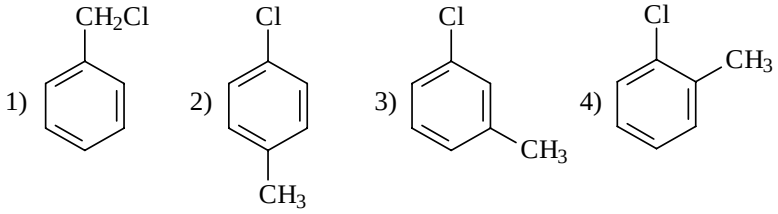
Chemistry 211 Name _____
Chapter 23 Quiz #1

1. Which of the following has the weakest carbon-chlorine bond?

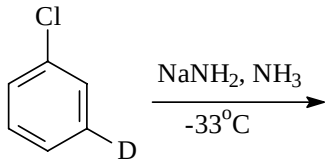


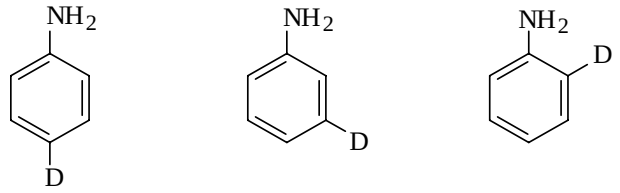
1) 1 2) 2 3) 3 4) 4

2. Which one of the reagents readily reacts with bromobenzene?

1) $NaOCH_2CH_3$ at 25^0C
2) NaCN/DMSO at 25^0C
3) $NaNH_2/NH_3$ at -33^0C
4) $(CH_3)_2NH$ at 25^0C

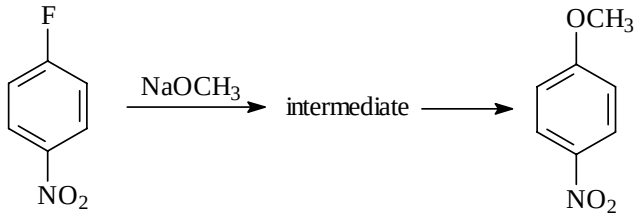
3. Which of the following best estimates the percentages of the three isomeric deuterated anilines from the reaction shown below?





1)	25%	50%	25%
2)	33%	33%	33%
3)	50%	25%	25%
4)	66%	33%	0%

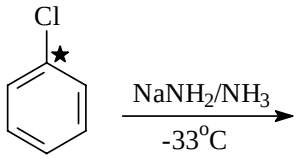
4. Which of the following is (are) true concerning the intermediate in the addition-elimination mechanism of the reaction below?

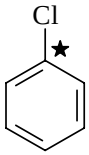


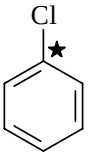
A. The intermediate is aromatic.
B. The intermediate is a resonance stabilized anion.
C. Electron withdrawing groups on the benzene ring stabilize the intermediate.

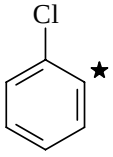
1) only A 2) only B 3) A and C 4) B and C

5. Carbon-14 labelled chlorobenzene is reacted with sodium amide in ammonia as shown below. Which of the following depicts the carbon-14 label in the product(s)?

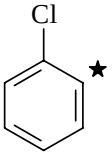


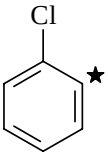
1) 

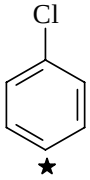
3) 

and 

(about 50% of each)

2) 

4) 

and 

(about 50% of each)

1) 1 2) 2 3) 3 4) 4

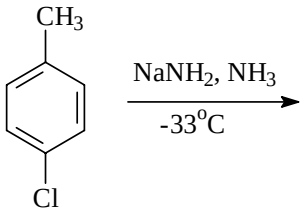
6. Which of the following reacts at the fastest rate with potassium methoxide ($KOCH_3$) in methanol?

1) fluorobenzene 2) 4-nitrofluorobenzene
3) 2,4-dinitrofluorobenzene 4) 2,4,6-trinitrofluorobenzene

7. Which of the following is the kinetic rate equation for the addition-elimination mechanism of nucleophilic aromatic substitution?

