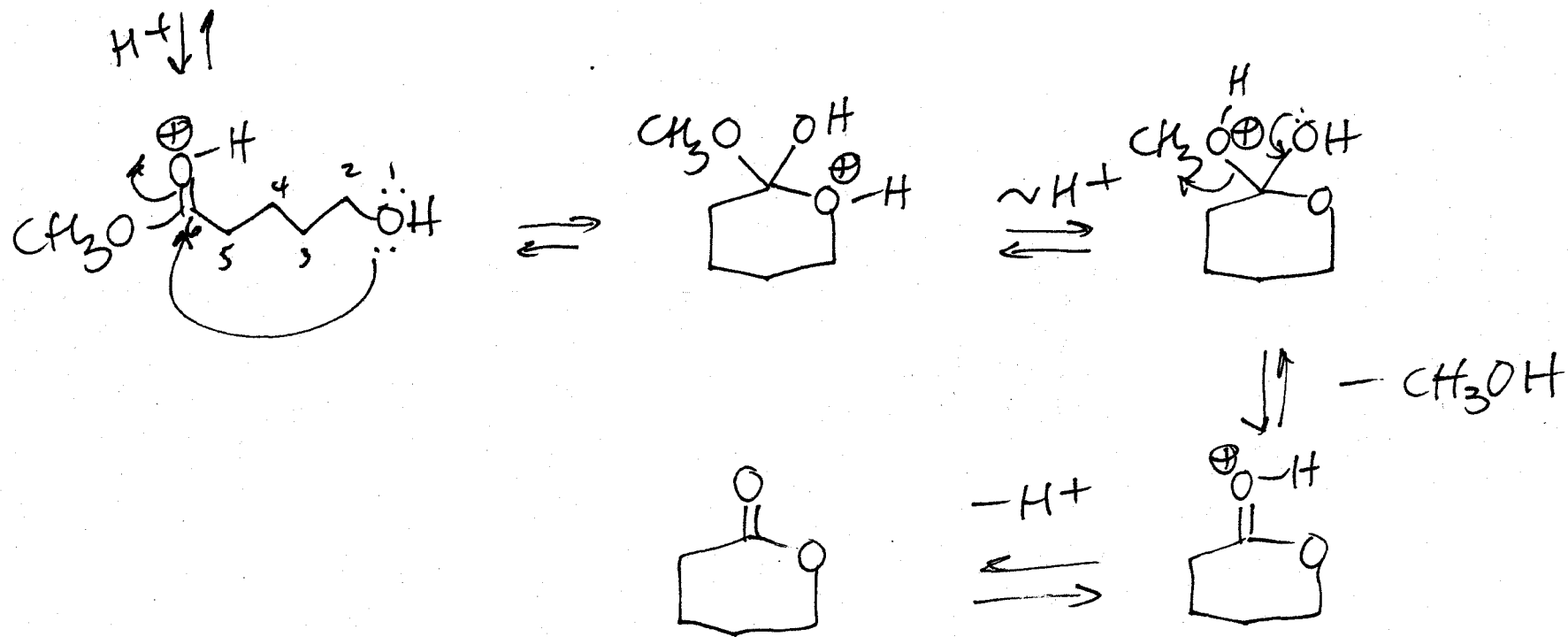
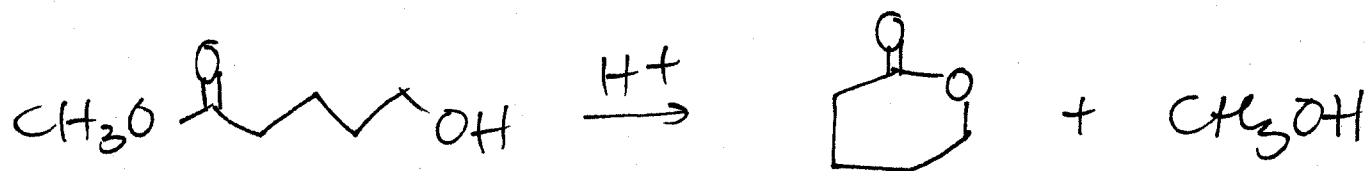


