

Hydrolysis And Dehydration Of Amides

from chapter(s) _____ in the recommended text

A. Introduction

B. Reactivity Of Amides

less

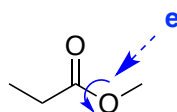
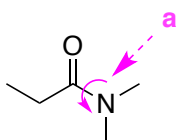
less

sp^2

pyramidal and sp^3

more

a than **e**.

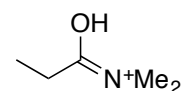
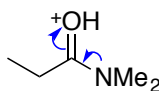
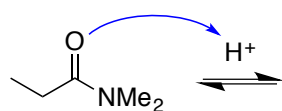
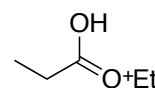
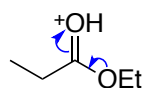
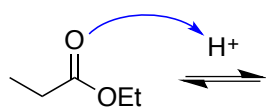


2

1 at elevated temperatures.

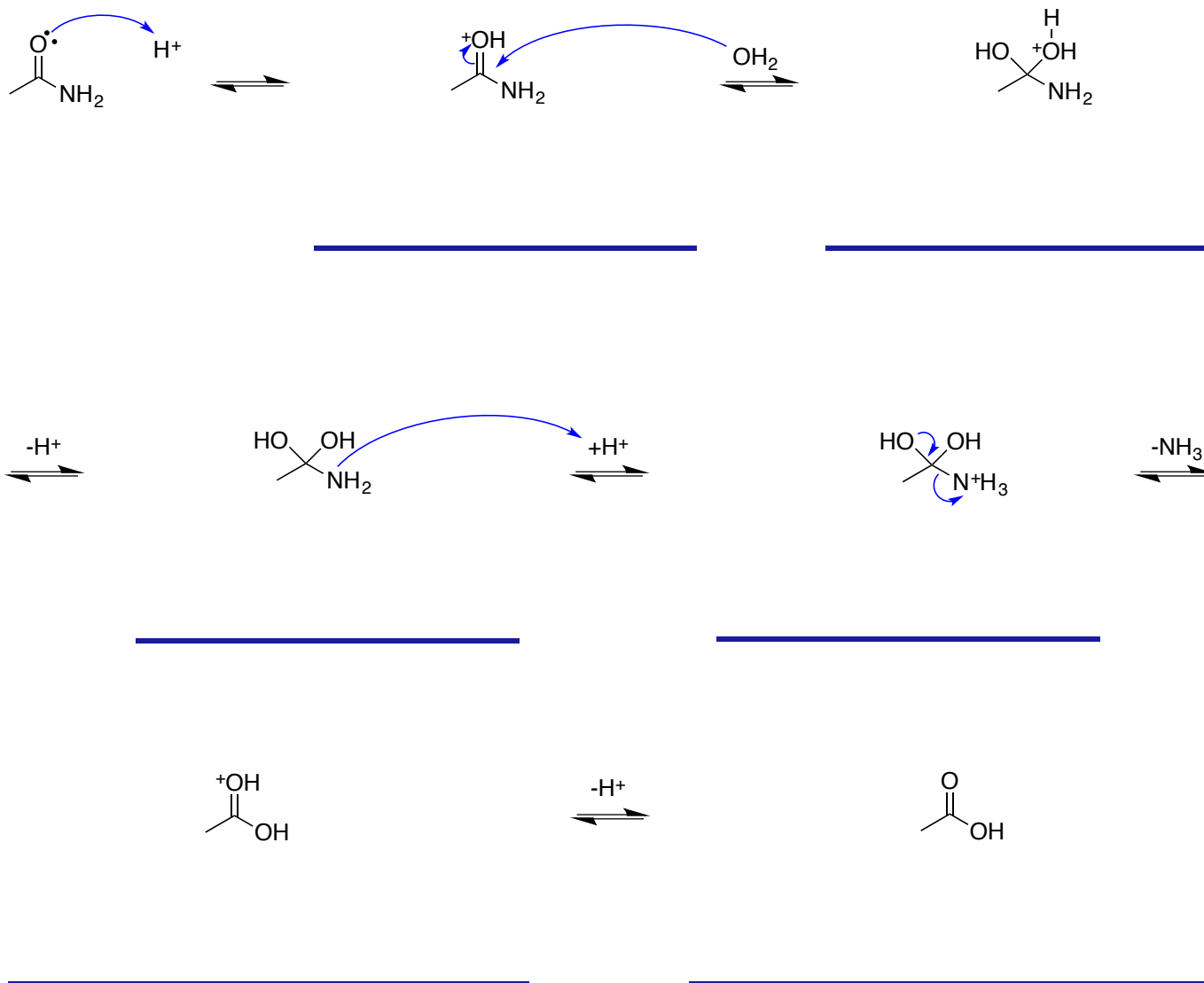
more

more



C. Hydrolysis Of Amides

tetrahedral

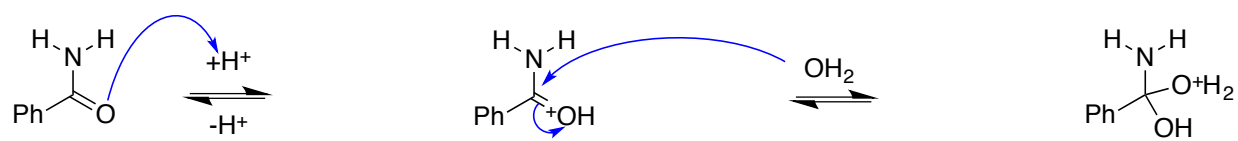


NH_4^+

