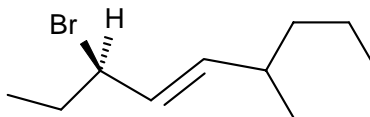
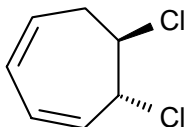


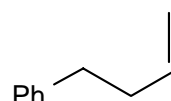
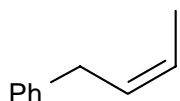
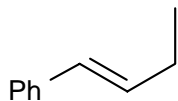
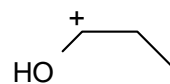
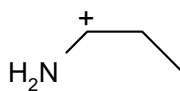
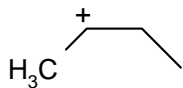
YOUR NAME _____

3 hours duration, 360 points total.

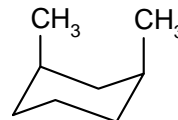
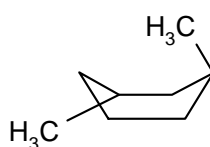
1. (22 points) Give a systematic name for each of the following compounds:



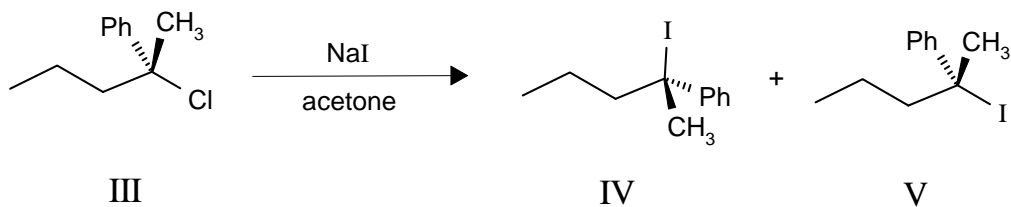
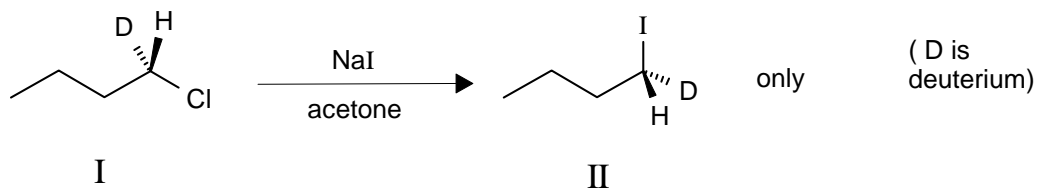
2. (24 points) Which is the most stable from each set of three related structures?



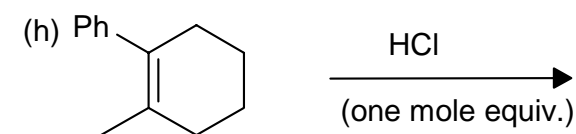
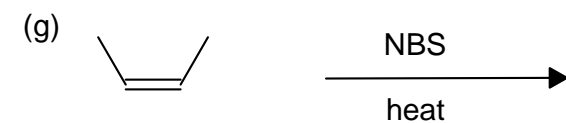
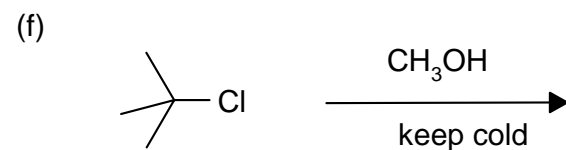
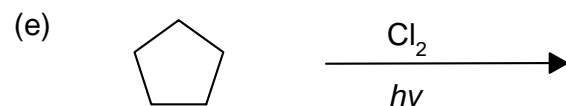
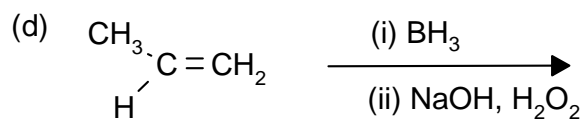
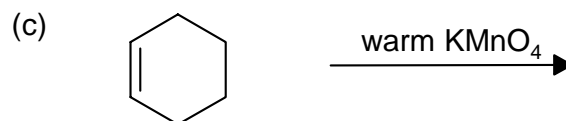
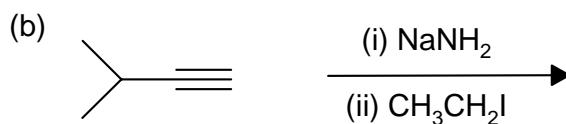
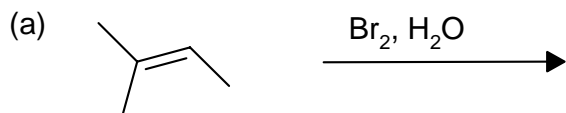
(Ph = phenyl)