# Esters (cfd)

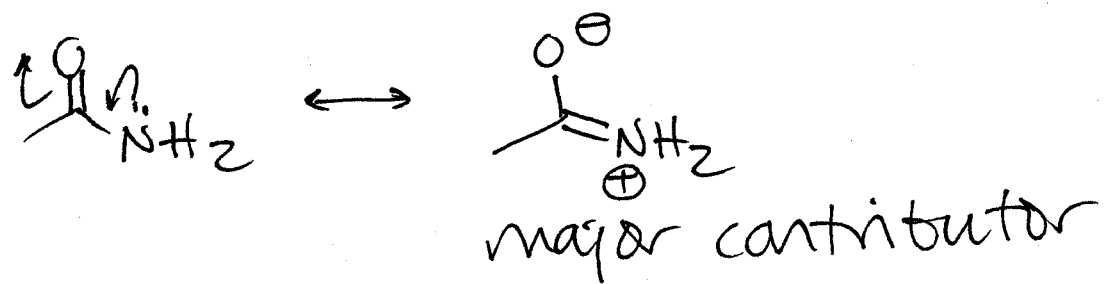
- transesterification

ester + alcohol  $\rightarrow$  new ester + new alcohol



- ester + amine  $\rightarrow$  amides

Amides - v. unreactive

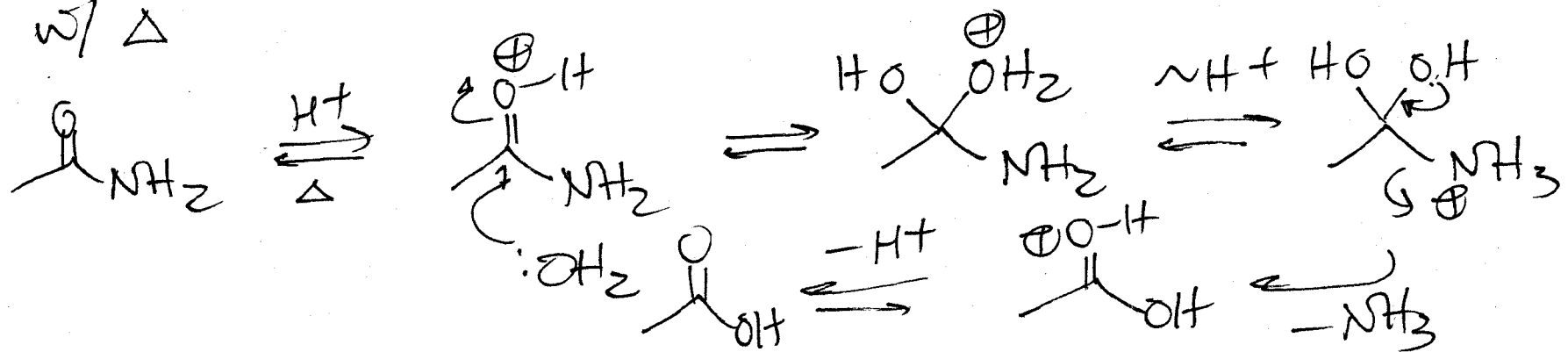


\* oxygen reacts w/  $H^+$  faster than the N.

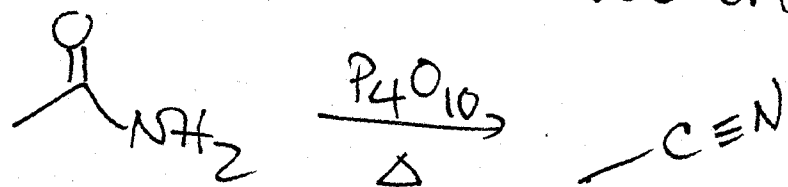
\* C-N bond has high degree ~~of~~ of double bond character.

NMR can distinguish the two H's on N.

acid-cat. hydrolysis  $\rightarrow$  carboxylic acid  
w/  $\Delta$



dehydrate (1° amides only)

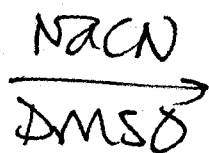


→ nitriles

SKIP 16.18  
(For now)

