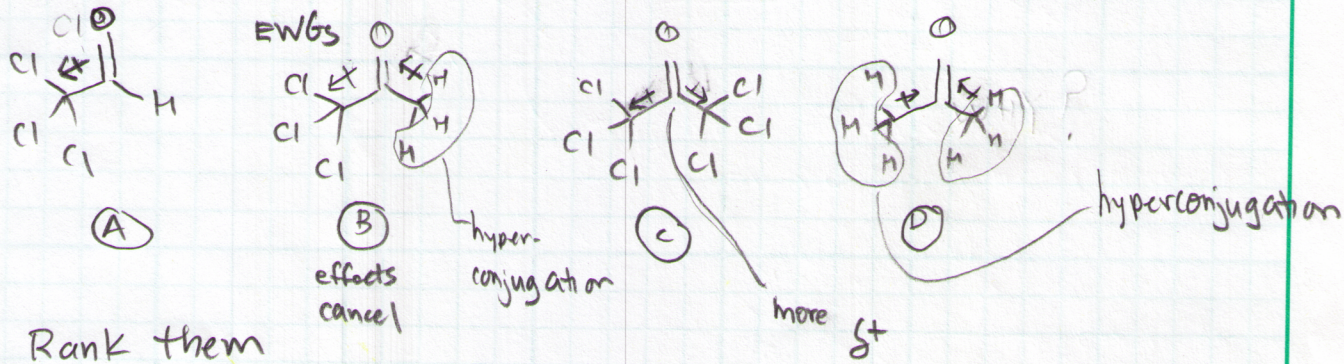
Which of the following has the faster rate of hydrat^{n} by H_2O



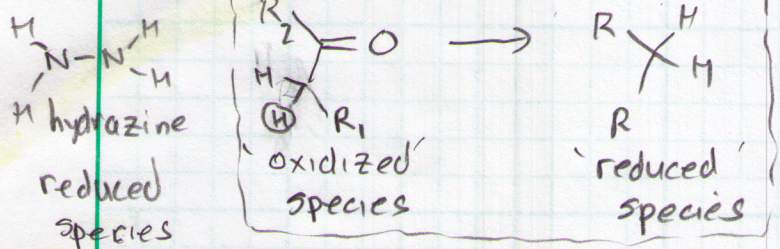
Rank them

C > A > B > D

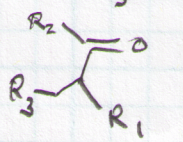
fastest — slowest

Synthetic chemist often need to insert a functional group at a certain position on the scaffold to execute a specific chemical transformation and then later remove it to access a target molecule.

Sometimes the following is desired

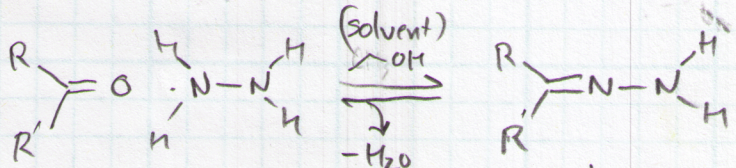


circled
(a) (H) of ketone is acidic
(b) it can be removed an attacted C can rxt with R_3-CH_2-Br e.g.
(c)