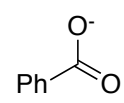
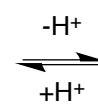
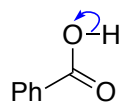
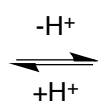
irreversible

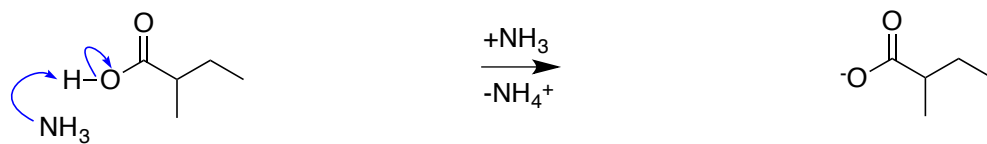
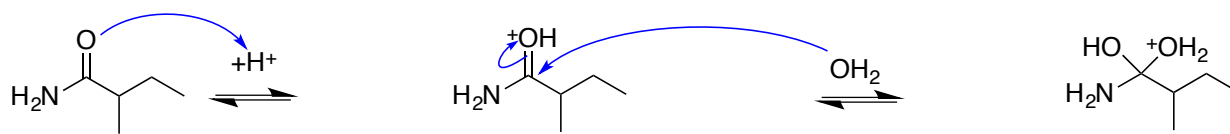
NH_4^+ is not nucleophilic and cannot attack carbonyl to form amide.

because carbonyl group on amide cannot be protonated under neutral condition, leading to inactivated carbonyl, then water cannot attach to carbonyl carbon.

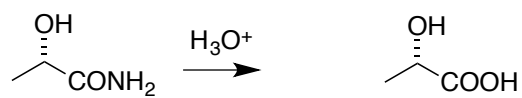


tetrahedral intermediate

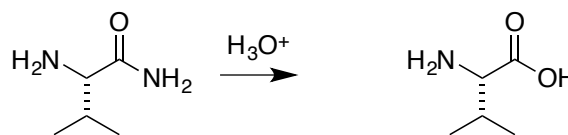




carboxylate



lactic acid



valine

D. Proteases

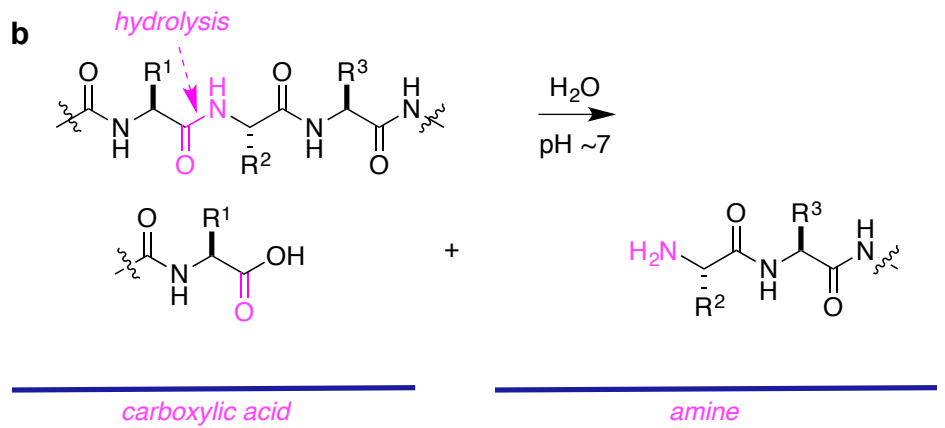
Function

esterases
proteases.

