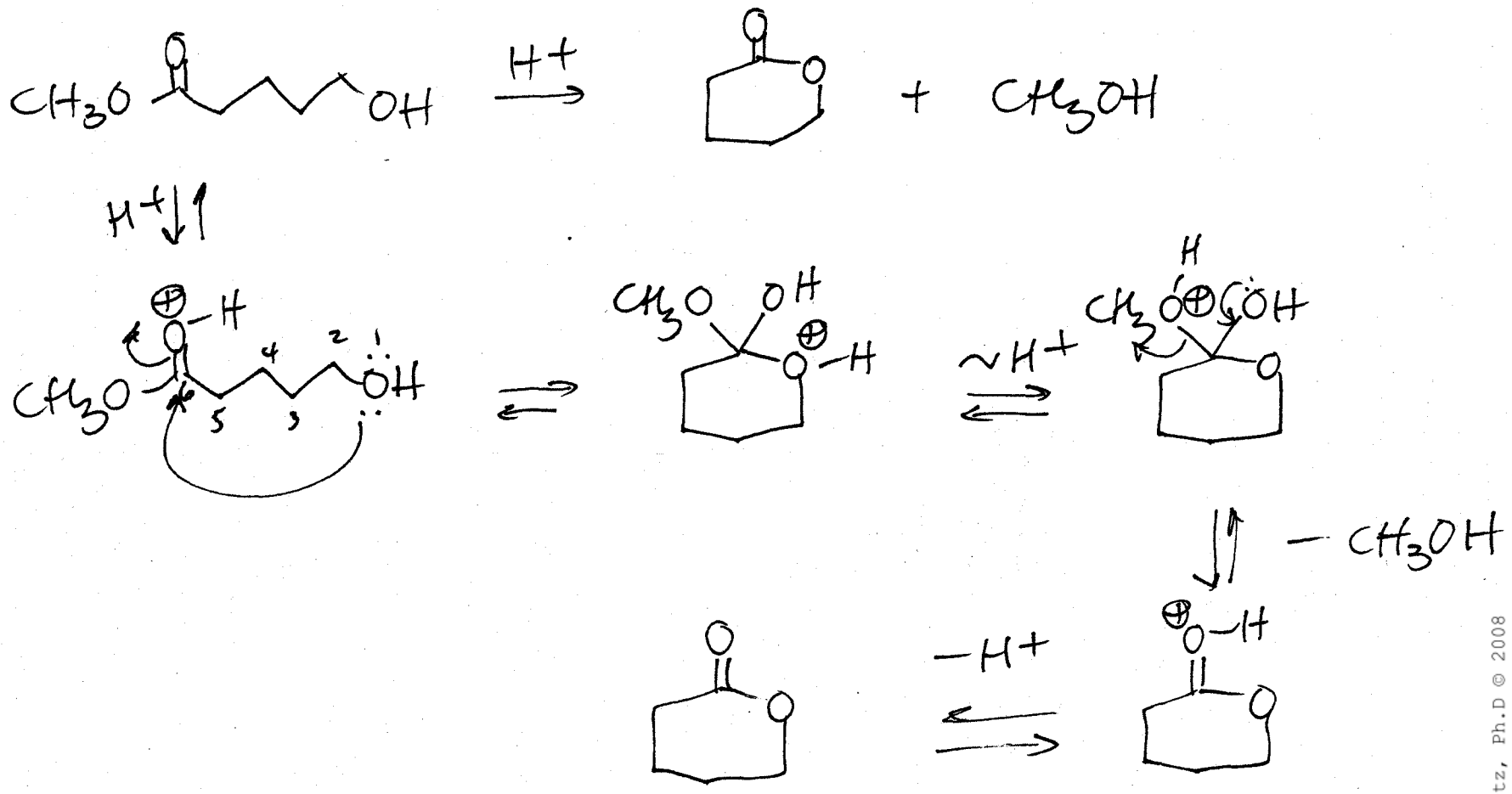
Esters (ctd)