is made

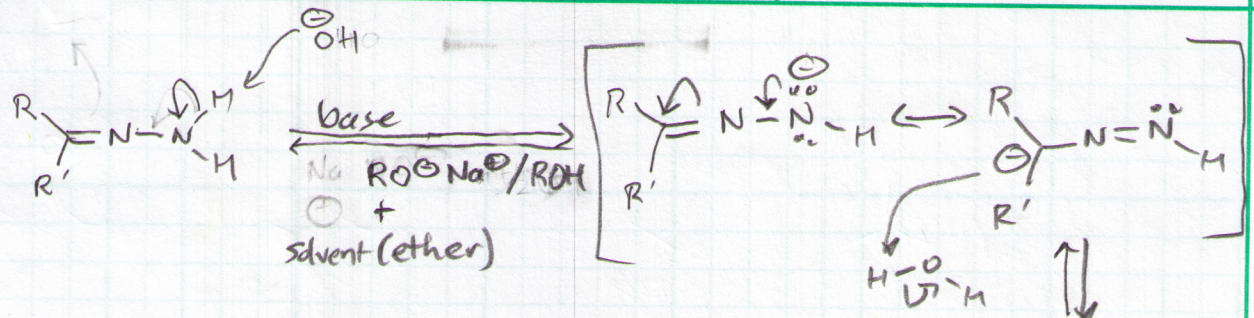
Wolff-Kishner Reduction

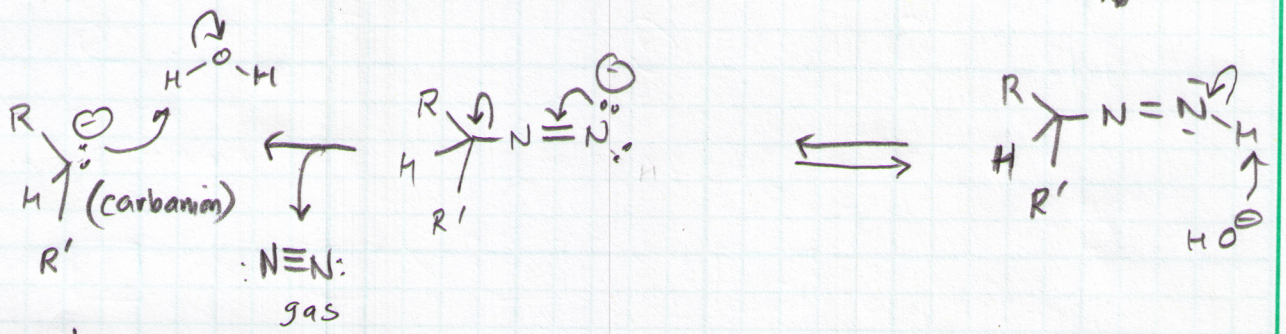


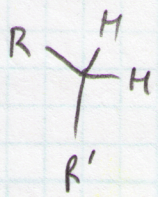
we know how to get here

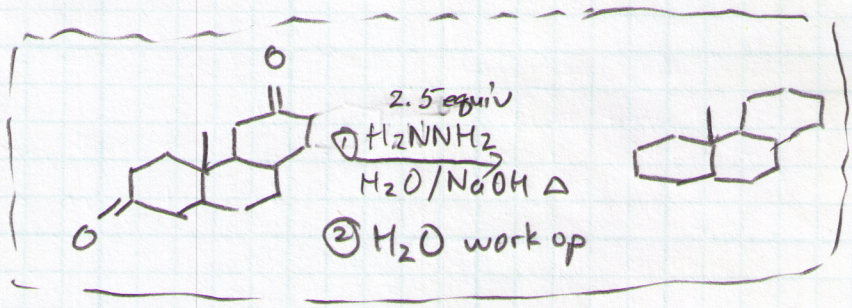
'IMINE CHEMISTRY'

Lab HYDRAZONE (CEM355)





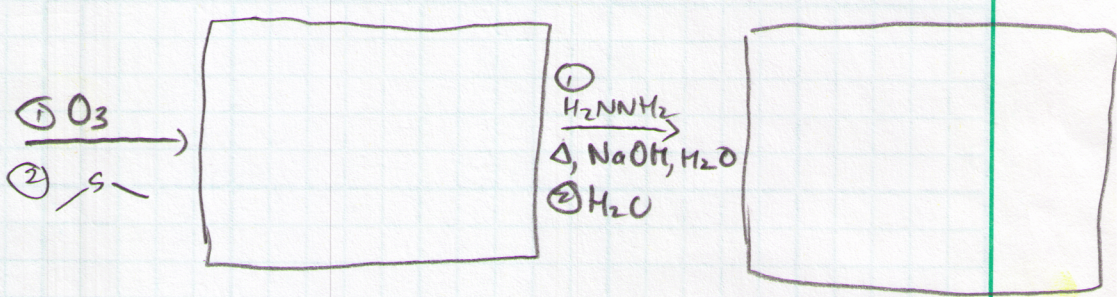




PRACTICE

Practice

α-pinene
a terpene isolated from cedar wood



Is this a molecule chiral?

HINT: use the following scaffold

Sometimes chemist want to convert a carbonyl to a compound where a nitrogen can be converted to an amine group in subsequent steps. If they start with an alkyl amine, the N of the amine will attack the carbonyl C. ∴ $^{\ominus}CN$ (cyanide) is used strategically to at the C of $^{\ominus}CN$ to the C=O and the N can be modified later.

