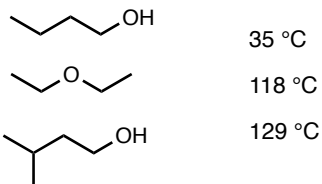
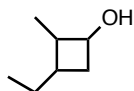


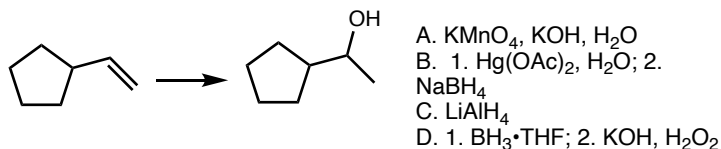
1. Match the provided boiling points to the compounds below:



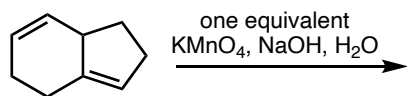
2. Provide the IUPAC name for the following compound:



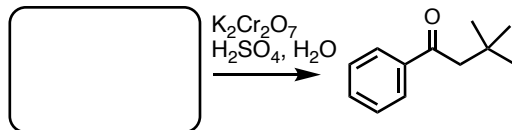
4. Which set of reaction conditions is best chosen to carry out the following conversion?



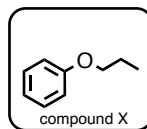
5. Draw the expected product of the following reaction, including stereochemistry:



6. What starting material is suitable to complete the following reaction?



7. To synthesize compound X via the Williamson ether synthesis:

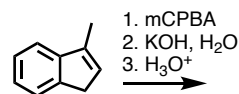


- A. only propanol could be used as the starting alcohol
 B. only phenol could be used as the starting alcohol
 C. neither propanol nor phenol could be used as the starting alcohol
 D. both propanol and phenol could be used as the starting alcohol

8. Which of the following compounds has been used as an anesthetic in the past (may be more than one answer)?

propanol diethyl ether tetramethylsilane acetone listerine

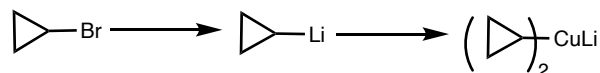
9. Draw the final product (including stereochemistry) from the following sequence of reactions:



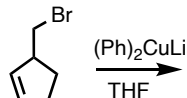
10. The C–H bond of terminal alkynes are more acidic than typical saturated C–H bonds because:

- A. The carbon atom of the C–H bond in terminal alkynes is sp hybridized so the negative charge formed upon deprotonation is stabilized in an orbital with high P character
 B. The carbon atom of the C–H bond in terminal alkynes is sp^2 hybridized so the negative charge formed upon deprotonation is stabilized in an orbital with high S character
 C. The carbon atom of the C–H bond in terminal alkynes is sp hybridized so the negative charge formed upon deprotonation is stabilized in an orbital with high S character
 D. The carbon atom of the C–H bond in terminal alkynes is sp^2 hybridized so the negative charge formed upon deprotonation is stabilized in an orbital with high P character

11. Provide the missing reagents required for each step over each of the reaction arrows below:



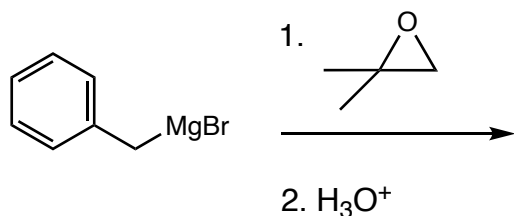
12. What is the expected product of the following reaction?



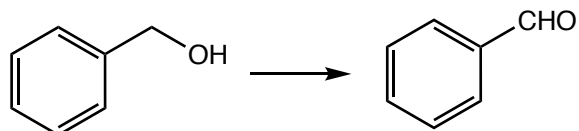
13. Which of the following solvents is inappropriate for the synthesis of Grignard reagents (may be more than one)?

- A. hexane B. THF C. diethyl ether D. methanol E. water

14. What is the major product of the following sequence of reactions?

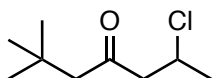


15. Which reagent is most suitable for the following reaction?

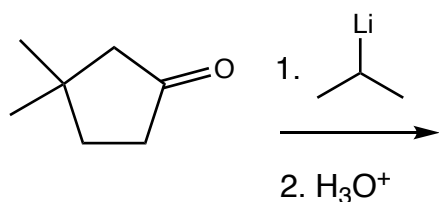


- A. NaBH_4
- B. PCC
- C. $\text{BH}_3 \cdot \text{THF}$
- D. KMnO_4

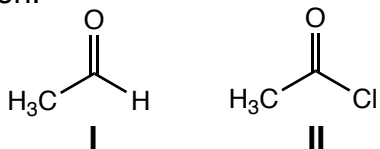
16. Provide the IUPAC name for the following compound



17. What is the major product of the following reaction?



18. We'll see in the next chapter that the carbonyl group of compound II is more reactive than the carbonyl group of compound I towards nucleophiles. Provide an explanation for this observation.



19. What compound is necessary to complete the reaction below?