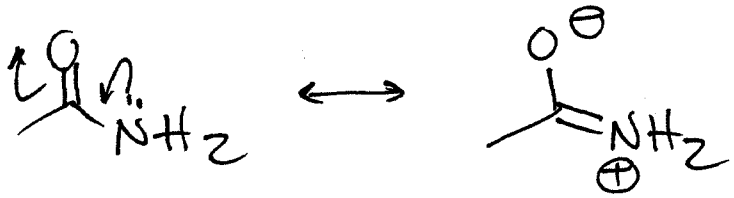
- transesterification

ester + alcohol → new ester + new alcohol



- ester + amine → amides

Amides – v. unreactive

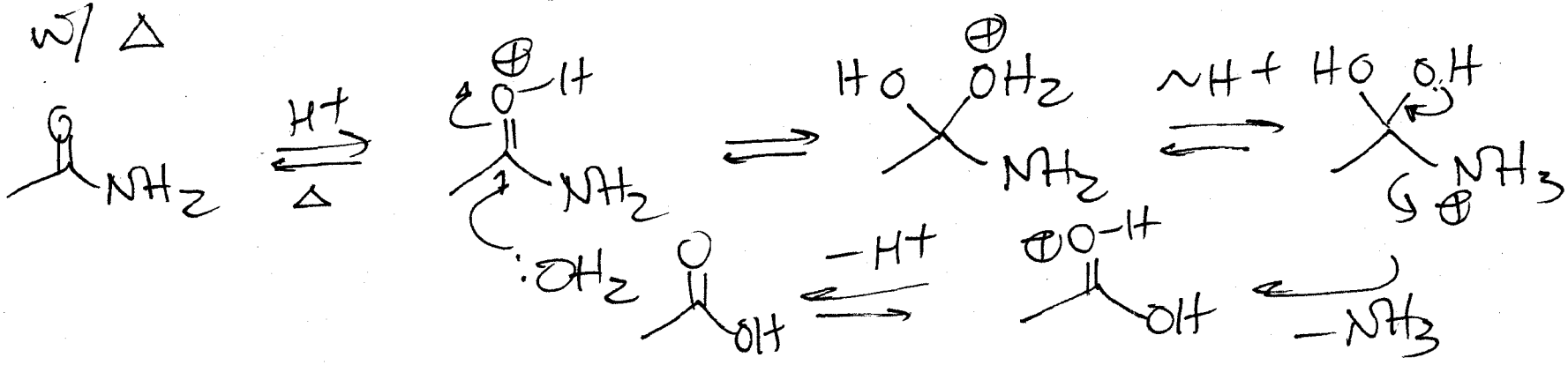


major contributor

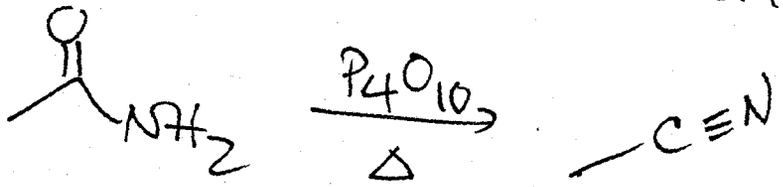
* oxygen reacts w/ H^+ faster than the N.
* C–N bond has high degree of double bond character.

NMR can distinguish the two H's on N.

acid-cat. hydrolysis → carboxylic acid w/ Δ

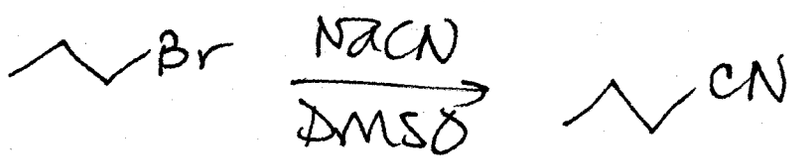


dehydrate (1° amides only) → nitriles



SKIP 16.18 (For now)

Nitriles

via S_N2 

(adds one carbon)

