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Organic Chemistry II Drill (CHEM2220D) Module 6. Part B. Sample Problems

Candace M. Lawrence

Xavier University of Louisiana, clawren2@xula.edu

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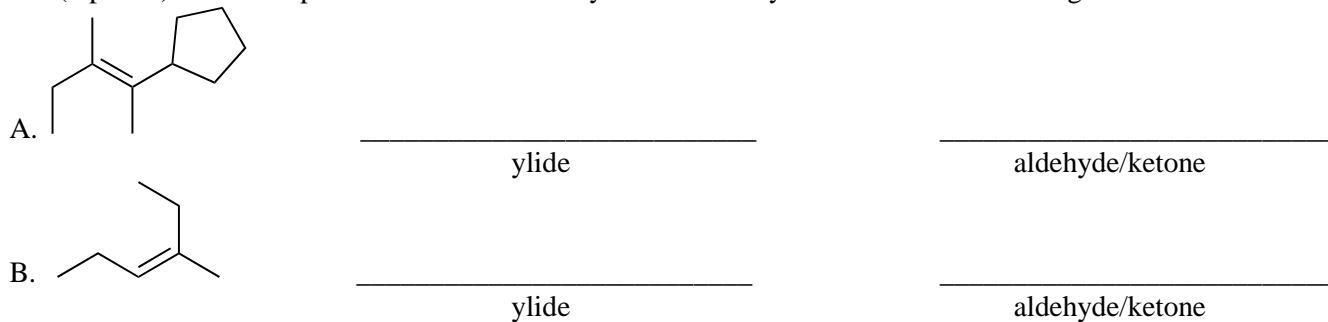
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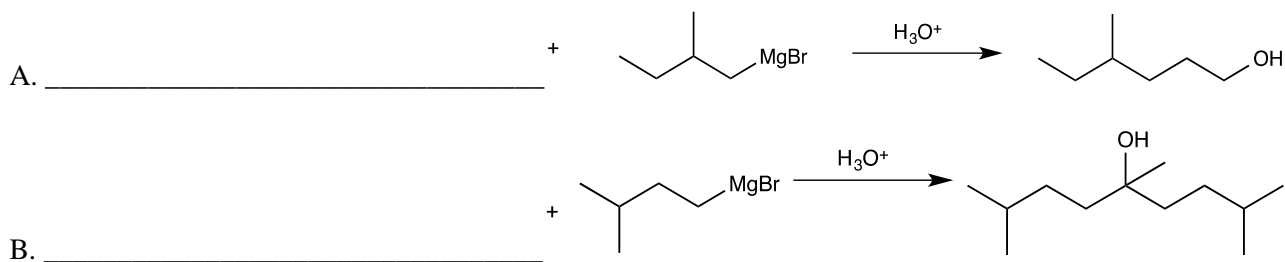
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2220D – Drill test 7 – Sample problems

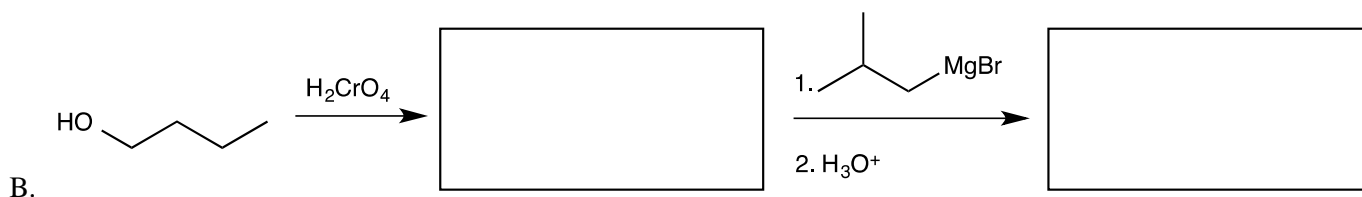
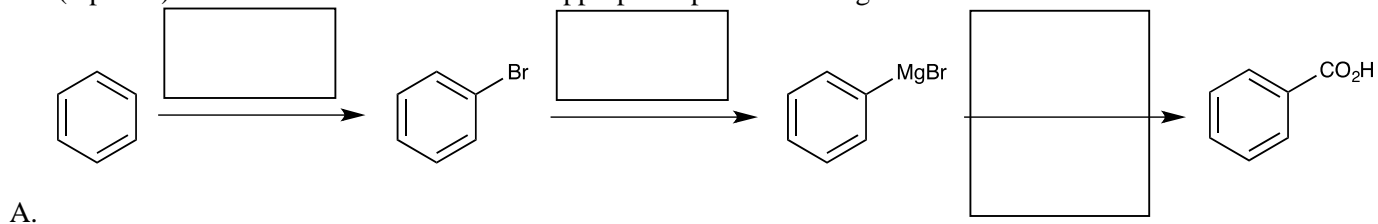
1. (8 points) Draw one possible combination of ylide and aldehyde/ketone for each Wittig reaction.



