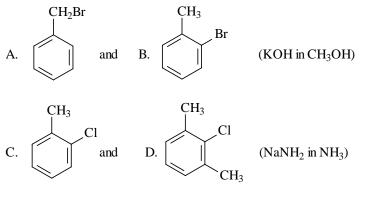
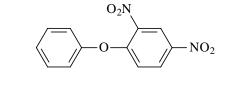
Chemistry 211 Chapter 23 Quiz #2

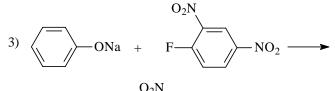
1. Which compound in each of the following pairs is the most reactive to the conditions indicated?



- 1) A and C 2) A and D 3) B and C 4) B and D
- 2. Which of the following would work best for the synthesis of the ether shown below?



$$2) \qquad F + NaO \qquad NO_2 \qquad \rightarrow$$

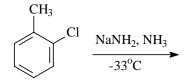


4) 
$$+$$
 HO  $NO_2$ 

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



- 3. Which of the following is (are) true concerning the intermediate benzyne?
  - A. Benzyne is aromatic.
  - B. All the hydrogens of benzyne are equivalent and indistinguishable.
  - C. The benzyne molecule has strain energy.
  - 1) only A 2) only C 3) A and C 4) B and C
- 4. Which one of the following has the fastest rate of reaction with sodium ethoxide, NaOCH<sub>2</sub>CH<sub>3</sub>, at 25<sup>0</sup>C?
  - 1) *para*-fluoronitrobenzene 2) para-chloronitrobenzene
  - 3) para-bromonitrobenzene 4) para-iodonitrobenzene
- 5. Identify the product(s) of the following reaction.

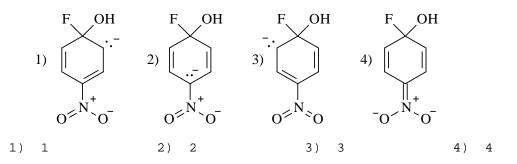


1) only ortho-methylaniline

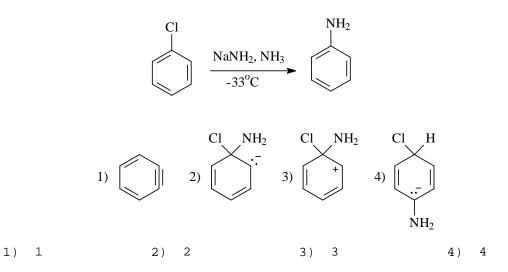
- 2) ortho-methylaniline and meta-methyaniline
- 3) meta-methylaniline and para-methyaniline
- ortho-methylaniline and para-methyaniline 4)
- 6. Which of the following reacts at the fastest rate with potassium methoxide (KOCH<sub>3</sub>) in methanol?

1)	fluorobenzene	2)	<i>p</i> -nitrofluorobenzene

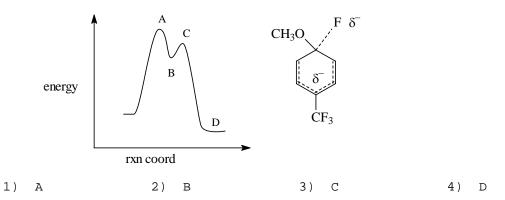
- 3) *p*-fluorotoluene 4) *p*-bromofluorobenzene
- 7. Which of the following is not a resonance form of the intermediate in the nucleophilic addition of hydroxide ion to para-fluoronitrobenzene?



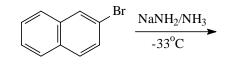
8. Which of the following is a key intermediate in the reaction shown below?



9. Which position on the potential energy diagram corresponds to the species shown for the reaction of *para*-fluoro(trifluoromethyl)benzene with sodium methoxide?

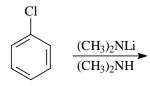


10. Assume that the following reaction goes by the elimination-addition mechanism for nucleophilic aromatic substitution. Based on that, how many isomeric naphthylamines are expected in the following reaction?



only a single product
two
three
four

11. What is the product of the following reaction?



- 1) N,N-dimethylaniline
- 2) para-chloro-N,N-dimethylaniline
- 3) phenyllithium ( $C_6H_5Li$ )
- 4) *meta-chloro-N,N-dimethylaniline*