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Office hour after class Tuesday & Wednesday (Not Friday). Review 5 pm Wed.

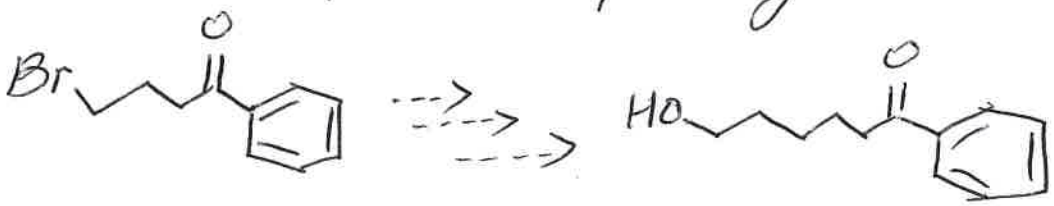
Exam #2 Wed. 16 March Chaps 17, 18 & 19.

Recall: Acetals (from aldehydes / ketones)

+ H_2O + $2CH_3OH$

Acetals useful as "protecting groups" for aldehyde/ketone group. ~~To~~ Temporarily mask undesired reactivity...

Example: How accomplish the following.



from 

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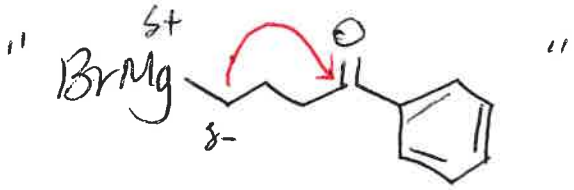
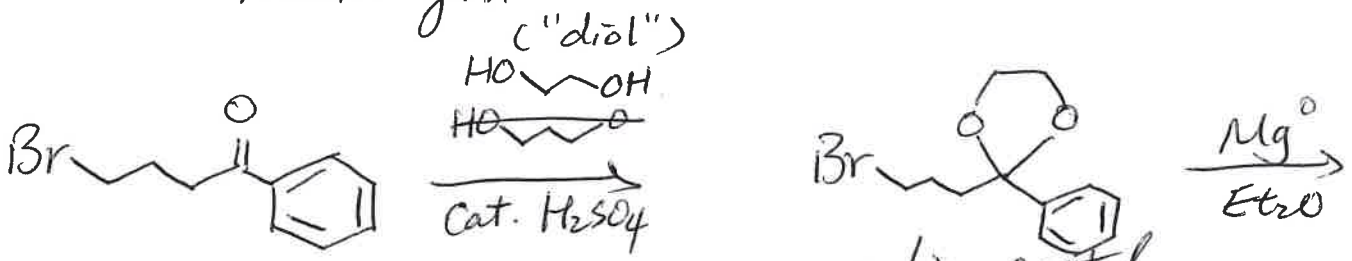
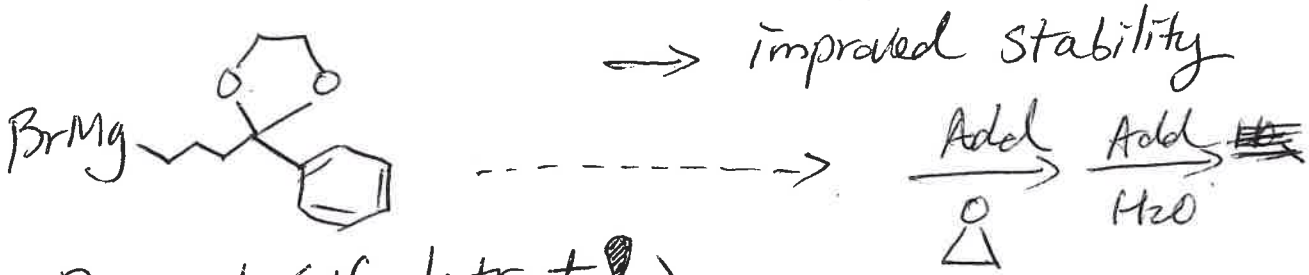
Problem: Hypothetical Grignard reagent will self-destruct