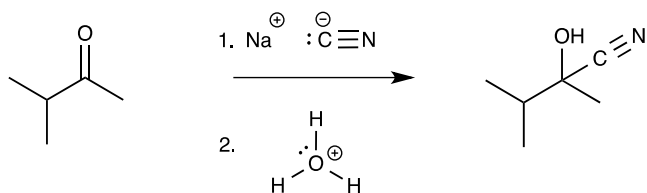
2. (6 points) Draw the structure of the other starting material for each Grignard reaction.



3. (8 points) Fill in the blank boxes with the appropriate product or reagents needed.

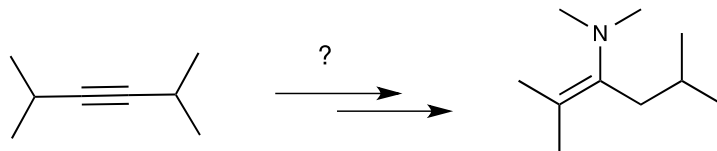


4. (6 points) Propose a mechanism for this reaction. You must include all arrows and intermediates to receive full credit.

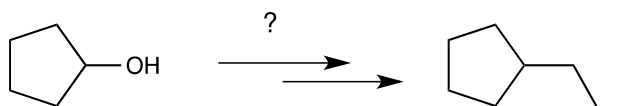


5. Propose a synthetic scheme for each transformation. You must show all Reagents needed and EACH synthetic intermediate to receive full credit.

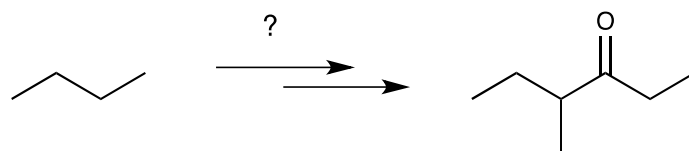
(5 points)



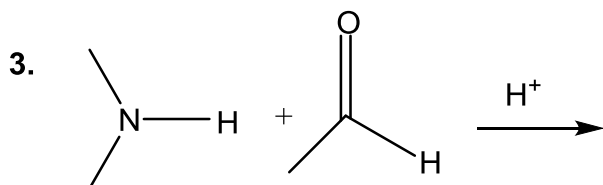
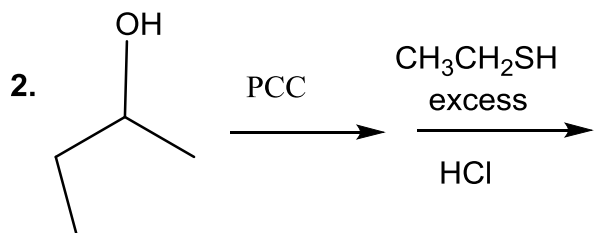
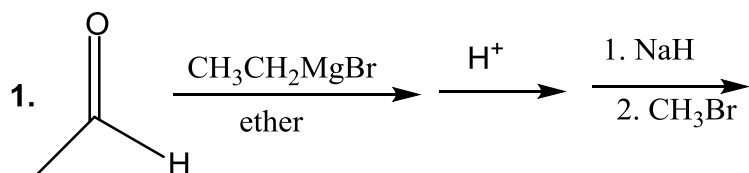
(8 points)



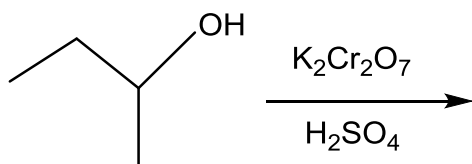
(9 points)



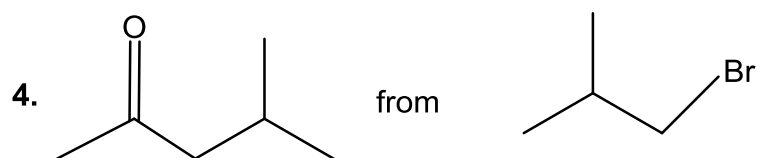
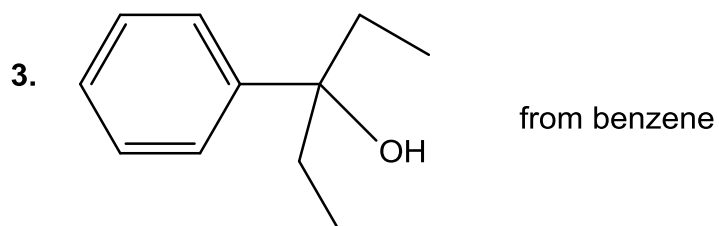
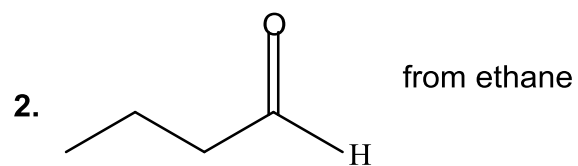
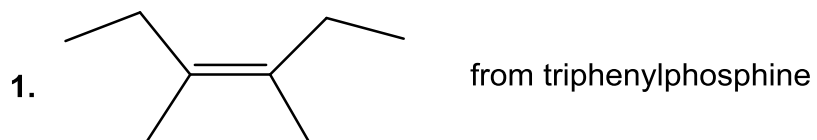
6. Give the structure of the major organic product or products expected from the following reactions. "No reaction" might be an appropriate answer in some cases. Show the stereochemistry of the products if applicable. 5 points each



