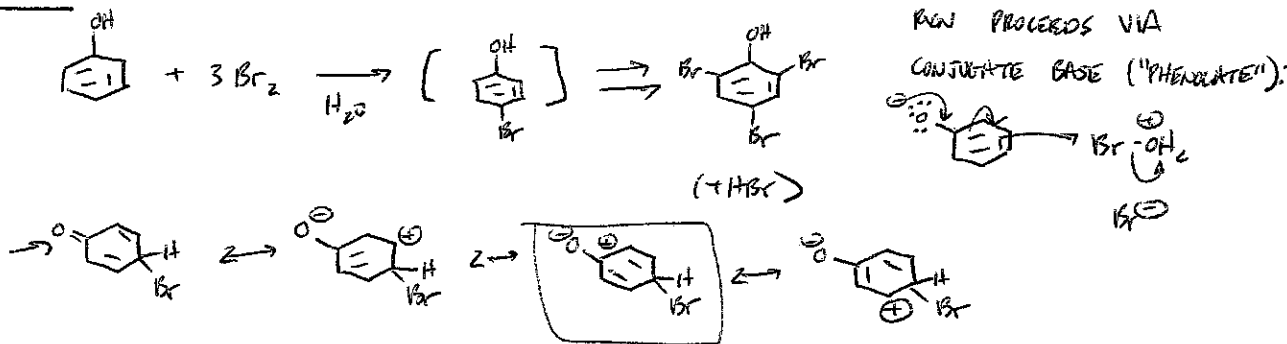


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**PLEASE COMPLETE NOTES IN INK AND DO NOT STAPLE.**

RECALL: HIGH EAS REACTIVITY OF PHENOL (+ DERIVATIVES)



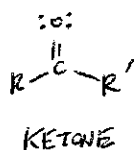
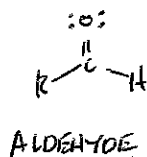
CONTRAST: HYPOTHETICAL - FOR META



SKIP SECTIONS 18.10 + 18.11

CHAPTER 19 - ALDEHYDES + KETONES

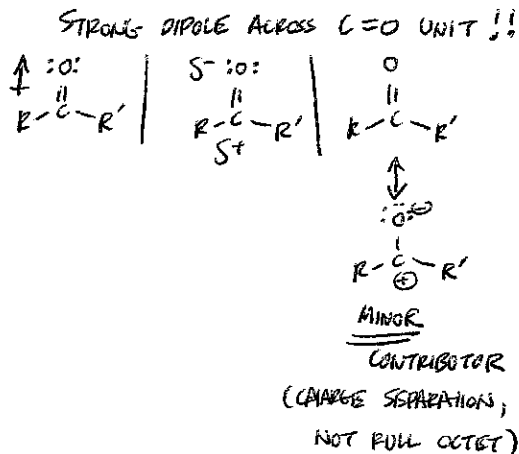
REC. PROBLEMS: 1, 3-6, 12-18



CARBON OXIDATION STATE = +2 C(+2)

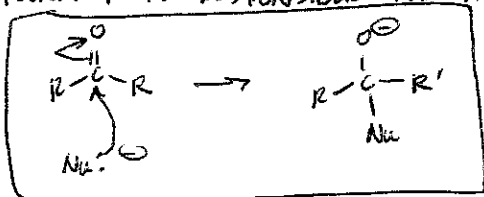
READ SECTION 19.1 (NAME → STRUCTURE)  
 READ SECTION 19.2 (PHYSICAL PROPERTIES)

KEY POINT:



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THIS POLARITY IS RESPONSIBLE FOR A VERY COMMON MECHANISTIC THEME:



### SPECTROSCOPY

1) IR  $\rightarrow$  STRONG SIGNAL FOR C=O STRETCH

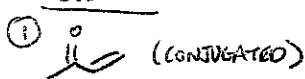
ALDEHYDES + KETONES :  $1710-1725 \text{ cm}^{-1}$  (TYPICAL)

THUS,

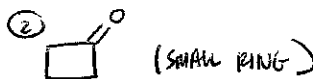


$1715 \text{ cm}^{-1}$   
("TYPICAL")

