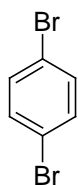


Chemistry 3331
Organic 2
Professor Eaton
Spring 2013

EXAM 2

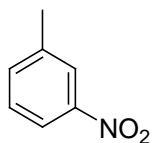
1. (2 points) Draw the structure of phenol

2. (3 points) For the benzene structure drawn below provide the IUPAC name

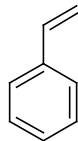


3. (3 points) Draw the structure of 1,4-dinitrobenzene

4. (3 points) For the molecule drawn below provide the IUPAC name



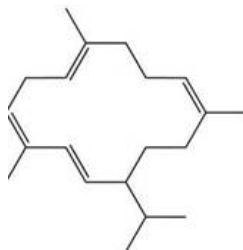
5. (3 points) What is the common name for the structure drawn below?



6. (3 points) The first step in most reactions where an organometallic transition metal is a catalyst is:

- Migratory insertion
- Translational osilation
- Oxidative addition
- Secretary elimination

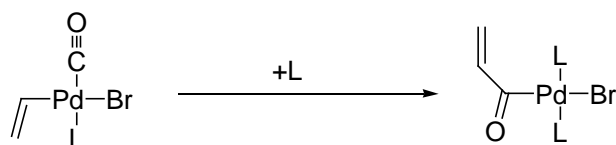
7. (3 points) The molecule drawn below is a:



- Monoterpene
- Diterpene
- Triterpene
- Catechol
- Aniline

8. (4 points) For the structure drawn in question 7 above redraw it below and carefully label the isoprene units in the structure.

9. (3 points) the reaction step drawn below is from the:

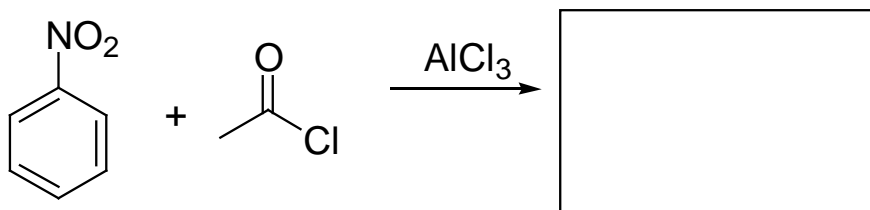
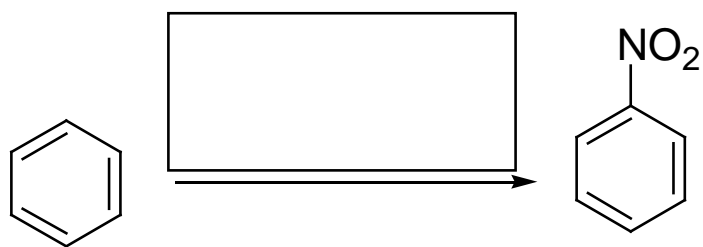


- Heck reaction
- Alkene metathesis
- Weisenhiemer conjugative coupling
- carboxamidation
- a and b
- b and d

