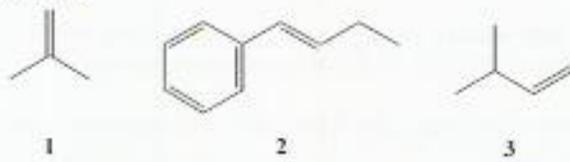


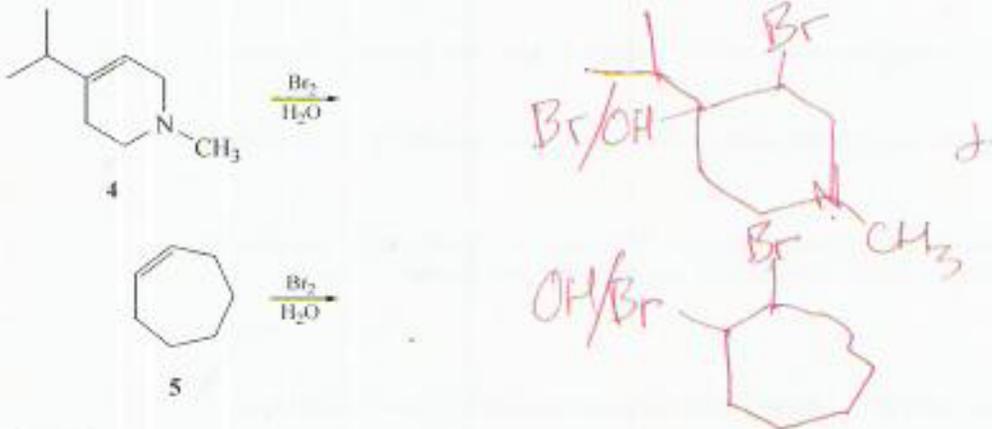
Question 6

This question carries 15 per cent of the marks for this assignment, and tests Learning Outcome 2 of Book 7 Part 1.

(a) (9 marks) Predict the major product formed on addition of HCl to each of the alkenes 1-3. Briefly explain your answer in each case.

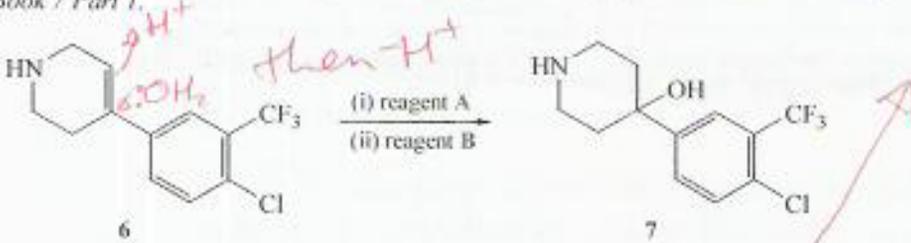


(b) (6 marks) What will be the product(s) of the following addition reactions? Give your reasons. Include the stereochemistry of the product(s) in each case.



Question 7

This question carries 15 per cent of the marks for this assignment, and tests Learning Outcome 3 of Book 7 Part 1.



The above reaction corresponds to a step in the synthesis of a tranquilizer.

(a) (2 marks) What are the reagents **A** and **B** used in the transformation?

H₂O, H⁺

(b) (6 marks) Using curly arrows, draw out a mechanism for the reaction.

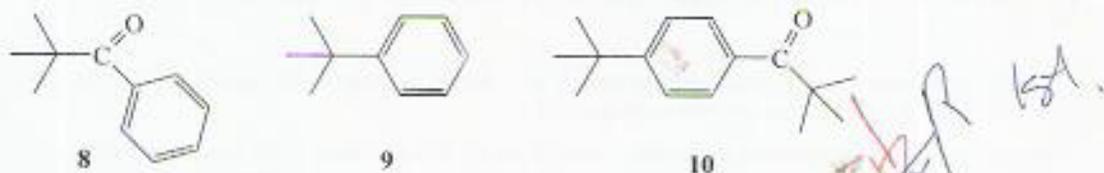
(c) (7 marks) Is Compound 7 the only product formed? Comment on the distribution of products. What potential problems might be encountered in the synthesis and how might these be controlled?

H⁺ attack can occur at any double bond but on benzene ring elimination also possible. substitution

Question 8

This question carries 15 per cent of the marks for this assignment, and tests Learning Outcomes 4, 6 and 7 of Book 7 Part 2.

The Friedel Crafts acylation of benzene with *t*-BuCOCl gives the expected ketone (**8**) as a minor product, as well as *tert*-butylbenzene (**9**). However, the major product is the disubstituted aromatic compound **10**.



Using curly arrows to draw out mechanisms, explain how each of these three compounds is formed. In the formation of Compound **10**, what is the order in which the two substituents are added to the benzene ring?