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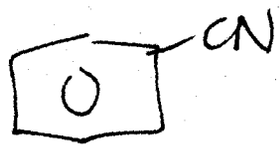
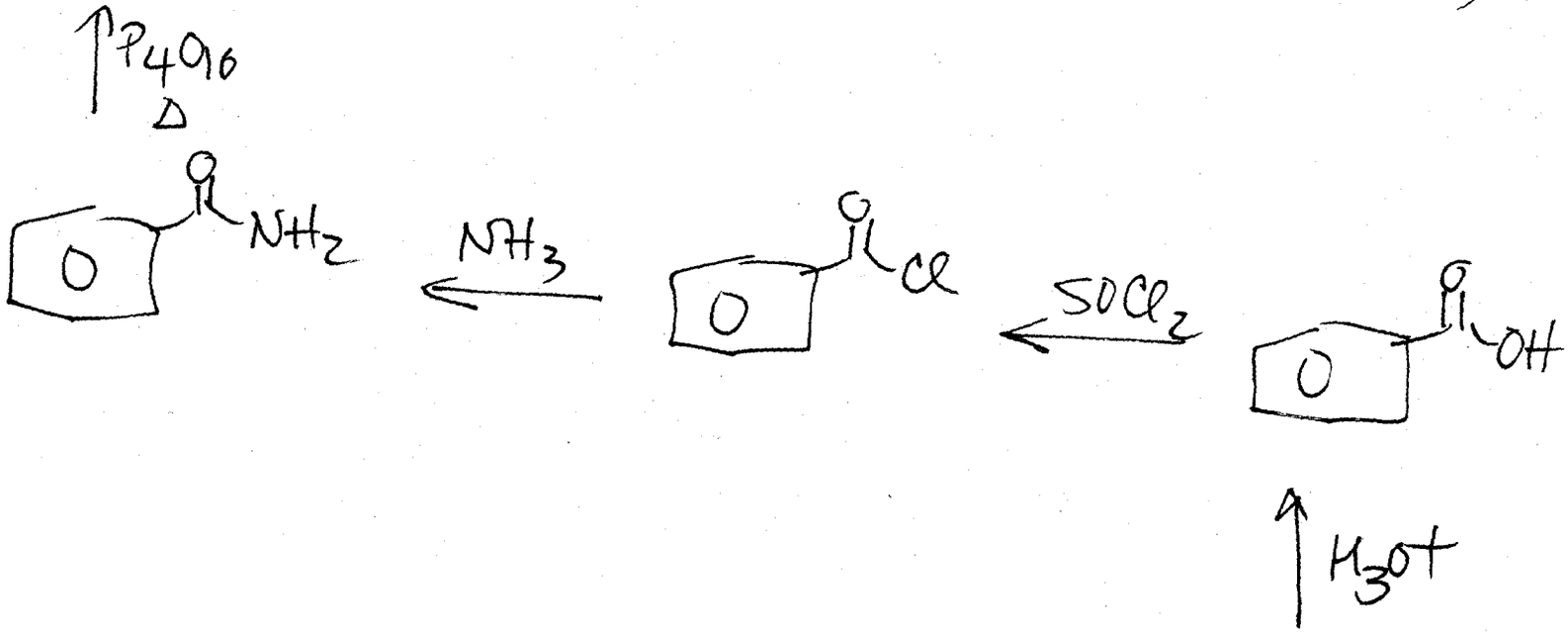
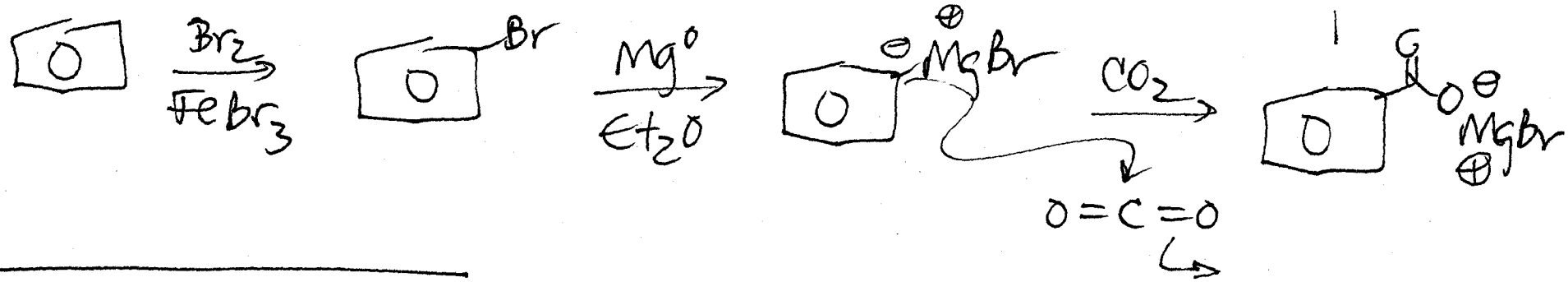
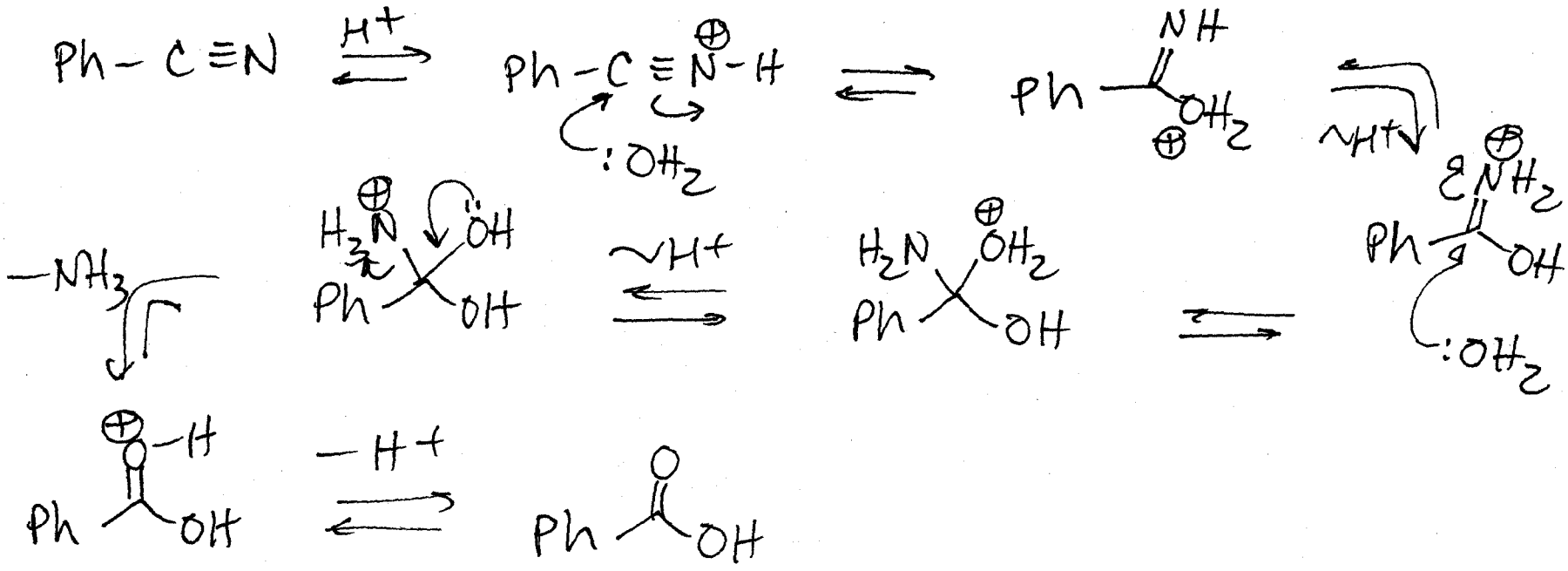
make 