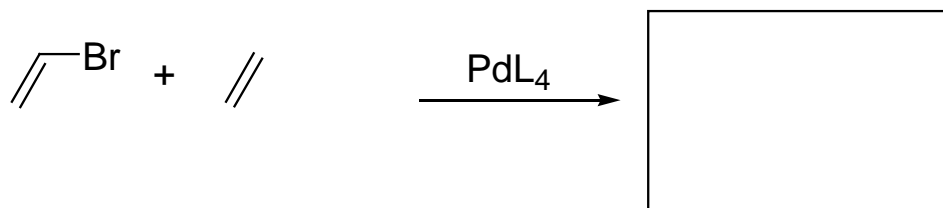
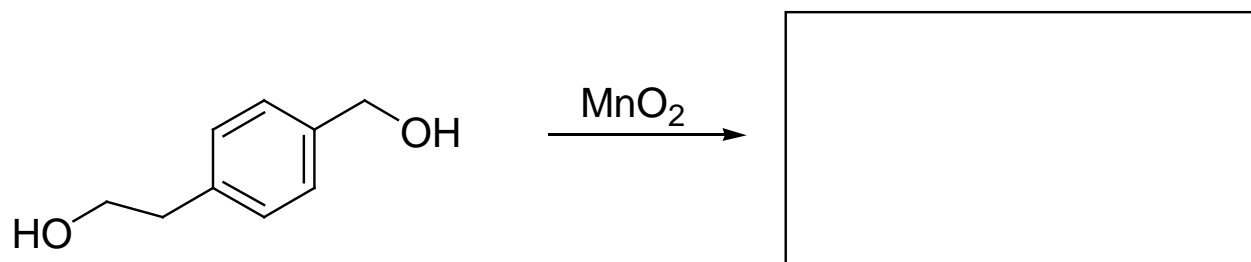
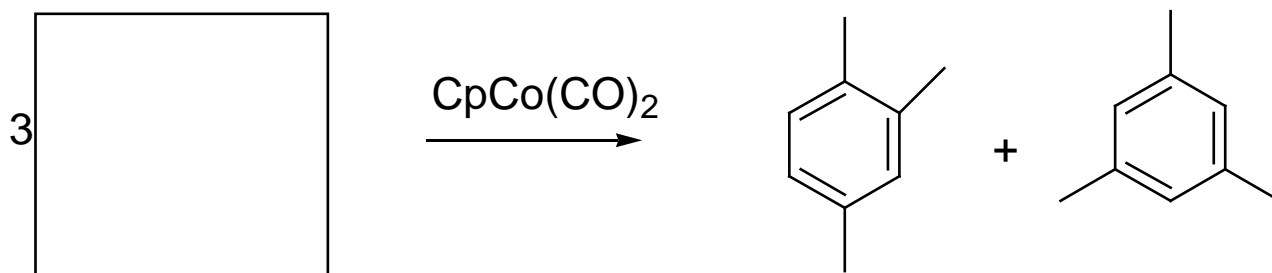
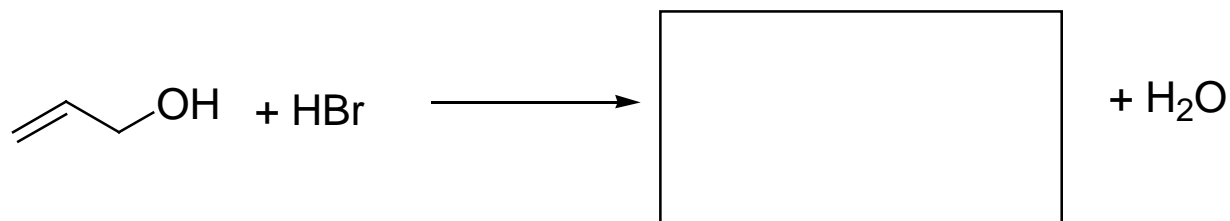
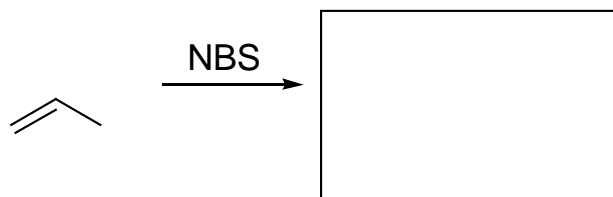
10. (6 points) Draw the metal and ligand orbitals for a CO ligand bound to a transition metal. Label your drawing clearly to explain if the interacting orbitals of the ligand and transition metal are occupied or unoccupied. Also define the type of bonding in your diagram as sigma or pi.

11. (5 points) Explain why vinyl bromides do not undergo Sn1 or Sn2 substitution reactions at the sp² hybridized carbon. If possible use an orbital drawing to explain your answer.

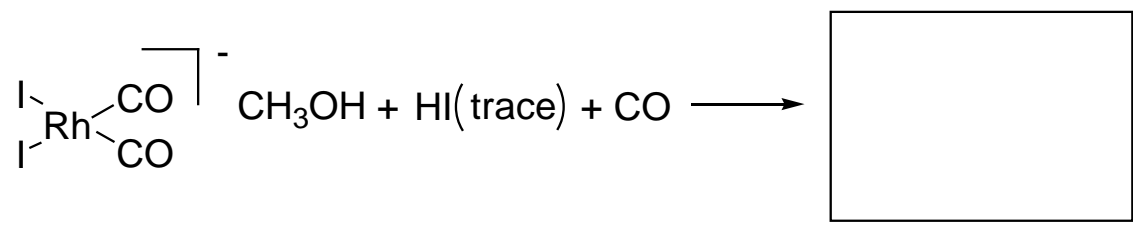
12. (48 pts) for the reactions shown below fill in the box to complete the chemical equation



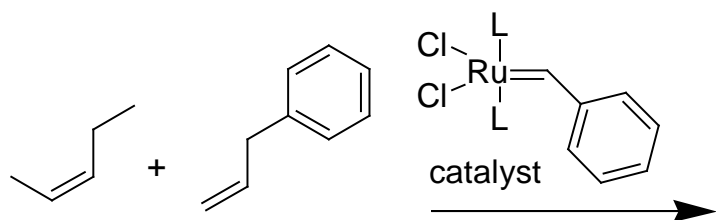
12. Continued



12. Continued



13. (4 points) For the Alkene Metathesis reaction drawn below please draw all products from the reaction. Assume the reaction has gone to completion giving the thermodynamic products. Ignore the product formed from the group on the catalyst at the start of the reaction.



14 (10 points) Using only the organic molecule shown below as A but any other reagents and catalysts you need draw a synthetic scheme for the preparation of the cyclohexene labeled as B below.