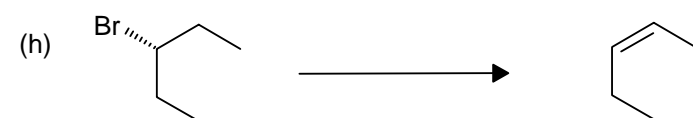
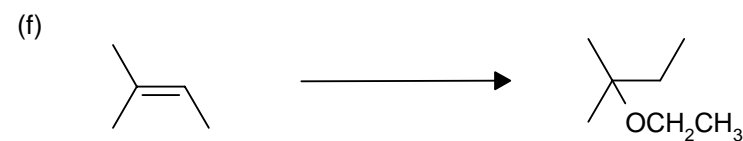
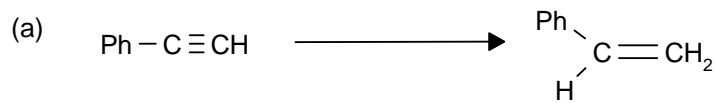
3. (20 points) Explain why compound I gives only one enantiomer of the alkyl iodide II when treated with NaI in acetone, whereas compound III gave a mixture of enantiomers IV and V in the same reaction.



4. (81 points) Predict the major product(s) of the following reactions. If you show more than one product, indicate which is major (if this can be predicted).



5. (81 points) What reagent(s) might you use in order to effect the following transformations in a practicable manner?



6. (50 points) Show how you might perform **either one** of the syntheses shown below. You must use the starting material given as your sole source for all carbons in the product (you need **not** synthesize reagents which are not incorporated, however)

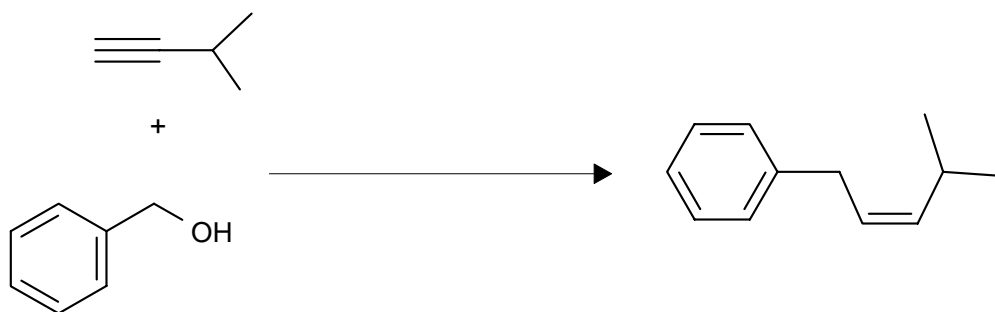
EITHER

(a)

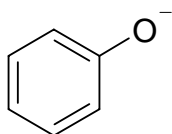


OR

(b)

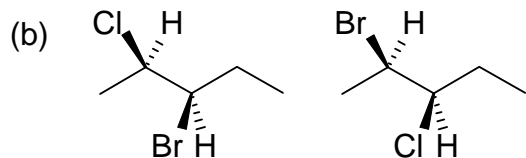
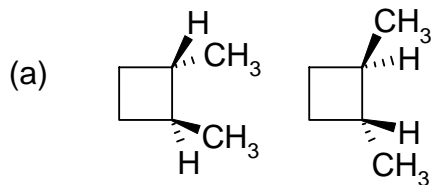


7. (24 points) Draw a resonance form for each of the structures given, and indicate if it is major, minor or the same in importance, compared with the form given:

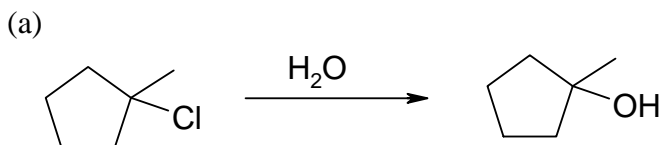


[There is no longer a question 8]

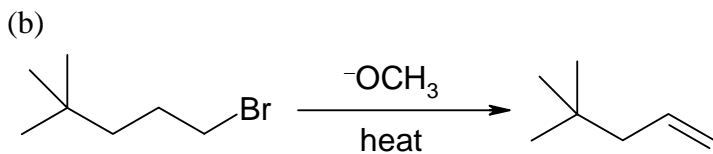
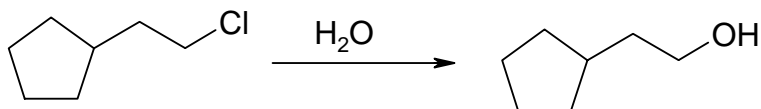
9. (18 points) Indicate the relationship between the following compounds as structural isomers, diastereomers, enantiomers, resonance forms, or identical:



10. (24 points) Which of the following pairs of reactions would be expected to be faster? Give a brief explanation of your answer in each case.



OR



OR