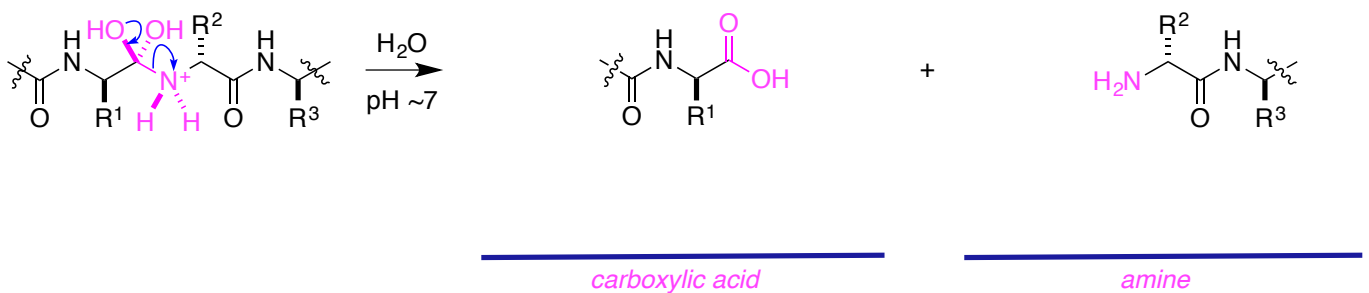
~7

Catalytic
enzymes
hydrogen bonding

do not
active-

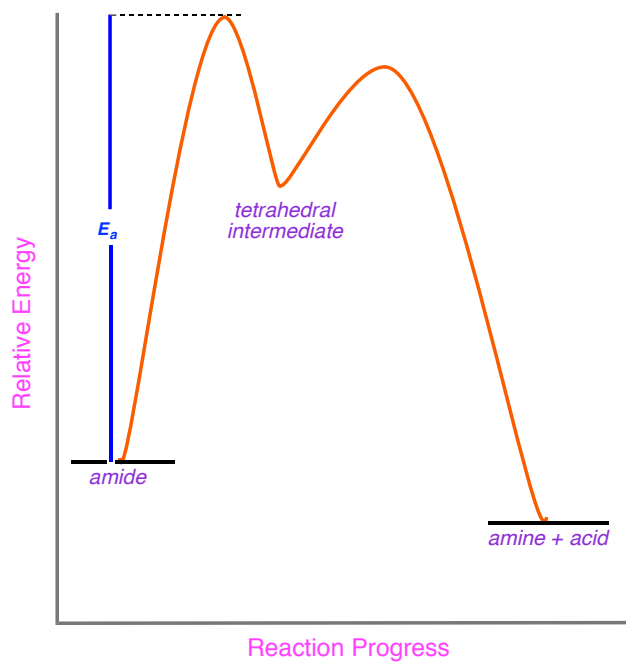


degrades

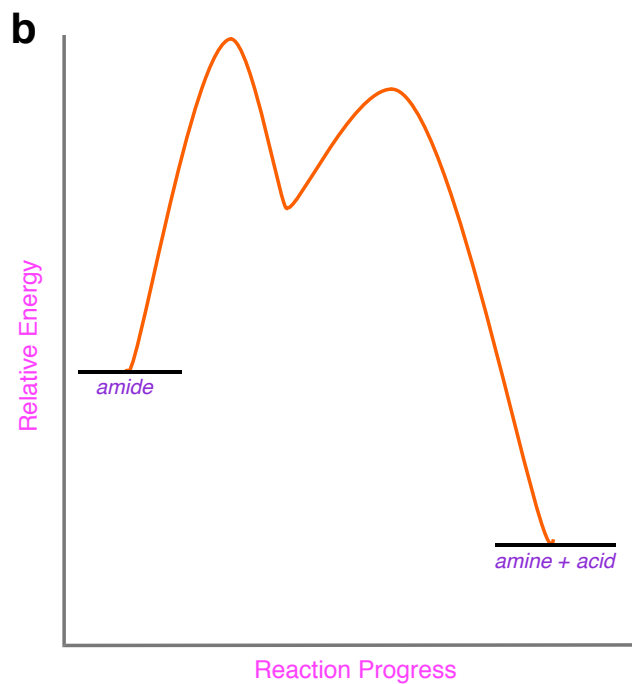
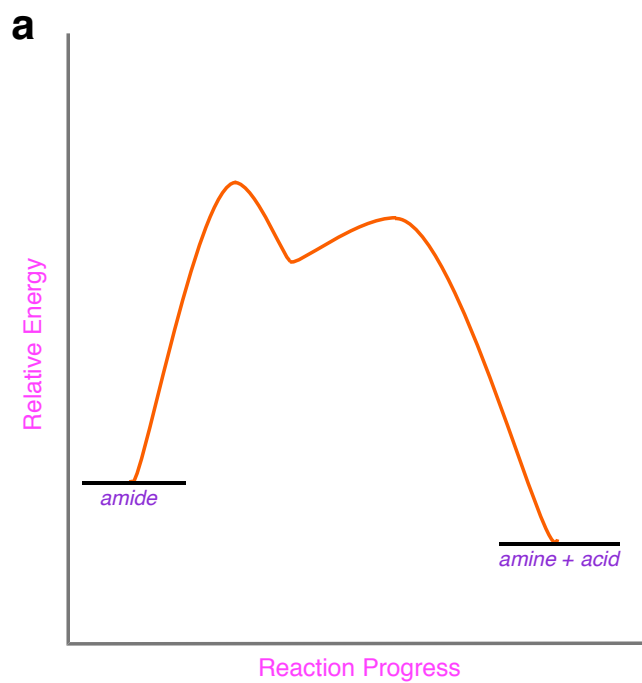


Catalysis

kinetic



destabilizing the substrate and/or stabilizing the intermediate.



situation **a**.
is the way

Protease Inhibitors

9 proteins

