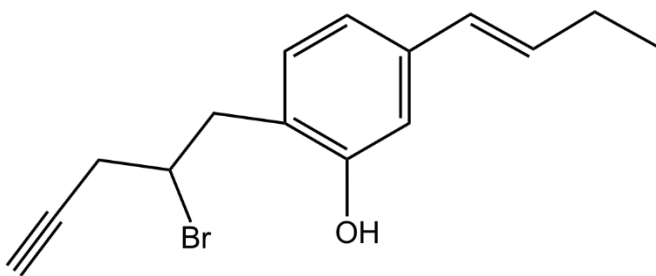
2.



3.

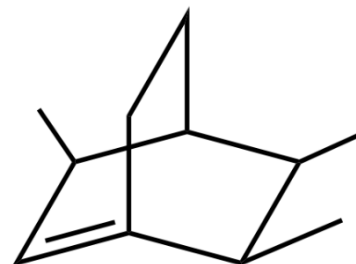
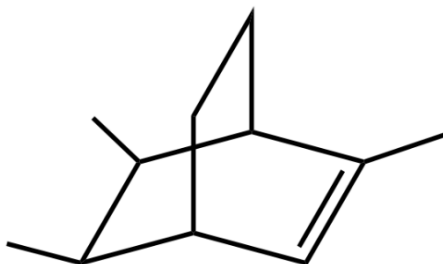
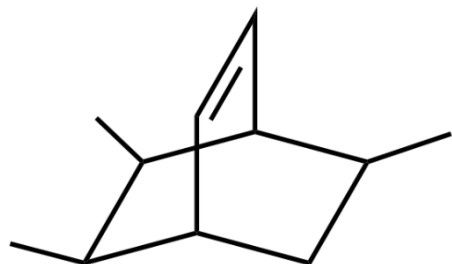


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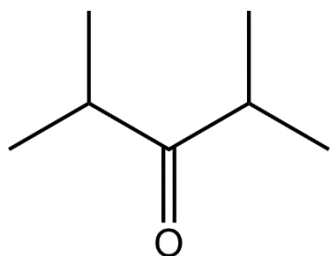


B. Facts:

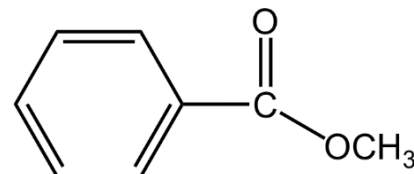
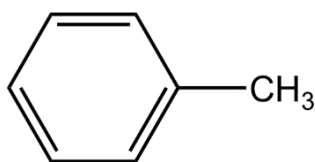
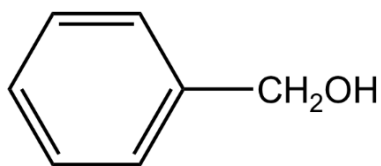
1. Rank the alkenes in order of increasing stability (1 =least stable , 3=most stable)



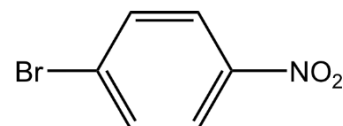
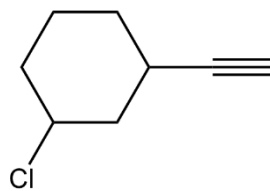
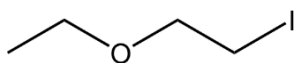
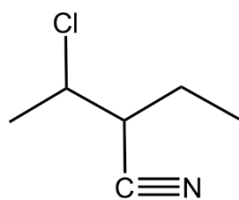
2. Draw a tautomer of the compound below.



3. Place the following compounds in order of increasing state of oxidation (1=least oxidized, 3=most oxidized)



4. Place a "Y" in the box below any compound that will react with a Grignard reagent. Place an "N" in the box below any that will not.

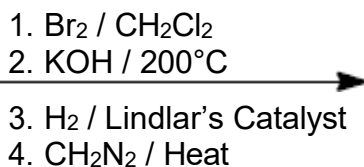
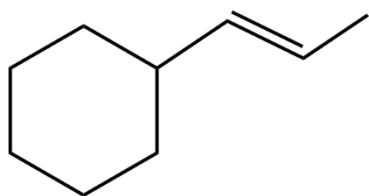


C. Reactions: Total = 36 points, 6 points each

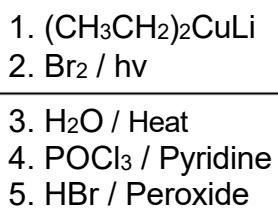
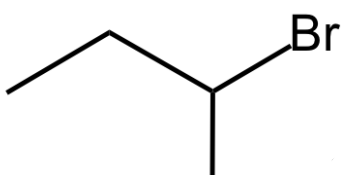
Please provide the major product in the answer box. Indicate **stereochemistry** if applicable.

Full credit is awarded only when the product of each step in a multi-step reaction is shown below the reaction.

