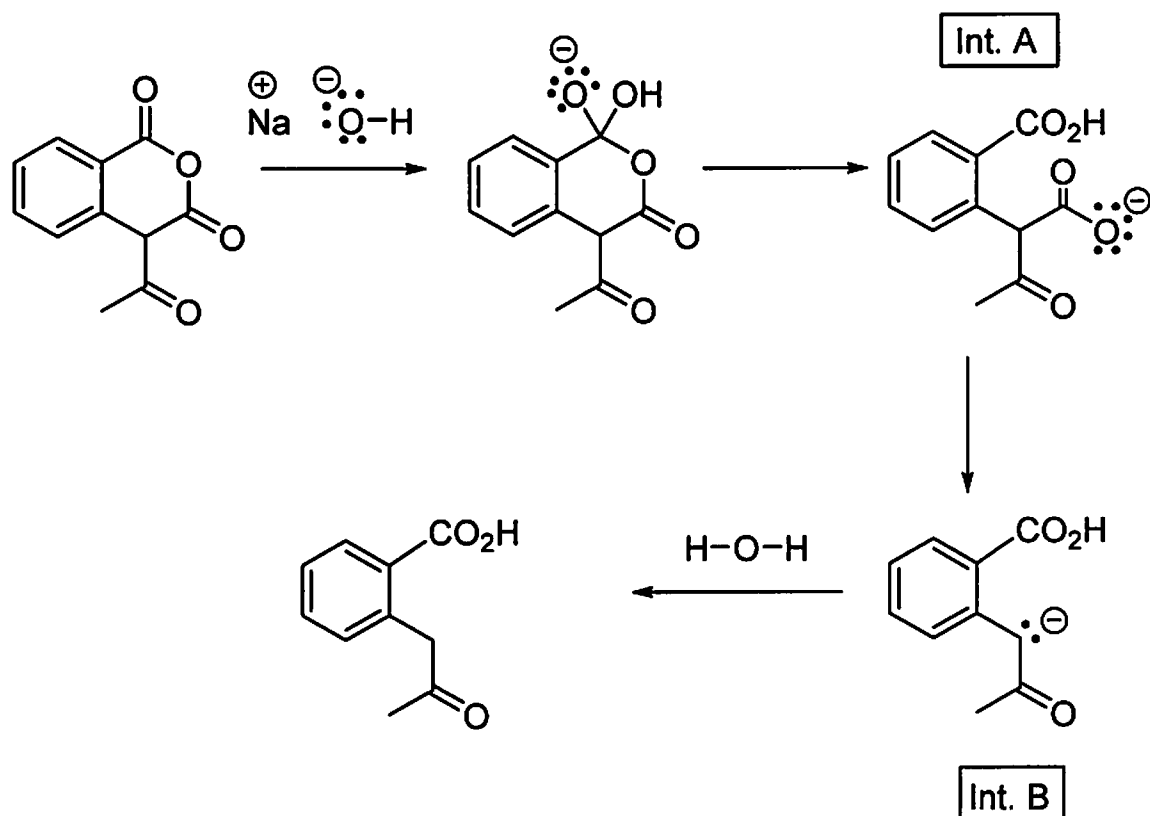


**2018 ORG MECH: Nucleophiles and Bases****Quiz #2****20 pts**

NAME: \_\_\_\_\_

1) For the transformation below:

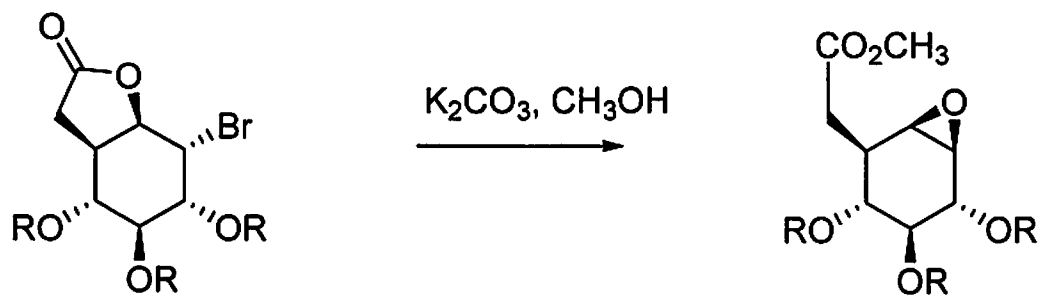
a) Draw in the curly arrows. (4pts)