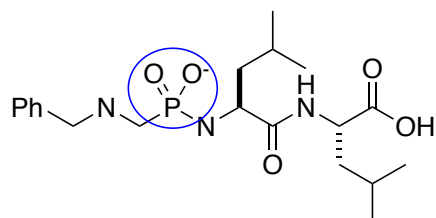
enzymes are *proteins* but not all *proteins* are *enzymes*.

active- site

a *high* affinity

the *alcohol* functionality

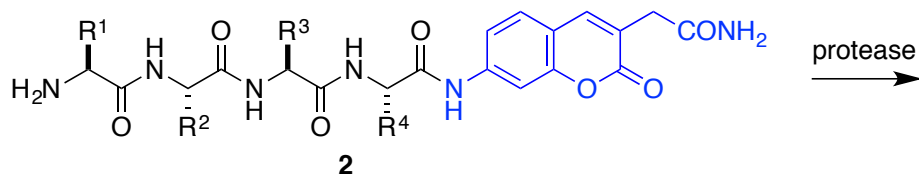
mimic the tetrahedral intermediate in amide hydrolysis.



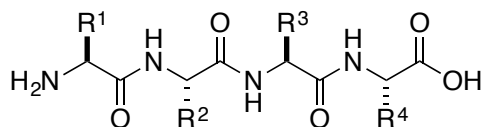
1

thermolysin inhibitor

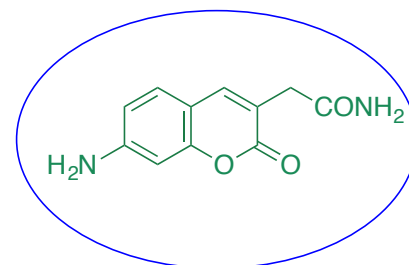
Detection Of Protease Substrate Selectivity