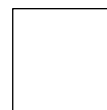
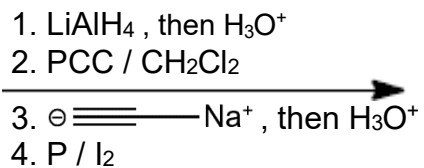
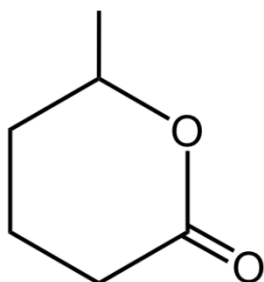
1.

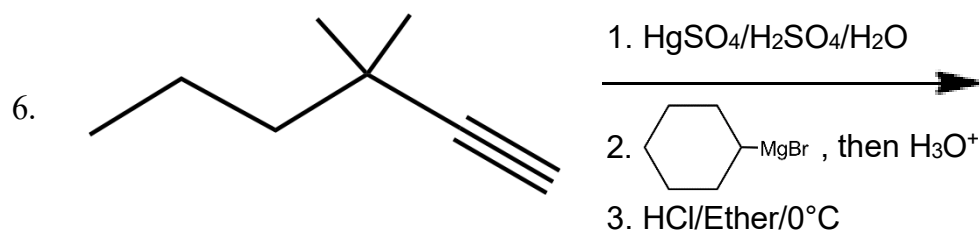
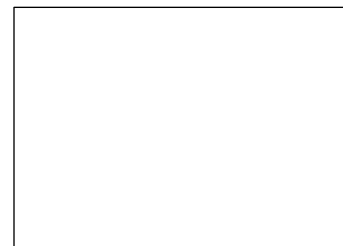
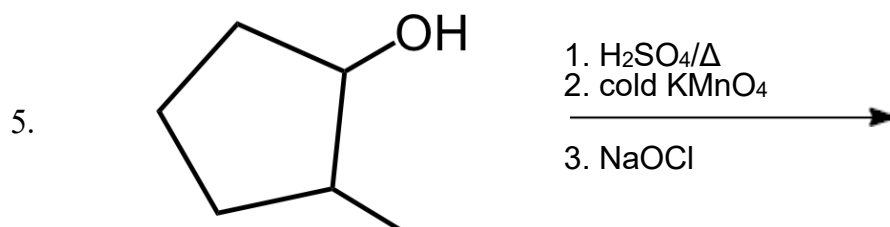
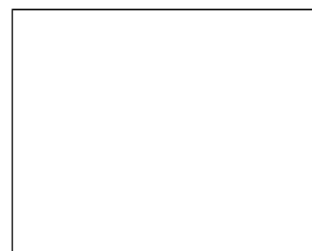
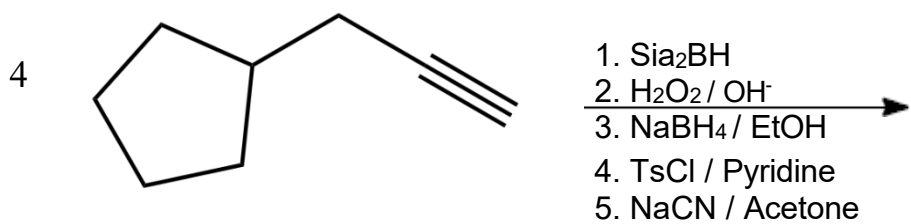


2.



3.



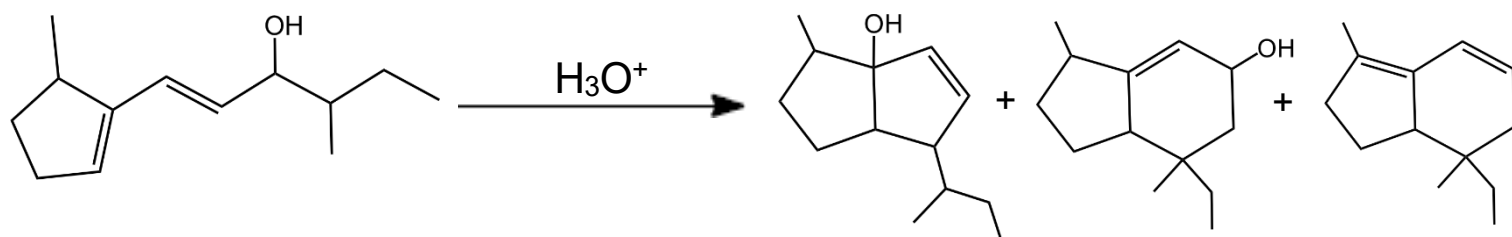


D. Mechanism:

The reaction below produces several products. Provide clear mechanisms to explain the formation of the three products shown. Use curved arrows to indicate "electron flow".

Remember to show only one step at a time. **Show all intermediates and all formal charges.**

Please do not show transition states.



E. Synthesis:

Synthesize the molecule below from alkenes, alkynes, and alcohols of **three** carbons or less, any peroxyacids, any oxidizing and reducing agents, and any inorganic reagents (Please do not include mechanisms.)