b) What gas is lost proceeding from Intermediate A to Intermediate B? (1pt)

c) Also in the same step we go from anion on Oxygen, to anion on Carbon. Name the feature associated with the carbanion which makes step acceptable? (1pt)

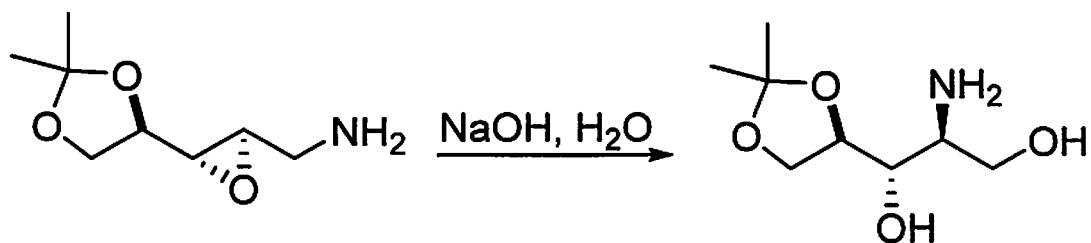
2) For the transformation below:



a) Show mechanistically how  $\text{CH}_3\text{O}^-$  (Methoxide anion) is generated from the base and the solvent. (2pts)

b) Write your best mechanism for this transformation using the following guide: i) methoxide attacks the cyclic ester; ii) nucleophilic acyl substitution occurs; iii) the leaving alkoxide displaces the Bromine. (5pts)

3) The reaction below involves neighboring group participation (anchimeric assistance).



a) Write a mechanism for this transformation. (6pts)

b) Justify why the amino group in the product must have the solid wedge stereochemistry. (1pt)

**\*\*\*Bonus question for up to 1point\*\*\***

What is the name of the cyclic functional group with three Oxygens in the starting material in Question 1?