2



+

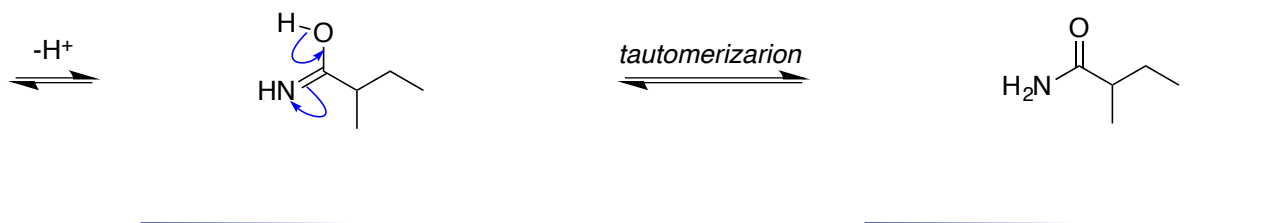
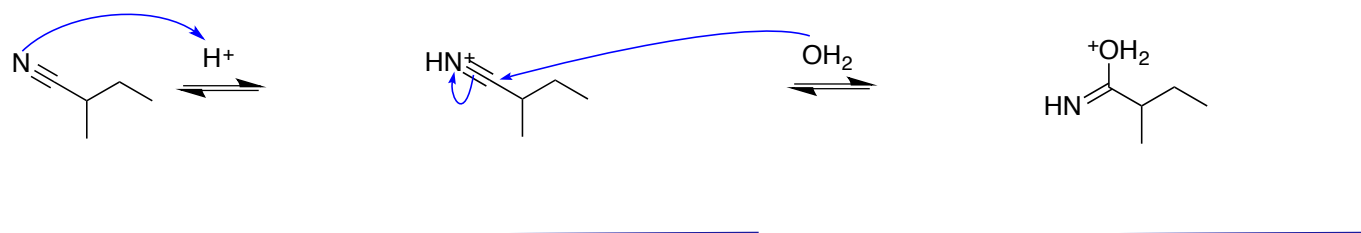
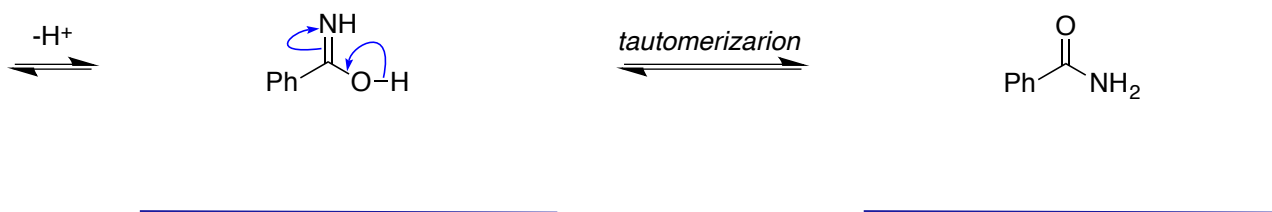
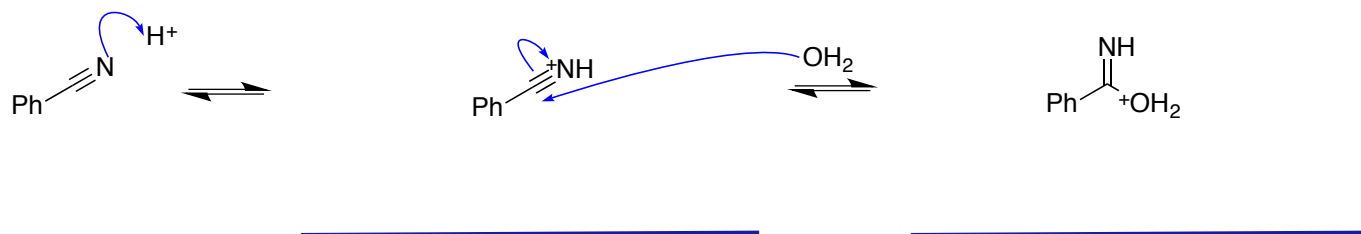


