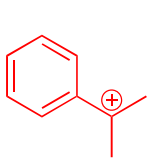
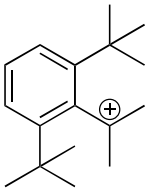
Quiz 2
Chem 3331, Spring 2018
Dr. Richardson

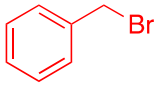
Name:
TA:
Recitation Day & Time:

1. Which carbocation is more stable(1pt) and provide a justification why. (2pt)


or


First is more stable due to the fact that the ^{t}Bu groups don't allow the p orbitals to be in the same plane as the benzene ring. Therefore, the charge cannot be resonance stabilized. (Explanation: 2pts, correct choice 1pt)

2. Which alkyl halide is more reactive in S_N1? (4 pts; 2 pts each) Assume each alkyl halide has the same stability. In general, explain why these alkyl halides are more reactive? (1 pt)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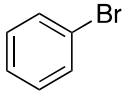
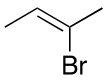


The benzylic/allylic positions are more reactive due to their ability to resonance stabilize. (Correct selection: 2pts each, reasonable explanation about resonance 1 pt)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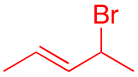
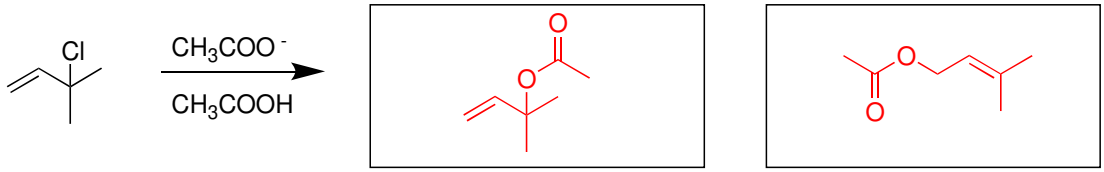
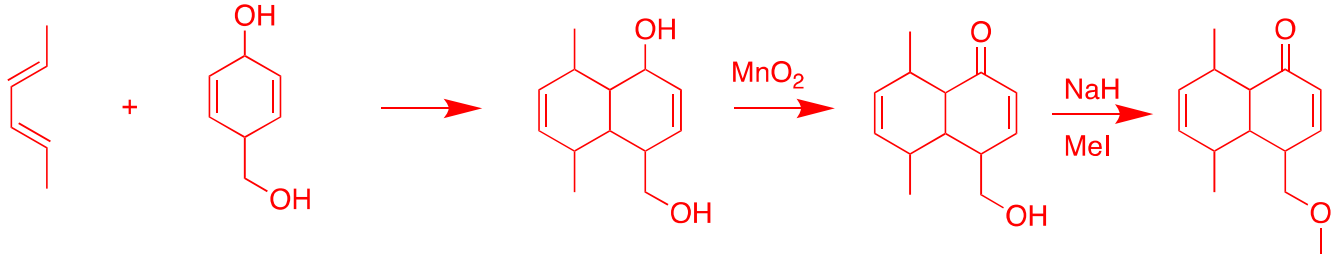


3. Draw the two products that form under conditions that favor S_N1 reaction (4 pts; 2 pts each)



-2 for incorrect carbon count
-1 for incorrect location/rearrangement of double bond

4. Propose a synthesis of the desired product from the given starting material. If multiple steps are required, draw the intermediates. Be sure to include any necessary reagents/conditions. Mechanisms are not required. (8 pts)



2 pts per intermediate
2 pts for MnO_2
2 pts for Williamson Ether conditions (1 pt for base, 1 pt for MeI)
-2 for incorrect carbon count
-1 for using an oxidizing agent that is not selective for the allylic position