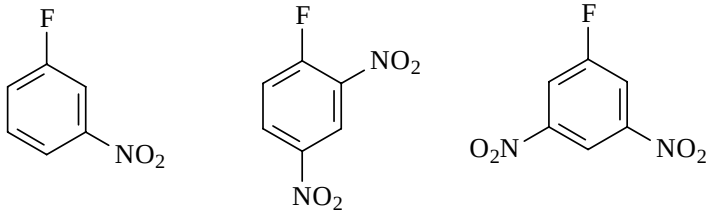
1) rate = k[aryl haldie]
2) rate = k[nucleophile]
3) rate = k[aryl halide][nucleophile]
4) rate = k[aryl halide][nucleophile]^2

8. Which of the following best estimates the percentages of the three isomeric methylanilines from the reaction shown below?



	ortho-methylaniline	*meta*-methyaniline	*para*-methyaniline
1)	33%	33%	33%
2)	40%	40%	20%
3)	0%	50%	50%
4)	0%	66%	33%

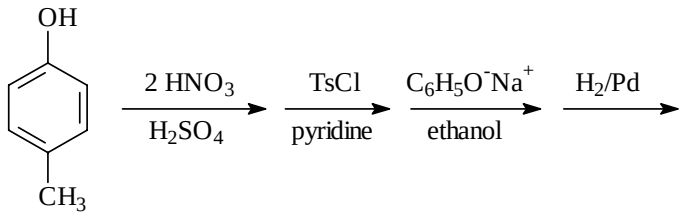
9. Arrange the following compounds in order of increasing reactivity with sodium methoxide, $NaOCH_3$?

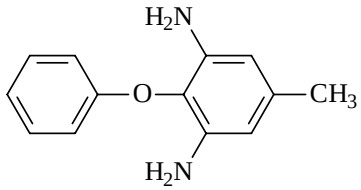


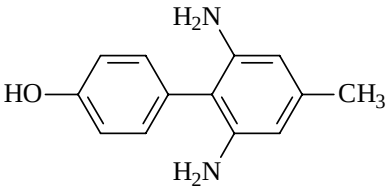
A B C

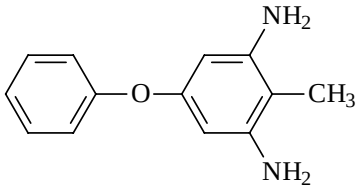
1) A<B<C 2) A<C<B 3) B<A<C 4) C<B<A

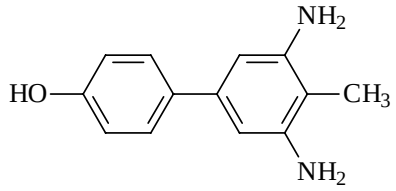
10. Which of the following is the product from the reaction sequence shown below?



1) 

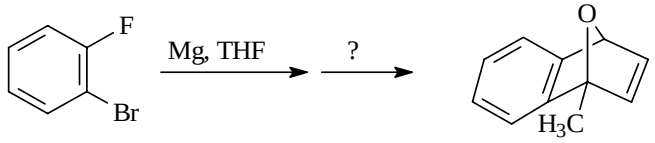
3) 

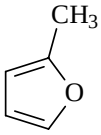
2) 

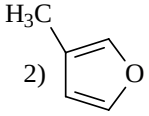
4) 

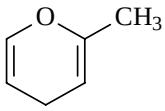
1) 1 2) 2 3) 3 4) 4

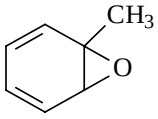
11. Identify the diene required for the synthesis shown below.



1) 

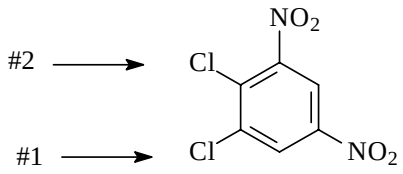
2) 

3) 

4) 

1) 1 2) 2 3) 3 4) 4

12. Which chlorine is most susceptible to nucleophilic substitution with $NaOCH_3$ in methanol?



1) #1
2) #2
3) #1 and #2 are equally susceptible
4) no substitution is possible