

Chapter 18 Worksheet

1. Draw the following compounds

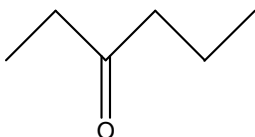
a. 2-methyl-2-cyclopentenone

b. (Z)-3-bromo-2-propenal

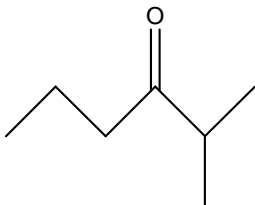
c. 1-phenyl-4-hexyn-1-one

2. Name the following compounds

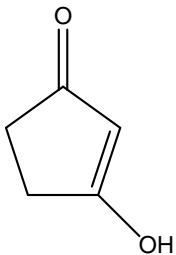
a.



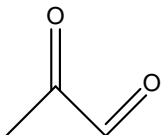
b.



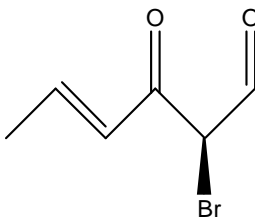
c.



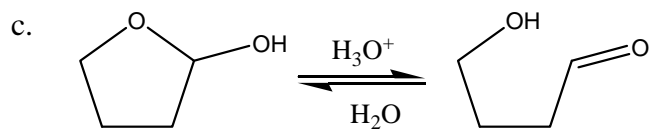
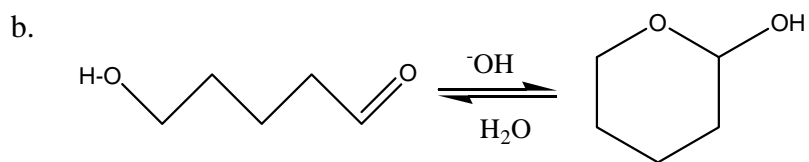
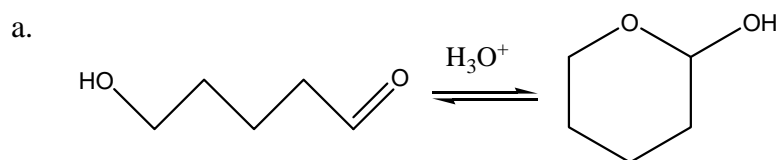
d.

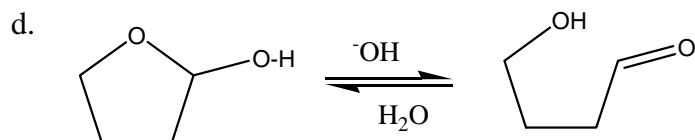


e.

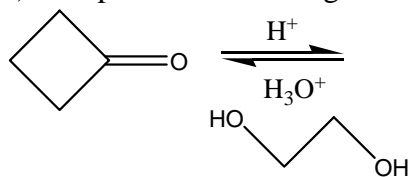


3. Provide a mechanism for the following reactions.





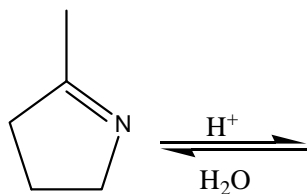
4. a) Complete the following mechanism



b) Why can't this reaction take place with a base as a catalyst?

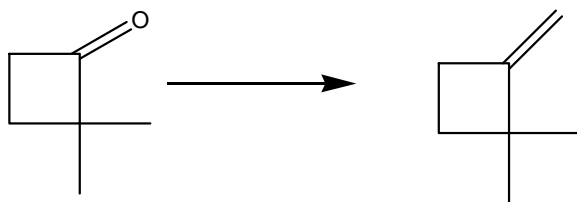
5. Complete the following mechanism.

a.

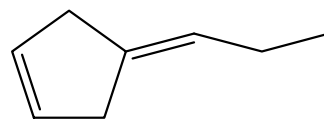
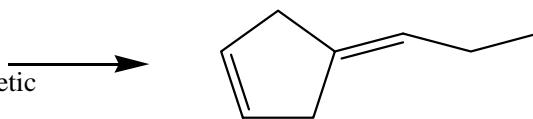


6. Consider the following Wittig reactions:

a. Complete the following reaction mechanism using the Wittig strategy for synthesizing the desired product.



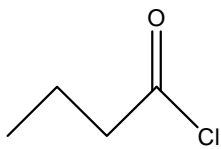



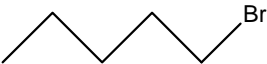
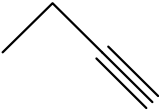
- b1. What reactants are required to produce the following product using the Wittig synthetic strategy?



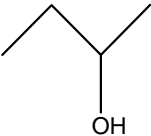
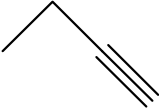
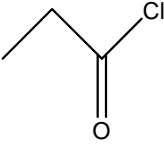
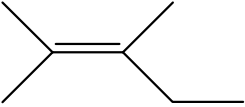
- b2. Why is the Wittig strategy better than the Grignard strategy here? Draw a mechanism to illustrate your point.

7. Show how butanal can be made from the following compounds

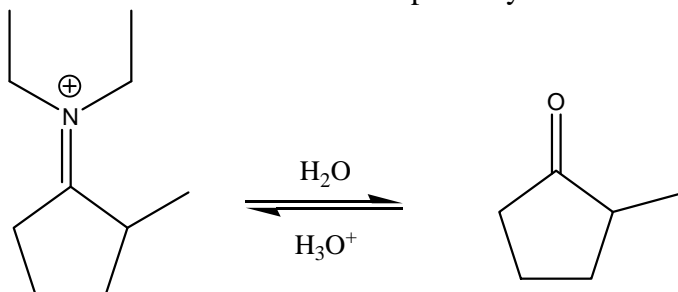
a.	
b.	
c.	
d.	

e.	
f.	

8. Show how 2-butanone can be made from the following compounds

a.	
b.	
c.	
d.	

9. Draw a mechanism explaining the following reaction. Be sure to include curved arrows and to show each step clearly.



10. Complete the following reactions:

a.	<p>Reaction of 2-butanone with hydrazine (NH_2NH_2) and sulfuric acid ($[\text{H}_2\text{SO}_4]$) as a catalyst.</p>
b.	<p>Reaction of cyclohexanone with two molecules of methanol ($2 \text{CH}_3\text{OH}$) and sulfuric acid ($[\text{H}_2\text{SO}_4]$) as a catalyst.</p>
c.	<p>Reaction of cyclopentanone with phenylhydrazine ($\text{Ph}-\text{C}(\text{H}_2)-\text{NH}_2$).</p>