#### DEVIATIONS



$1670 \text{ cm}^{-1}$

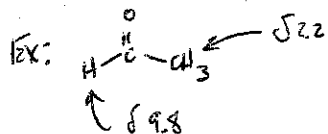


$1780 \text{ cm}^{-1}$

2)  $^1\text{H}$  NMR

$\rightarrow$  H ON C ADJACENT TO C=O  
 $\delta$  2.0-2.5

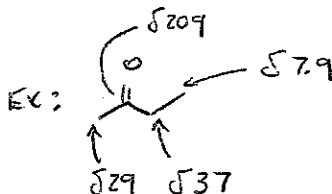
$\rightarrow$  H ON C=O (i.e., ALDEHYDE)  
 $\delta$  9-10 (VERY CHARACTERISTIC)



3)  $^{13}\text{C}$  NMR

$\rightarrow$  CARBONYL C  $\delta$  190-220

$\rightarrow$  C ADJACENT TO CARBONYL  $\delta$  30-50



Course WHEM 345Instructor GELMANDay FRIDAYDate 2/28/2014Notes Taken By ELLIOT

Total # of Pages \_\_\_\_\_

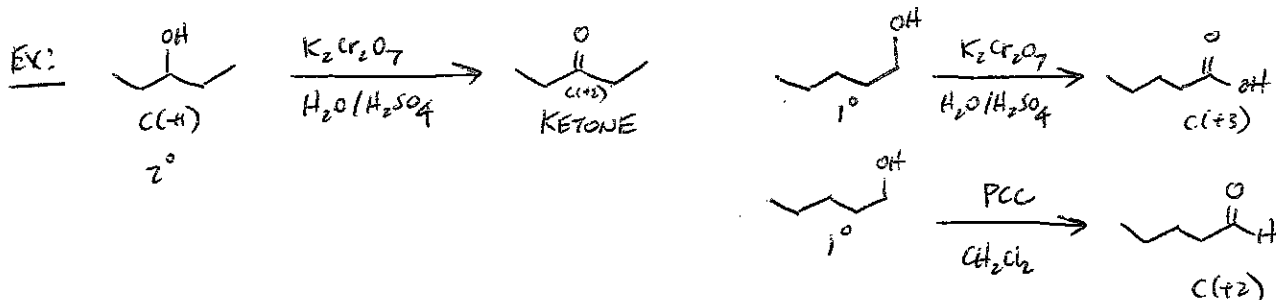
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RXNS THAT GENERATE ALDEHYDES + KETONES

→ §19.4

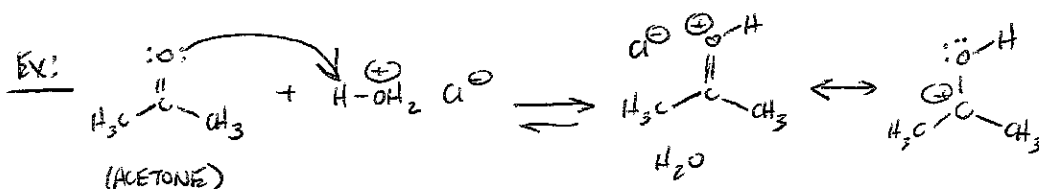
\* FLASH CARDS FOR "SYNTHETIC MASTERY" OF RXNS \*

MOST VERSATILE: OXIDATION OF ALCOHOLS WITH Cr(VI)

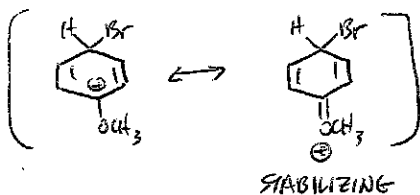
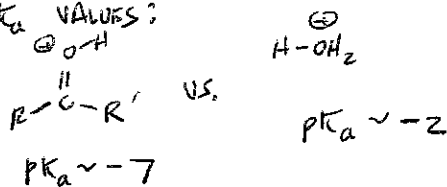


RXNS OF ALDEHYDES + KETONES

ACID-BASE CHEMISTRY - A/K ARE WEAK BRONSTED BASES  
 (ALDEHYDE/  
 KETONE)



RECALL: EAS WITH ALKOXYL

pK<sub>a</sub> VALUES:

Course CHEM 395 Instructor GELMAN  
Day FRIDAY Date 2/28/2014  
Notes Taken By EMMOT Total # of Pages 4

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REVERSIBLE NUCLEOPHILIC ADDITION TO ALDEHYDES / KETONES