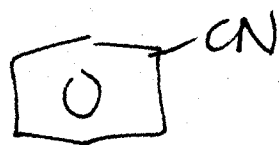
Nitriles

Via  $S_N2$

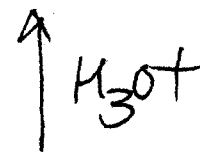
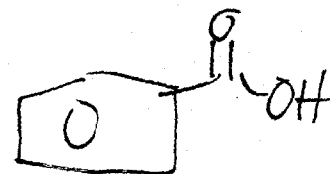
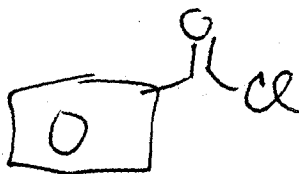
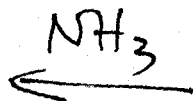
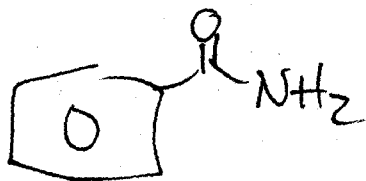
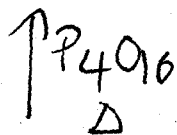


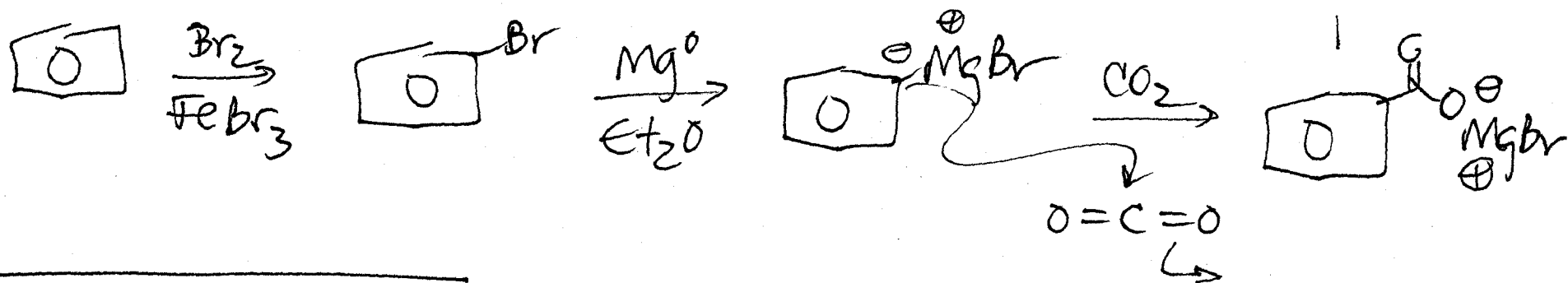
(adds one carbon)

make

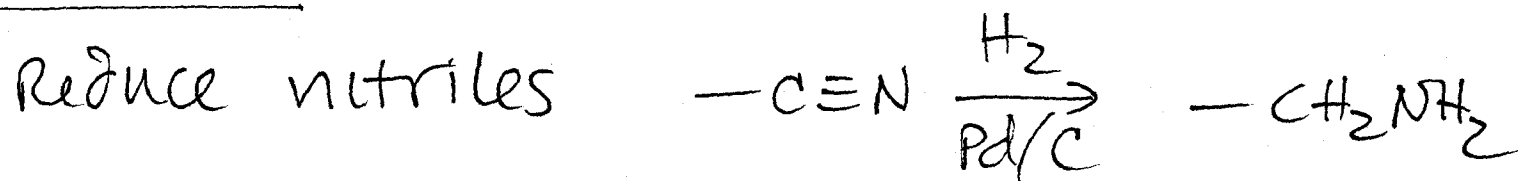
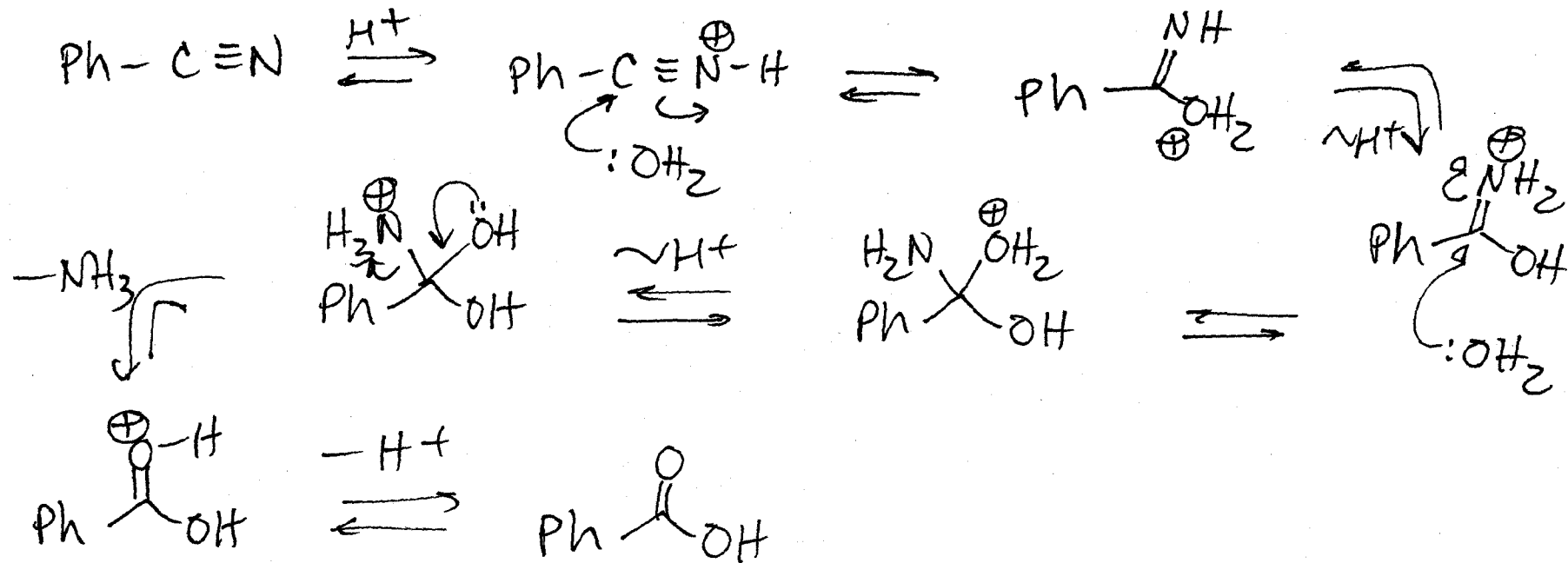


