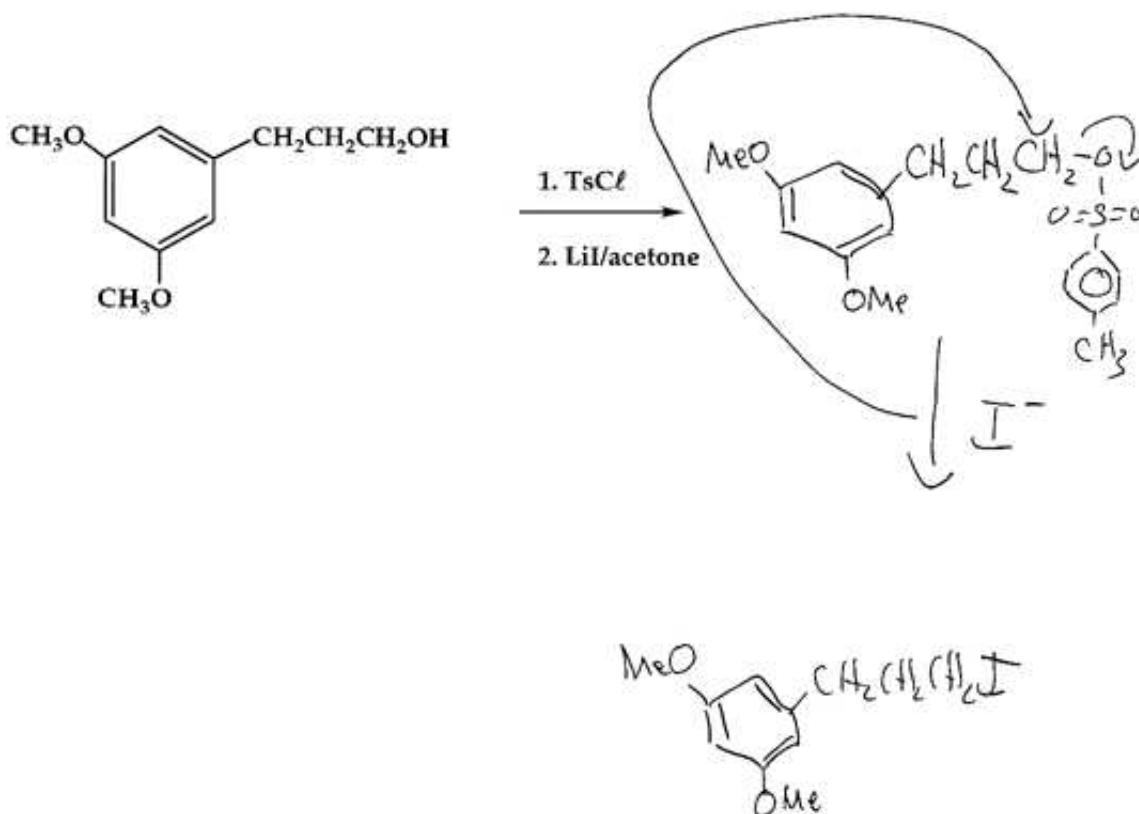
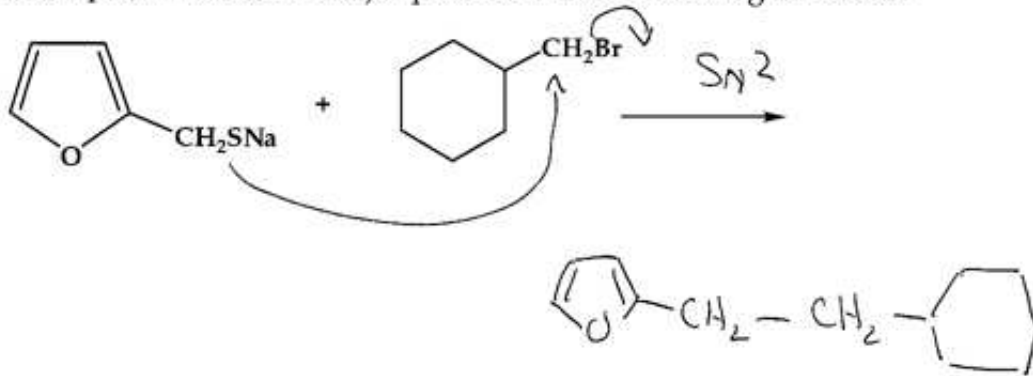