2018 ORG MECH: Nucleophiles and Bases

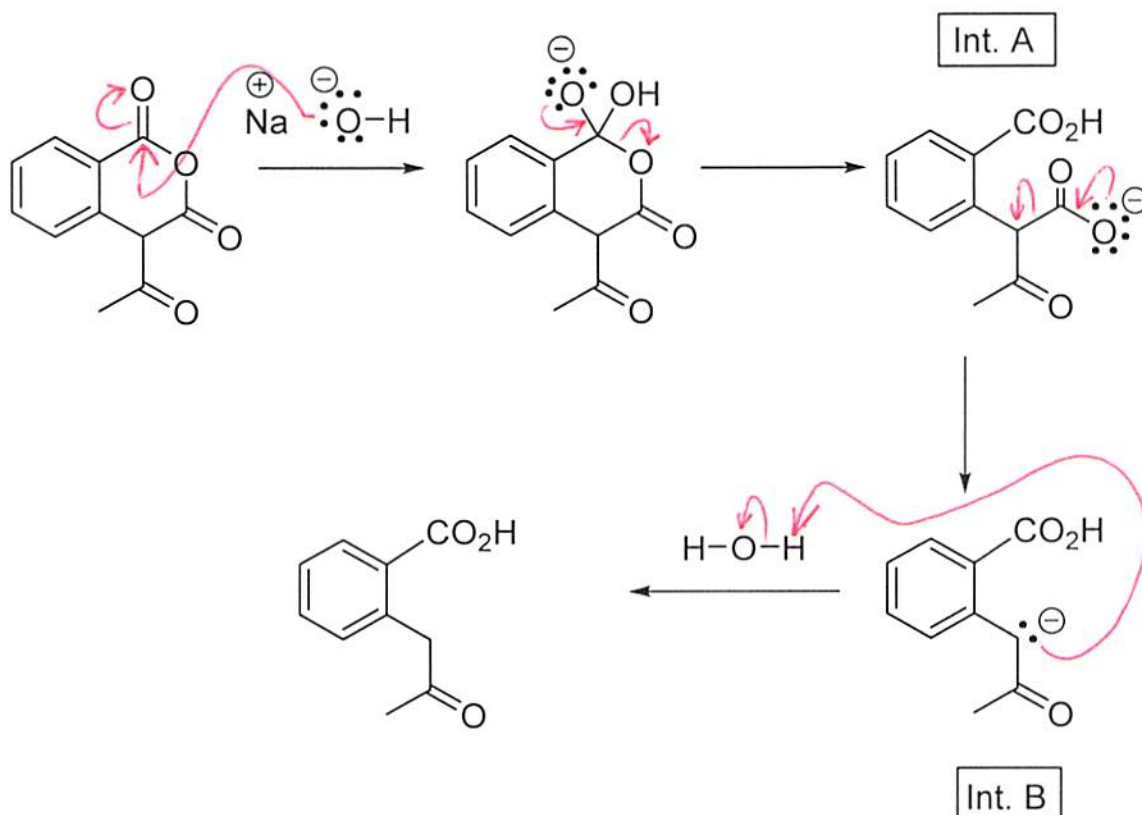
Quiz #2

20 pts

NAME: \_\_\_\_\_

ANSWERS

- 1) For the transformation below:  
a) draw in the curly arrows. (4pts)



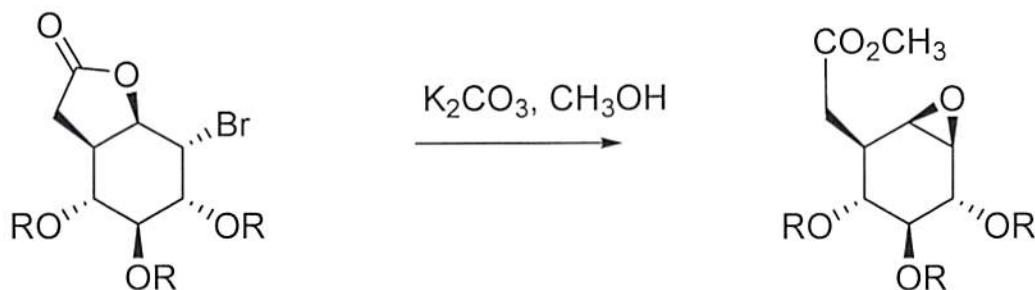
- b) What gas is lost proceeding from Intermediate A to Intermediate B? (1pt)

$\text{O}=\text{C}=\text{O}$ , Carbon dioxide

- c) Also in the same step we go from anion on Oxygen, to anion on Carbon. Name the feature associated with the carbanion which makes step acceptable? (1pt)

It is resonance stabilized.

