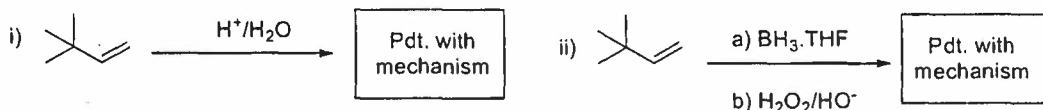


Reaction Mechanisms in Organic Chemistry (CH2202)

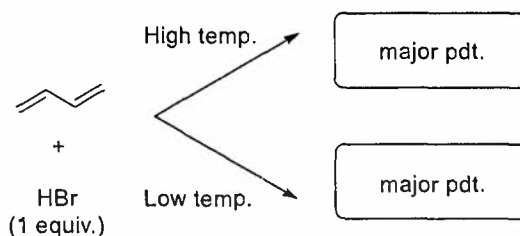
End Semester exam- Part 2

Total: 35 marks

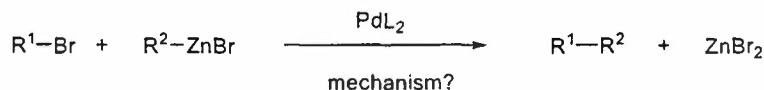
1. Predict the product in the following reactions and show the mechanism of each step. 6 marks



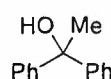
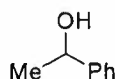
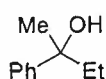
2. Predict the major product in the following reactions. Show the mechanisms and explain the origin of selectivity with the proper energy profile diagram. 6 marks



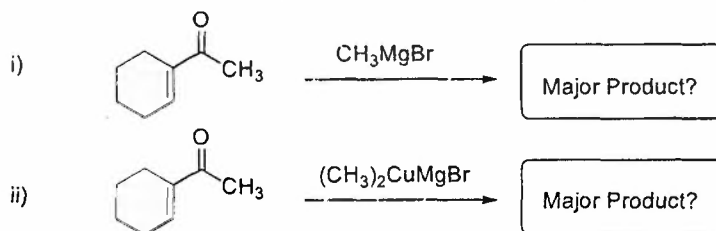
3. Write the catalytic cycle with the proper terminology of each step and indicate of the oxidation state of the Pd atom in all the intermediates. 6 marks



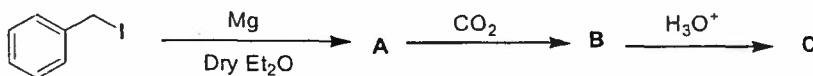
4. How can you synthesize the following alcohols separately starting from a single ketone (mechanism not required)? 6 marks



5. Predict the major product in the following reactions. Show the mechanisms and explain the origin of selectivity. 6 marks



6. Predict the structures of A-C. Write the mechanism of step A to B. 5 marks



Name

Roll #

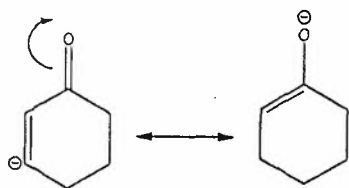
CH2202 Endsem

Part A

Are the following resonating structures/arrows correct? If it is correct, label with a tick mark, if not then mark the mistakes and rectify. No explanations are required.

 $1 \times 5 = 5$

1.



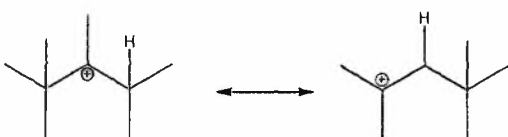
2.



3.



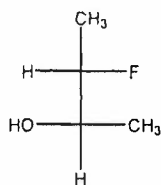
4.



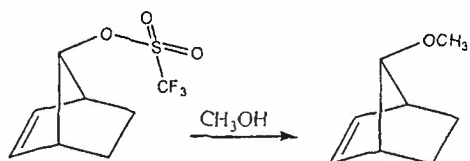
5.



6. Write the Newman projection formula of the following structure. Explicitly work out the 'R' and 'S' stereochemistry of the chiral centers (*rough work needs to be shown here*). $1 + 2$



7. Write the mechanism of the following reaction and draw its energy profile diagram: 3+2



8. Which one is more stable? Why? (write in a sentence).

2