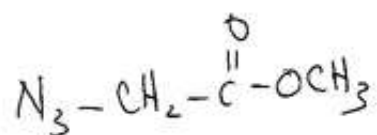
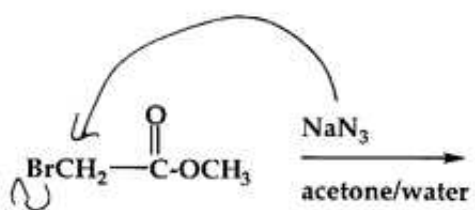
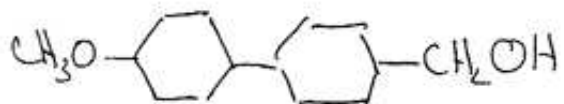
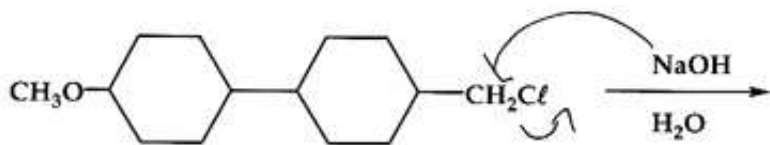
name:

Chemistry 3311-100  
Organic Chemistry/Dr. Barney Ellison  
Thursday: April 10<sup>th</sup> @ 7:00pm → 9:00/3<sup>rd</sup> Exam/Math 100

Name: Key (please print)

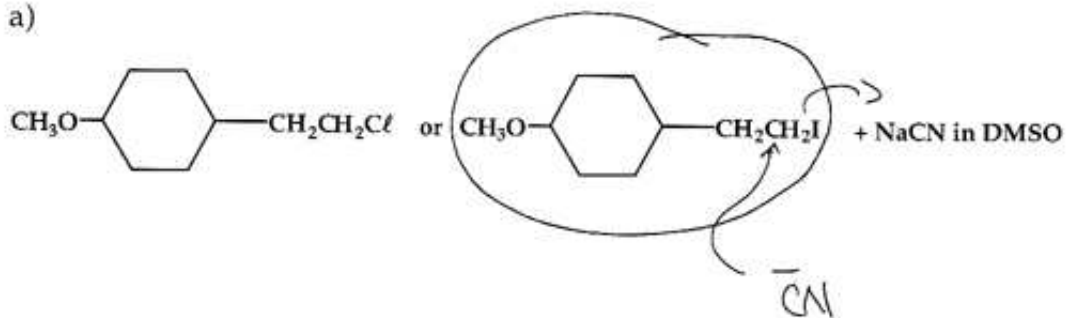
1. (20 pts) Predict the major product for the following reactions.





2. (20 pts) In each of the following indicate which reaction will occur faster. Explain your reasoning.

a)



$\text{I}^-$  is a better leaving group than  $\text{Cl}^-$

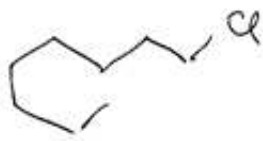
b) 1-chloropentane with sodium acetate in acetic acid or with sodium methoxide in methanol

$\text{CH}_3\text{O}^-$  is a much better nucleophile than

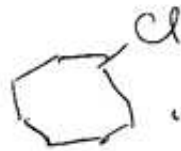
$\text{CH}_3\text{CO}_2^-$

c) Octyl chloride or cyclo-octyl chloride with sodium azide in aqueous ethanol.

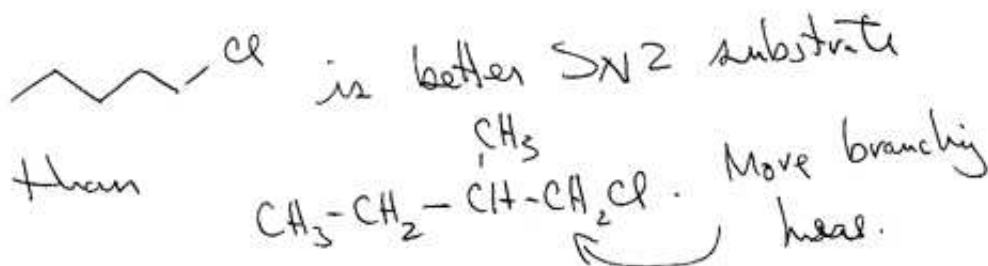
This is an  $S_N2$  rxn.