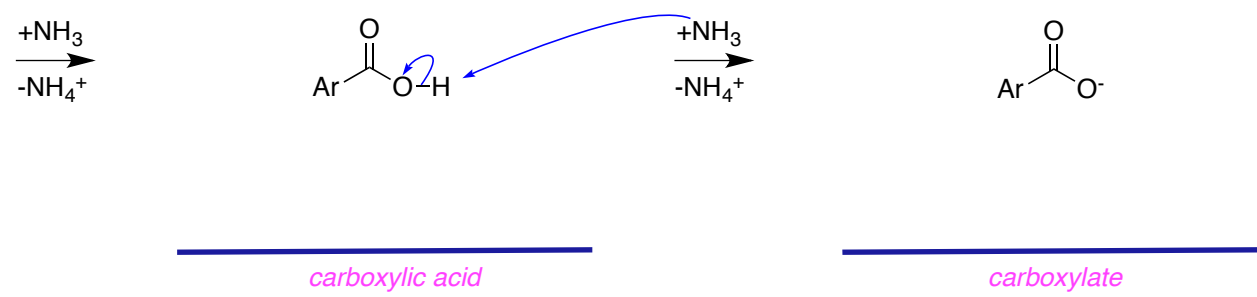
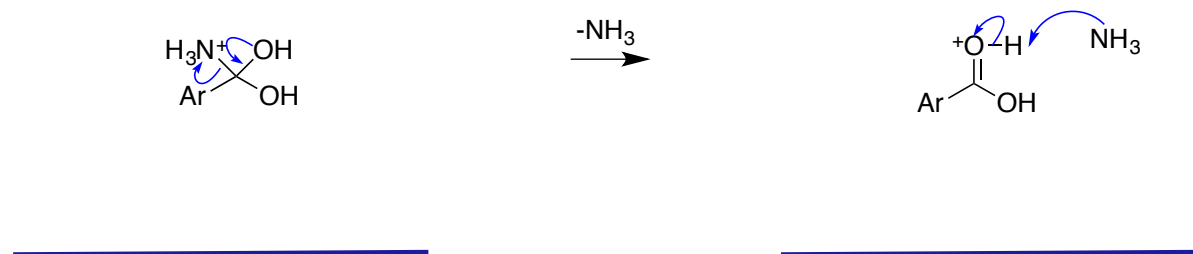
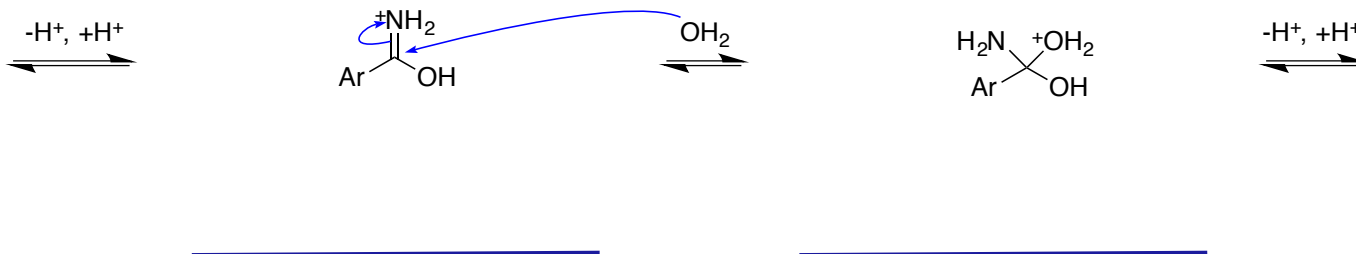
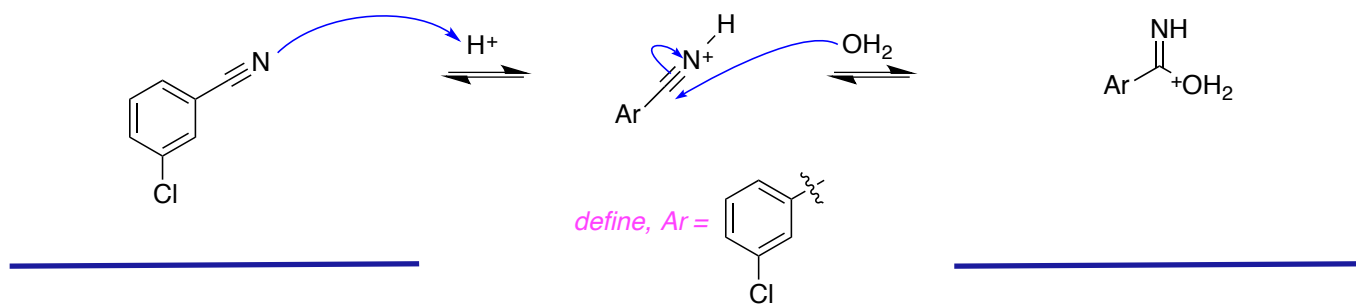
fluorescence.

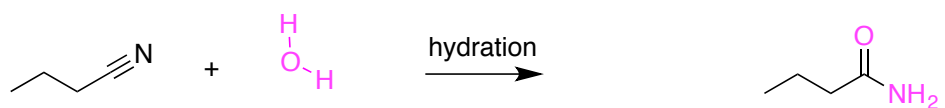
E. Hydrolysis Of Nitriles Involves Amide Intermediates

*carboxylic acids,
partial.*

Tautomerization







amide



carboxylic acid

F. Dehydration Of Amides