(Not via a diazo compound)





Nitrile hydrolysis - H^+/Δ



Reduce nitriles $-C\equiv N \xrightarrow[Pd/C]{H_2} -CH_2NH_2$

How <u>chemists</u> activate carboxylic acids —
$SOCl_2$ (or PCl_3 or PBr_3)

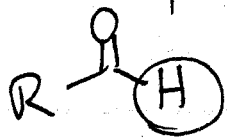
*see earlier notes

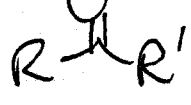
How <u>cells</u> activate carboxylic acids —
Read, but not on test.

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

Acid	Base
- protonate C=O makes it more susceptible to attack	- use better nucleophile e.g. $^{\ominus}OH$ vs. H_2O
* no ⊖ charges	* no ⊕ charges

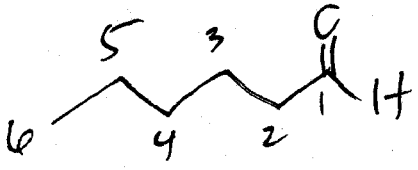
Chapter 17 - Aldehydes + Ketones



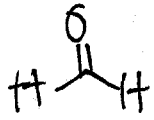


Nomenclature (Aldehydes)

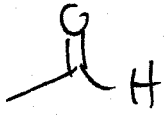
C=O is #1 - find longest chain starting w/ C=O ; change "e" to "al"



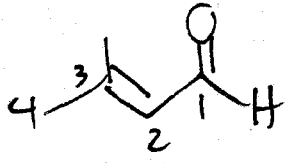
hexanal



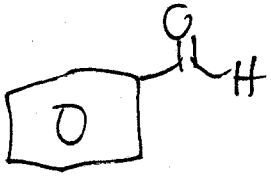
(methanal)
formaldehyde



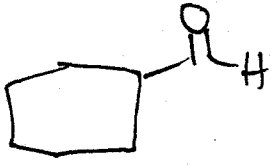
(ethanal)
acetaldehyde



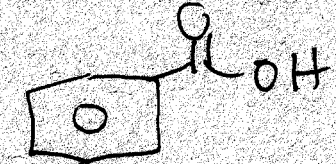
3-methyl-2-butenal



benzaldehyde



cyclohexanecarbaldehyde



3-formylbenzoic acid