HOMEWORK ASSIGNMENT #6 ORGANIC CHEMISTRY II

**aromatic basics and on-ring reactions**

 (due Wed 1 April )

**Your name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (1 pt)**

**6.1. Aromatic basics**

**Name the three criteria necessary for the property of aromaticity to exist in a molecule: (3 pts)**

**1)\_\_\_\_\_\_\_\_\_\_\_\_rigidly flat\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**2)\_\_\_\_\_\_\_\_\_\_\_\_\_alternate double-single bonds\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**3)\_\_\_\_\_\_\_\_\_pi count = 4n+2 (Huckel rule obeyed), n=0,1,2…\_\_\_\_**

**Decide which of the molecules below are aromatic: (4 pts total)**

1. **1,3-butadiene YES NO**
2. **1,3-cyclobutadiene YES NO**



1. **YES NO**



1. **YES NO**

**6.2 One Step Dancing ( 4 pts total/2 pts each)**

**Suggest a one step reaction that will result in the compound on the right**



**a)**



**b)**



***Any two substituents on ring can be starter since all three***

***Are meta directors***

**\_\_/14**

**6.3 Two Step Dancing ( 6 pts/3 pts each)**

**Suggest a two step set of reactions that result in the compound on the right**





**a)**



**b)**



**skip**

**7.3. Predictable Dancing 5 pts**

**What most likely forms in the reactions below ?**



**a)**





**b)**



**Which reaction is likely to be easier to run and why ? (1 pt**

**\_\_\_/15 *Reaction 7.3a more likely since one group is activating (NH2) and one group is de-activating (NO2) so the net effect is a null and substitution occurs about at the rate of simple benzene. Both substituents in 6.3. b are deactivating so substitution is great diminished kinetically vs. benzene.***