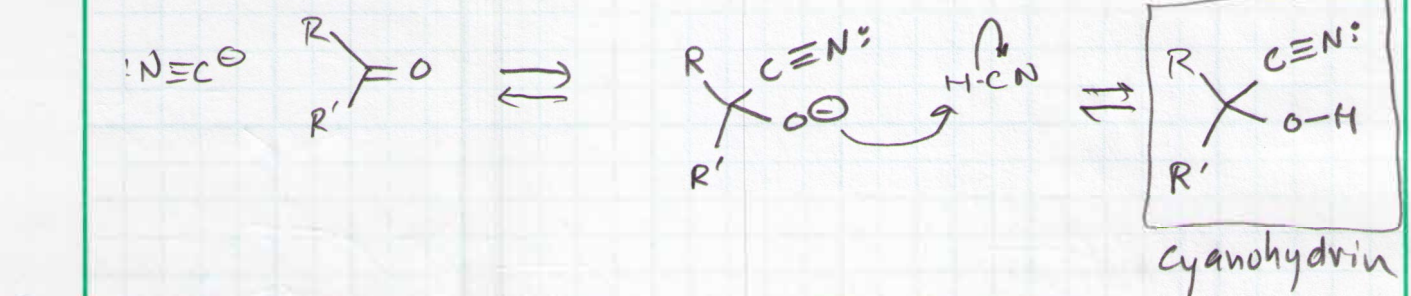
$^{\ominus}CN$ is added as HCN (gas) via $Na^{\oplus}\,^{\ominus}CN$ + (conc HCl)

moderately basic (pKa ~9.2)

not as acidic as HCl(g) −6.3 !