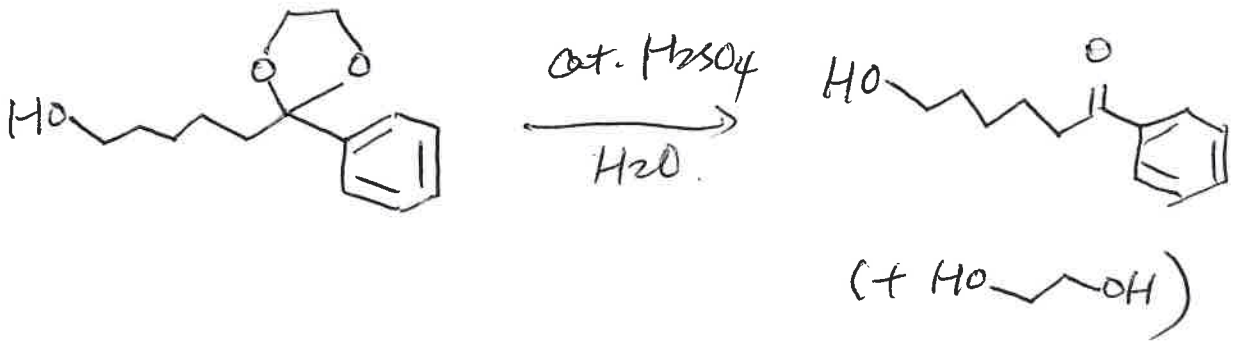
Solution: "Protect" the ketone, i.e., temporarily mask reactivity...



→ improved stability



(Does not self-destruct!)



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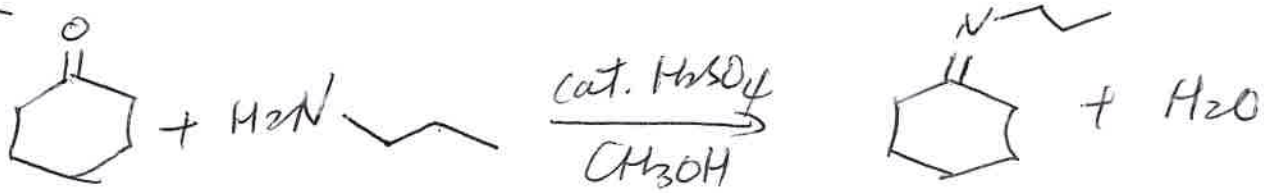
Another family of aldehyde/ketone derivatives — reversible processes — rxns w/ amines.

