

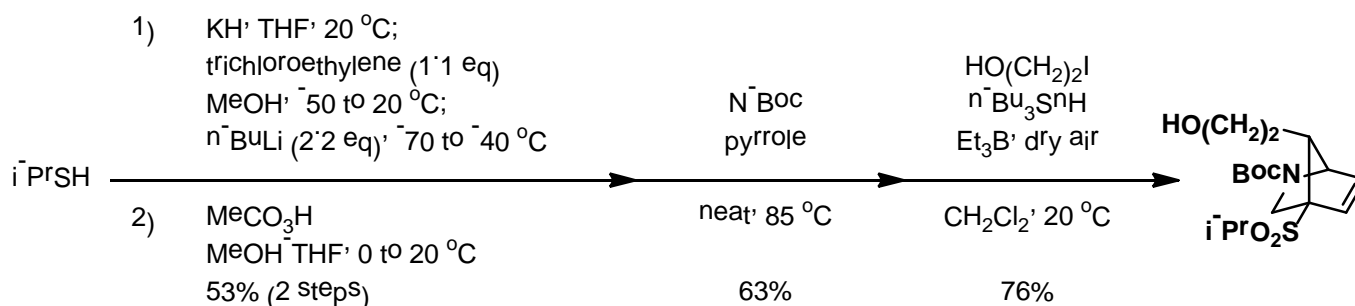


## CHEM 8410\_6410\_4410 – Organic Synthesis

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1872

**Problem Set 3:** This problem set is now available at ([www.blackboard.utoledo.edu](http://www.blackboard.utoledo.edu)). It will be due in class 20 days (03/17/15) from today (02/26/15) @ 5:00 pm sharp. Grades will be administered as follows: 10 (exceptional effort), 8 (complete), 5 (incomplete or inadequate effort), 2 (poor effort), 0 (nonexistent). **No late problem sets will be accepted.**

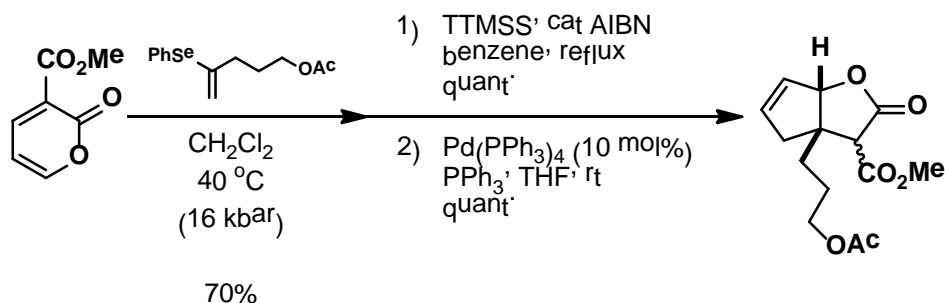
1. **Problem:** Work by the Hodgson group is highlighted below. Provide the reaction mechanisms for the transformations. Be as detailed as possible.



D. M. Hodgson *et al.* *JOC* **2005**, *70*, 8866.

**Answer:**

2. **Problem:** Work by the Marko *et al.* accumulated into a complex 5,5-fused ring system as shown. Provide all the mechanisms for the transformations leading to the target molecule. Show the structure of AIBN and make sure the correct arrows are used for your mechanism (homolytic vs heterolytic).



I.E. Marko *et al.* *Org. Biomol. Chem.* **2006**, *4*, 1464.

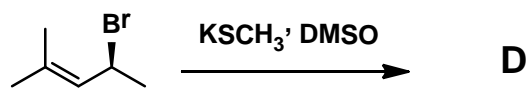
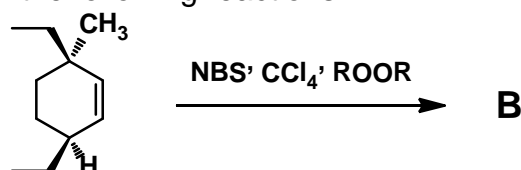
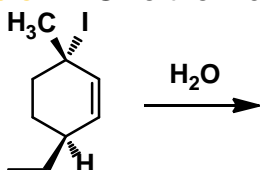
**Answer:**



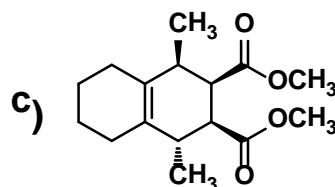
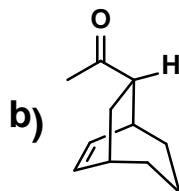
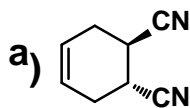
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3. **Problem:** Give the major product(s) of each of the following reactions.



Propose a synthesis of each of the following molecules by Diels-Alder reactions.



**Answer:**