$H^{\oplus}$ $^{\ominus}CN \rightleftharpoons HCN$

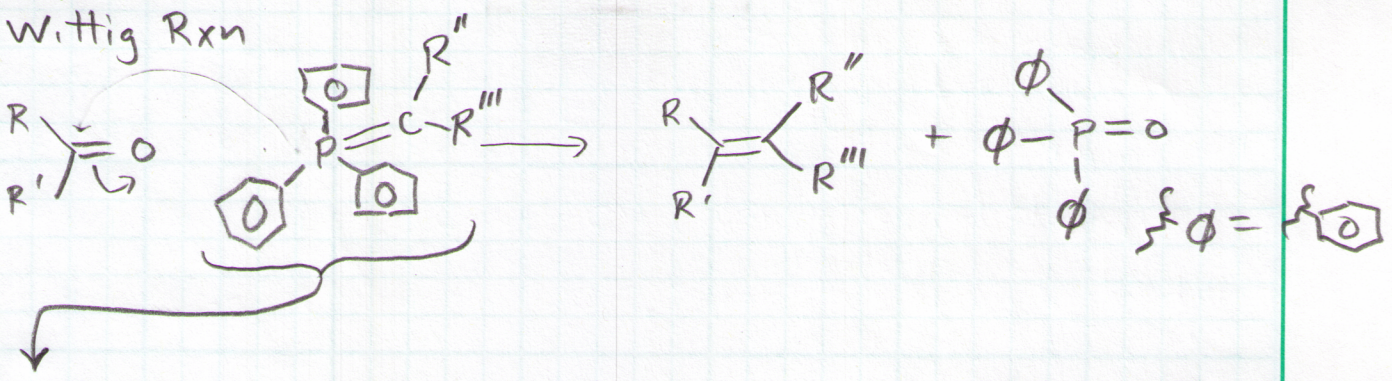
Present! at equilibrium



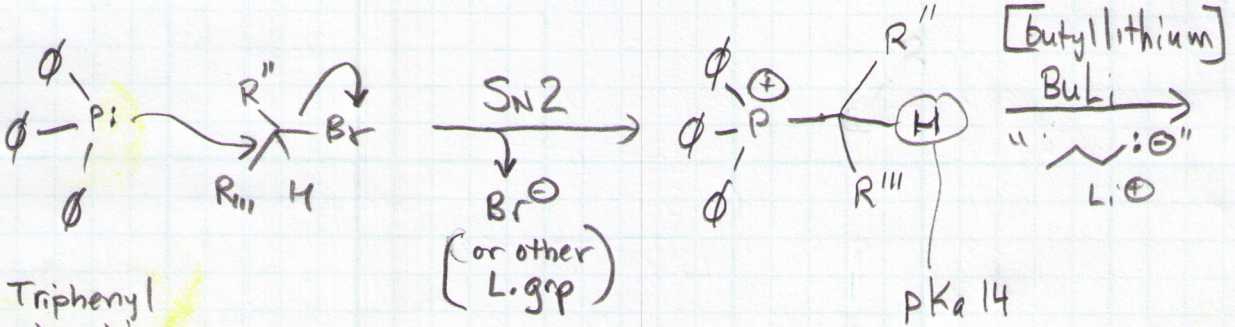
Cyanohydrin

We saw in earlier chapters how to make alkenes via E1 and E2 reactions on alkyl chains harboring a good leaving group and a base. The rxns were driven by the proper stereoisomers in the E2 rxn (anti periplanar H and Leaving group) and by double bond stability in the E1 rxn. Carbonyl compounds provide access to C=C products with great specificity via ylide ('ill-lid') rxns.

Wittig Rxn

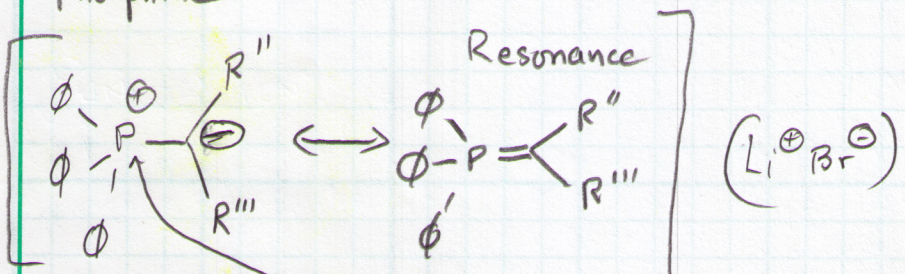


(a)



Triphenyl phosphine

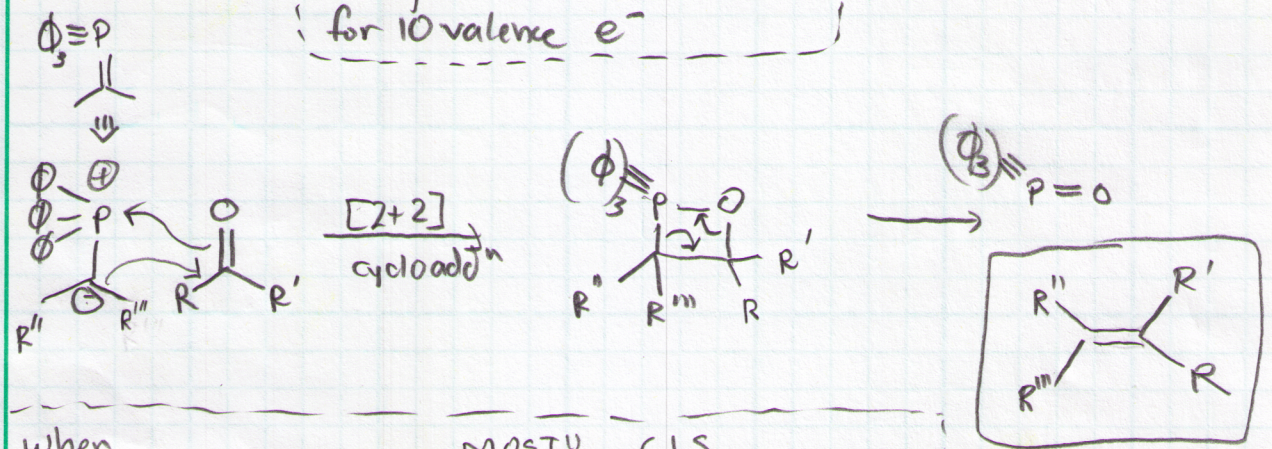
(b)



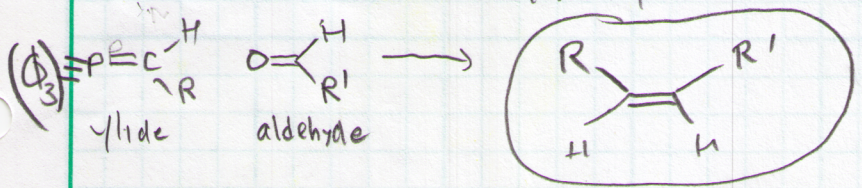
ylide
phosphoylide

empty 3d orbital is available for 10 valence e⁻

(c)



when



EXCEPT FOR CONJUGATED C=C
all-TRANS IS PREFERRED