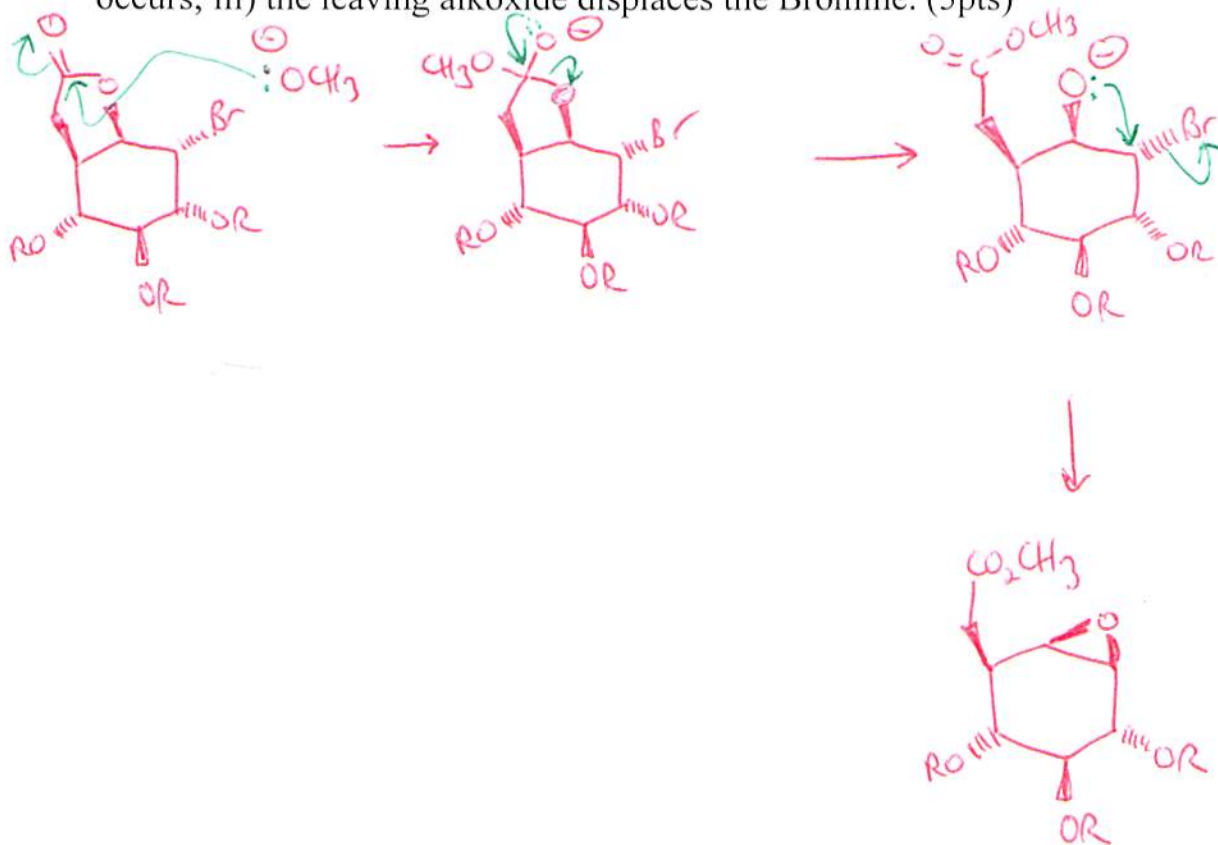
2) For the transformation below:



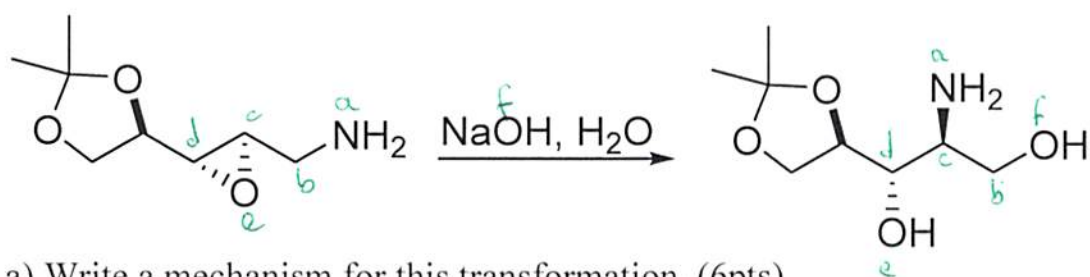
a) Show mechanistically how  $CH_3O^-$  (Methoxide anion) is generated from the base and the solvent. (2pts)