7. Predict proton NMR spectrum for the product of the following reaction. Draw the product first (7 points):

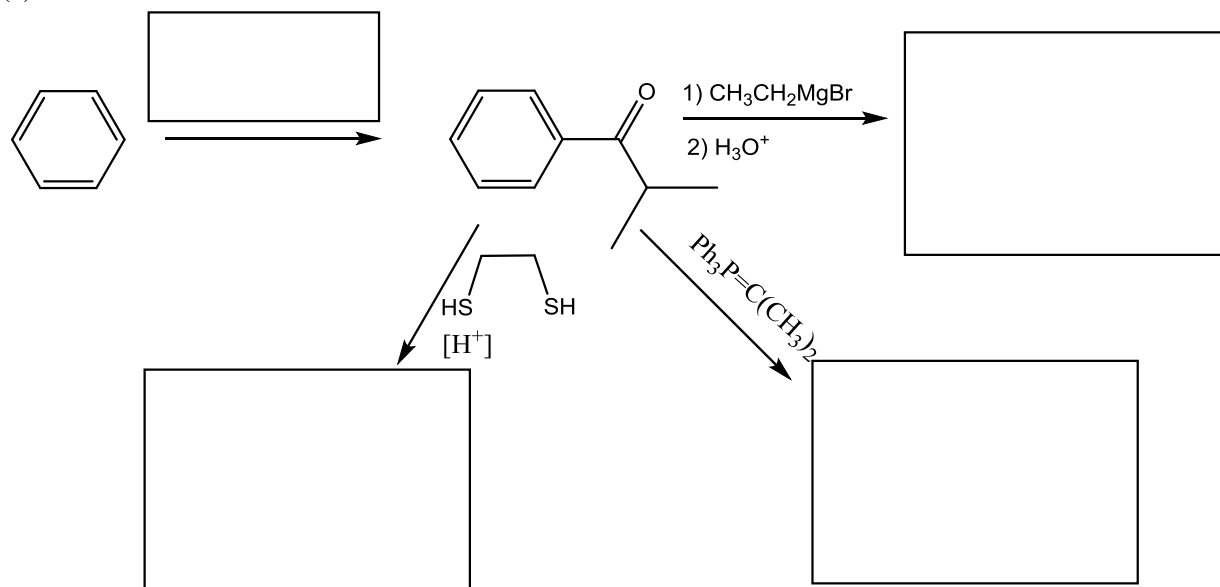


8. Propose synthesis of the following from given starting material and any reagents (7 points each):



9. Complete these reactions. (21 pts)

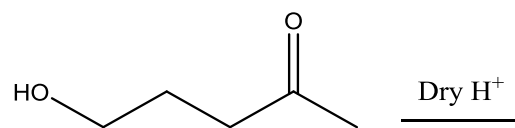
(a)



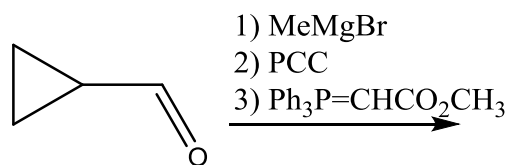
(b)



(c)

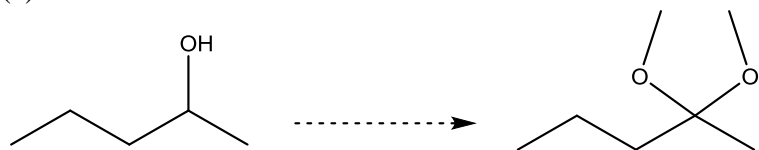


10. Identify the final product formed by the following reactions (5 pts.)

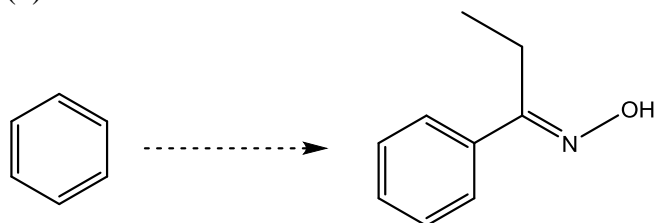


11. Propose synthesis for each of the following transformations (24 pts.)

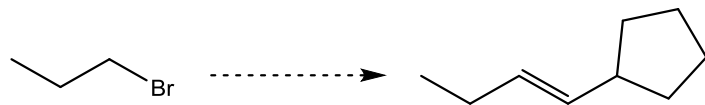
(a)



(b)



(c)



(d)