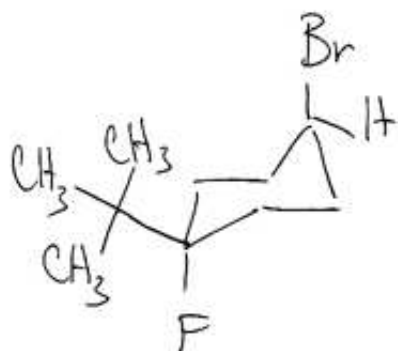
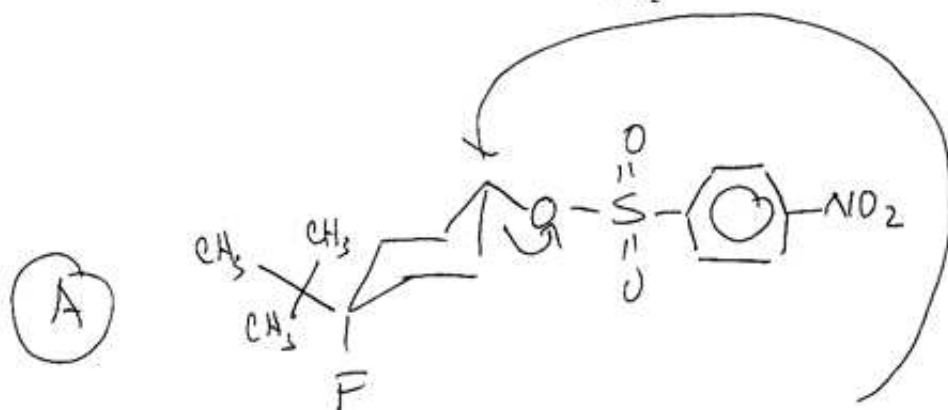
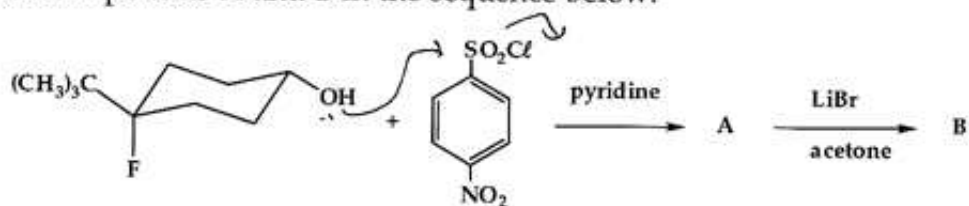
is less hindered toward  $N_3^-$  attack than



d) 1-Chloro-2-methylbutane or 1-chloropentane with sodium iodide in acetone.

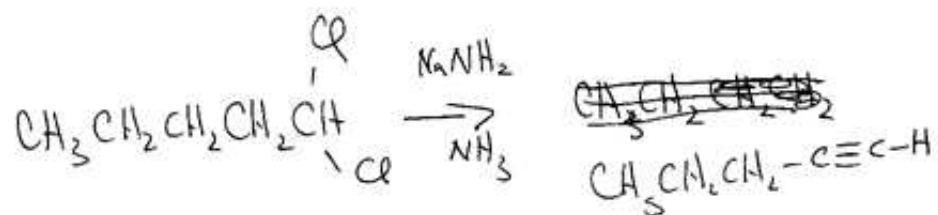


3. (10 points) Give the structures (particularly the stereochemistry) of compounds A and B in the sequence below.

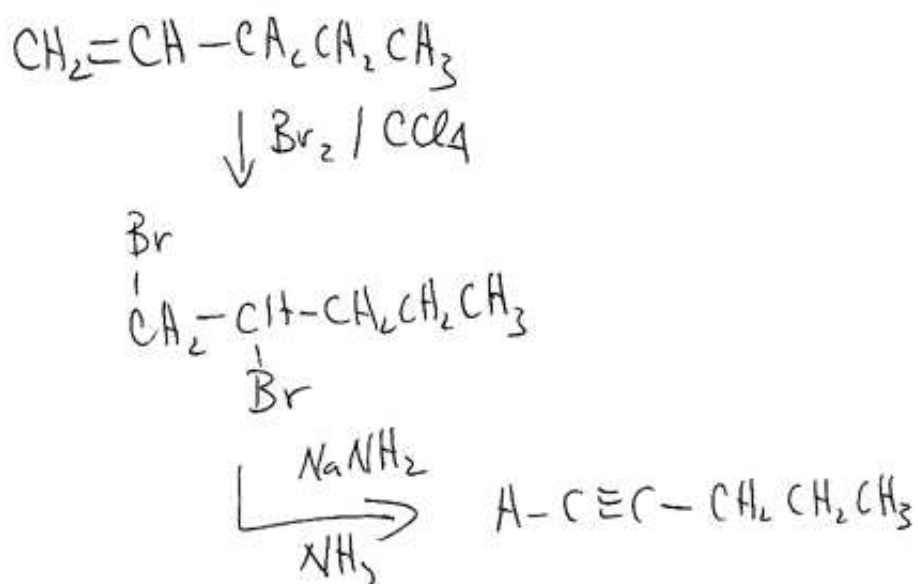


4. (20 points) Show how the following compounds can be converted to 1-pentyne.