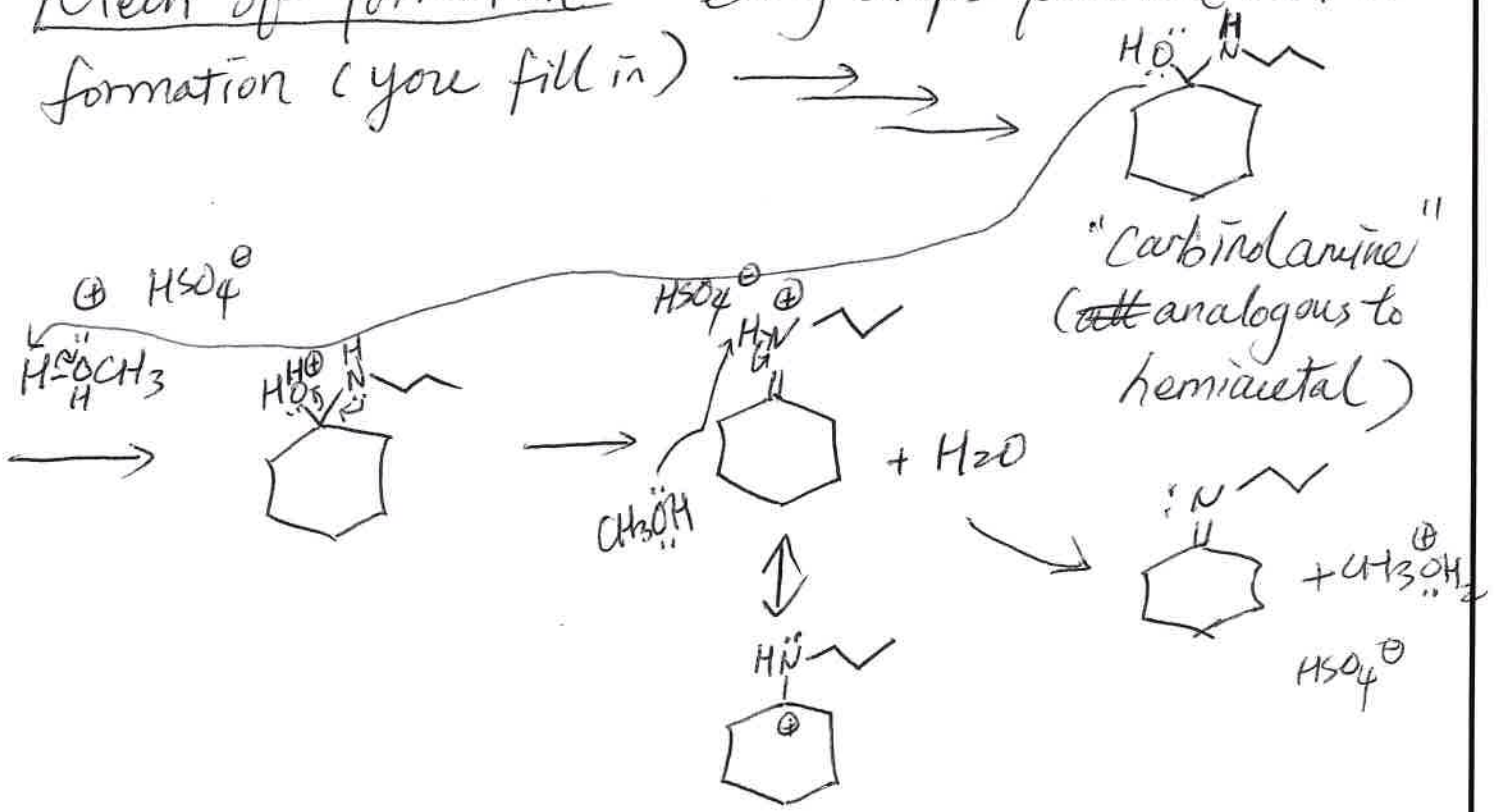
1) Rxn w/ 1° amine, to generate "imine".

Ex:



("imine")

Mech of formation — early steps parallel acetal formation (you fill in) →→



"carbinolamine" (~~acetal~~ analogous to hemiacetal)