(NOT via a diazo compound)





Nitrile hydrolysis -  $\text{H}^+/\Delta$



How chemists activate carboxylic acids —  
 $\text{SOCl}_2$  (or  $\text{PCl}_3$  or  $\text{PBr}_3$ )

\* See earlier notes

How cells activate carboxylic acids —  
Read, but not on test.

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In general, acyl substitutions under neutral conditions tend to be slow. Use catalysts.

Acid

— protonate  $\text{C=O}$   
makes it more  
susceptible to attack

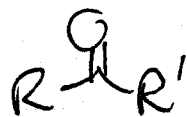
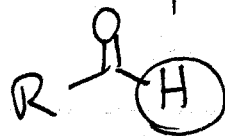
\* no  $\ominus$  charges

Base

— use better nucleophile  
e.g.  $\text{OH}^-$  vs.  $\text{H}_2\text{O}$

\* no  $\oplus$  charges

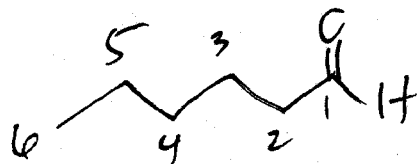
# chapter 17 - Aldehydes + Ketones



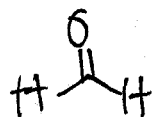
## Nomenclature (Aldehydes)

C=O is #1

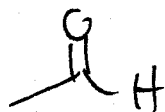
- find longest chain starting w/ C=O; change "e" to "al"



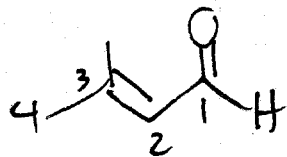
hexanal



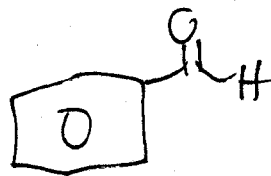
(methanal)  
formaldehyde



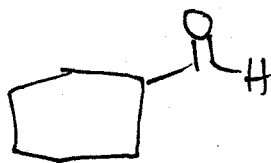
(ethanal)  
acetaldehyde



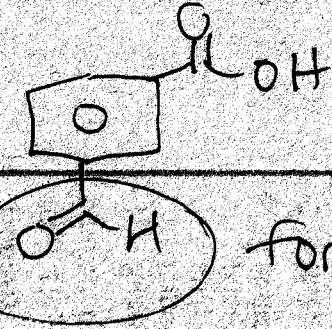
3-methyl-2-butenal



benzaldehyde



cyclonexanecarbaldehyde



3-formyl benzoic acid