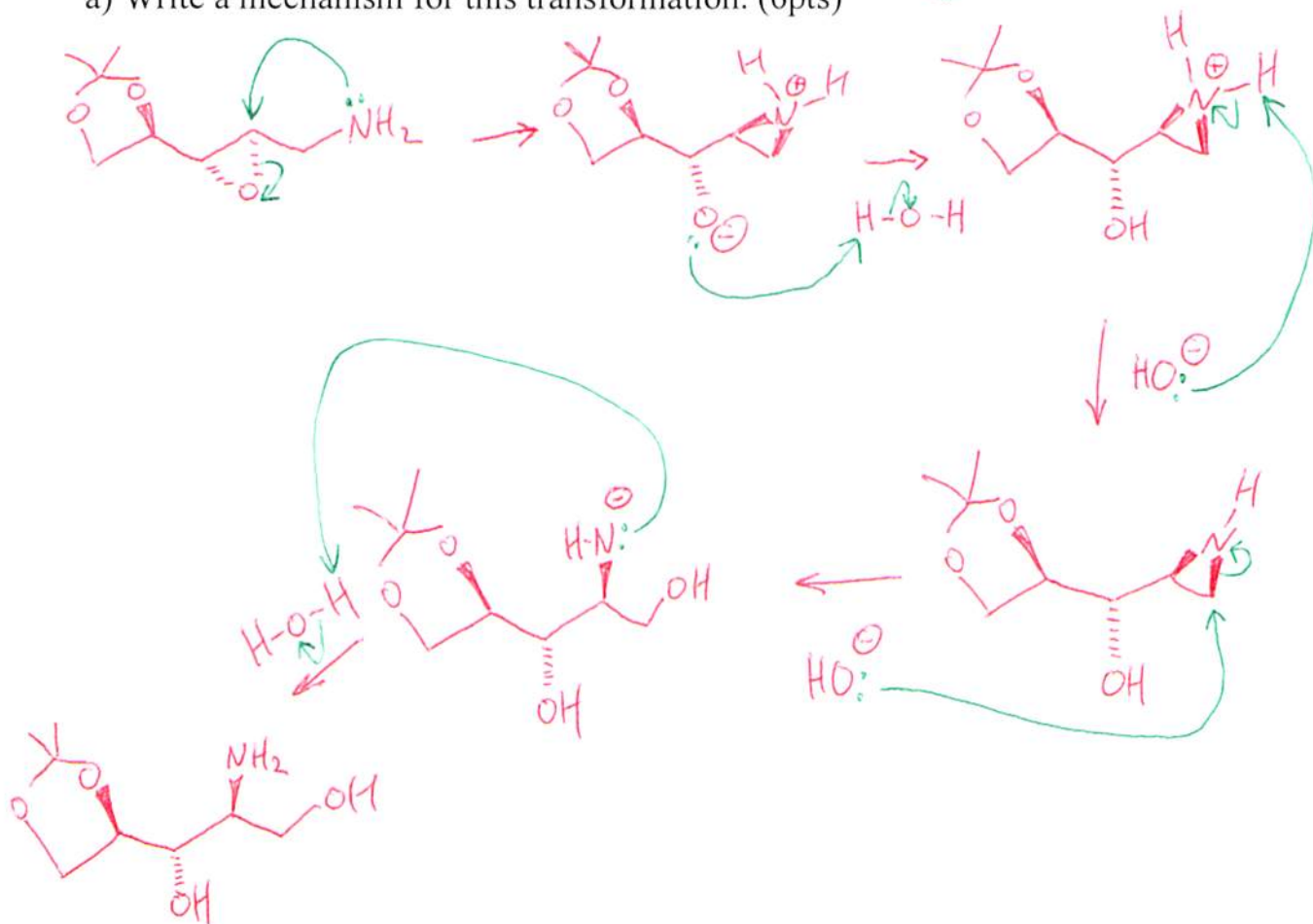
b) Write your best mechanism for this transformation using the following guide: i) methoxide attacks the cyclic ester; ii) nucleophilic acyl substitution occurs; iii) the leaving alkoxide displaces the Bromine. (5pts)



3) The reaction below involves neighboring group participation (anchimeric assistance).



a) Write a mechanism for this transformation. (6pts)



b) Justify why the amino group in the product must have the solid wedge stereochemistry. (1pt)

The N performs an  $S_N2$  on the epoxide, and must approach from directly behind ("back side attack" on the dashed wedge  $\Rightarrow$  solid wedge).

**\*\*\*Bonus question for up to 1point\*\*\***

What is the name of the cyclic functional group with three Oxygens in the starting material in Question 1?