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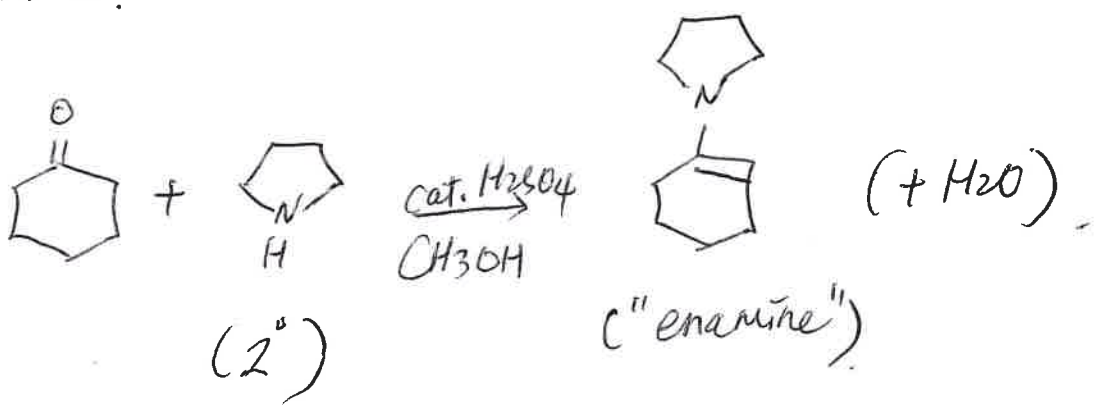
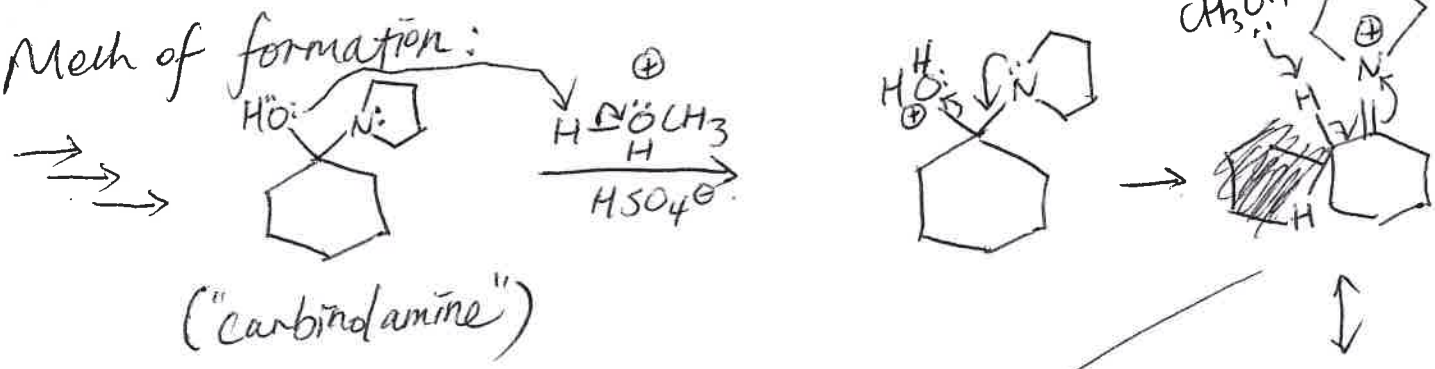
Note: We can hydrolyze the imine to regenerate ketone & amine.

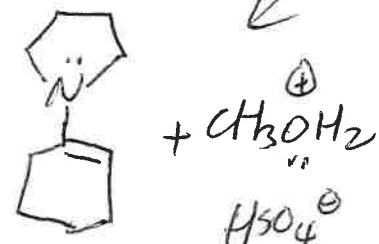
2) Rxns of aldehydes/ketones w/ 2° amines, to generate an enamine.

Ex:



Mech of formation:





(possible to hydrolyze enamine)

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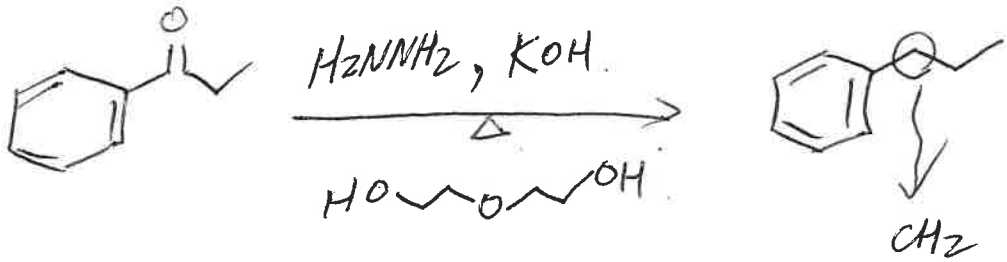
Reduction of Aldehyde / Ketone C=O to CH_2 (irreversible)

↓ C (+2) ↓ C (0)

2 versions

1) Wulff-Kishner Reduction

Ex:



Comments

1) H_2N-NH_2 ≡ "Hydrazine". forms an imine-like species w/ Ketone

("hydrazone")

2) HO O OH = solvent

("high-boiling solvent")

2) Clemmensen Reduct"