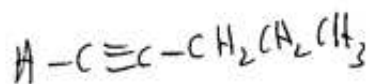
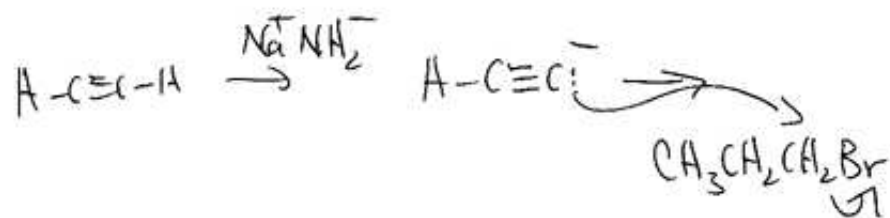
a) 1,1-dichloropentane



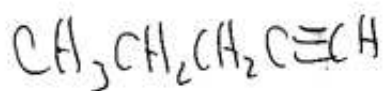
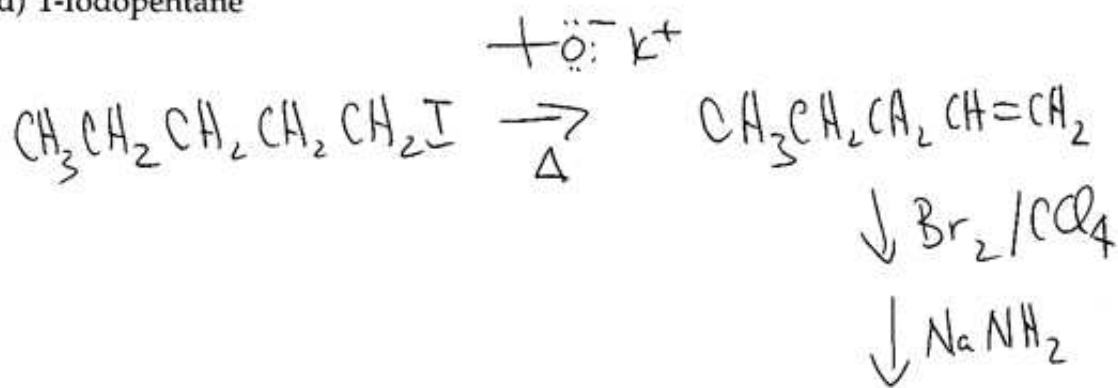
b) 1-pentene



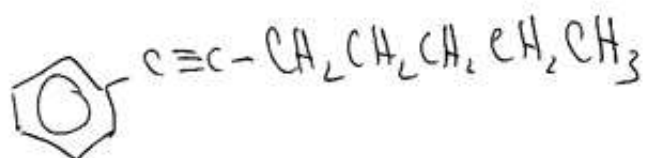
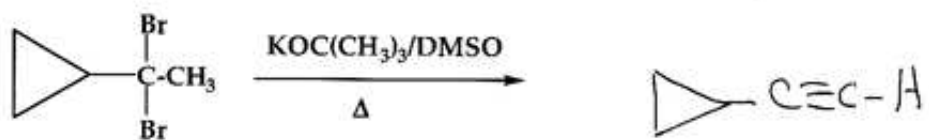
c) acetylene



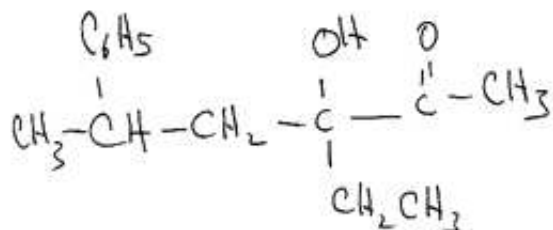
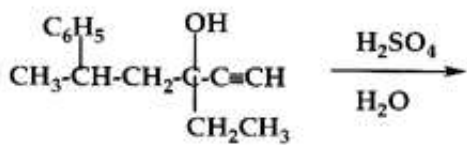
d) 1-Iodopentane



5. (20 pts) Predict the major product for the following reactions.







← +5pc

(Z)-CH<sub>3</sub>CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>CH=CHCH<sub>2</sub>(CH<sub>2</sub>)<sub>6</sub>CH<sub>2</sub>-C≡C-CH<sub>2</sub>OH  
 + Na in NH<sub>3</sub> (first) followed by H<sub>2</sub>O.

