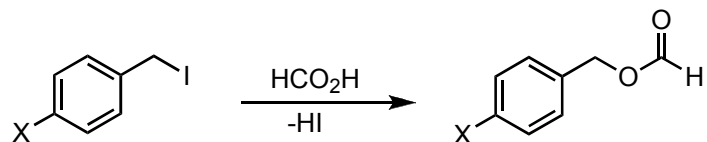


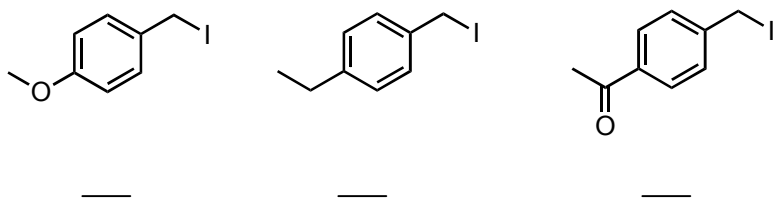
## Chemistry 30B Discussion - Week 1: Chem 30A Review Problems - DCF

### 1: The S<sub>N</sub>1 Reaction

a) Consider the S<sub>N</sub>1 reaction of the following substituted benzyl halides in formic acid

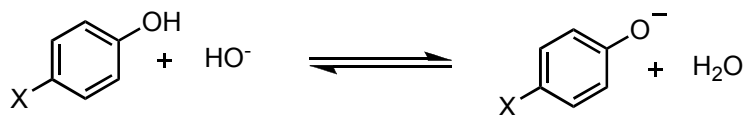


Predict the order of reactivity of the three substrates shown below: 1 (fastest) to 3 (slowest)

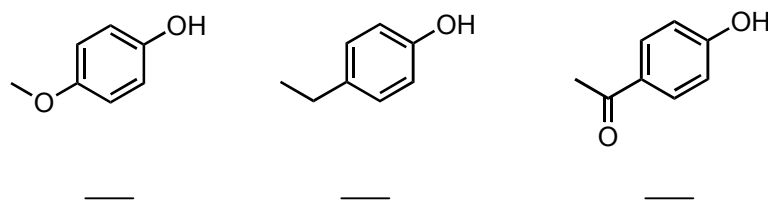


b) Take the most reactive substrate in **a** and draw the significant resonance structures which contribute to the stability of the derived intermediate carbonium ion.

c) Consider the acid-base reaction of the substituted phenols below with aqueous hydroxide:



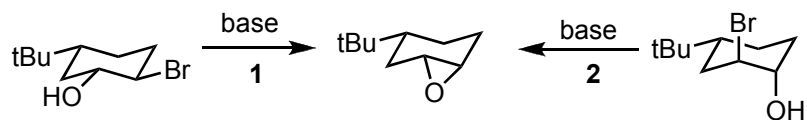
Predict the acidity order for the three phenols shown below: 1 (most) to 3 (least)



d) Take the most acidic substrate in **c** and draw the significant resonance structures which contribute to the stability of the derived conjugate base.

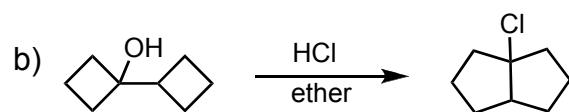
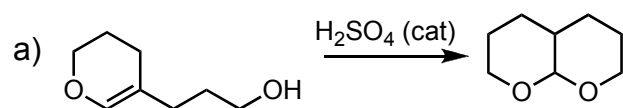
## 2: The S<sub>N</sub>2 Reaction

Compare the following reactions:

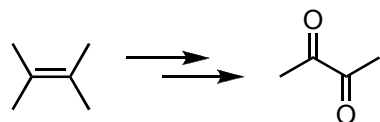


Which reaction would be faster? **1** or **2**  
Why?

### 3: Propose a reasonable mechanism



### 4: Propose a reasonable synthesis (<4 steps)



**5: Propose a reasonable mechanism (challenge problem)**

