Phosphorus nucleophiles

*Wittig Rxn

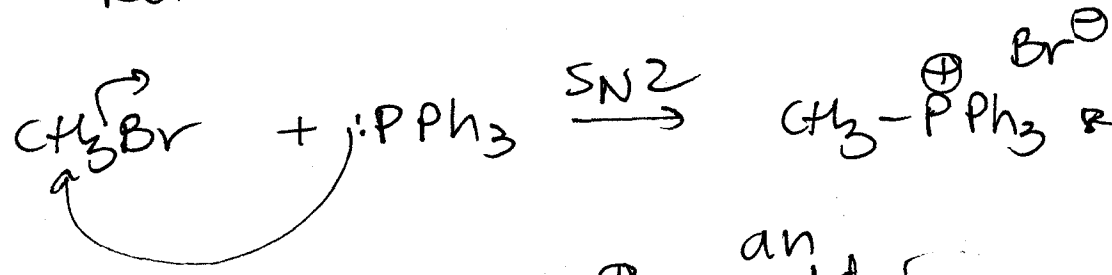
carbonyl + ylid → alkene

↑

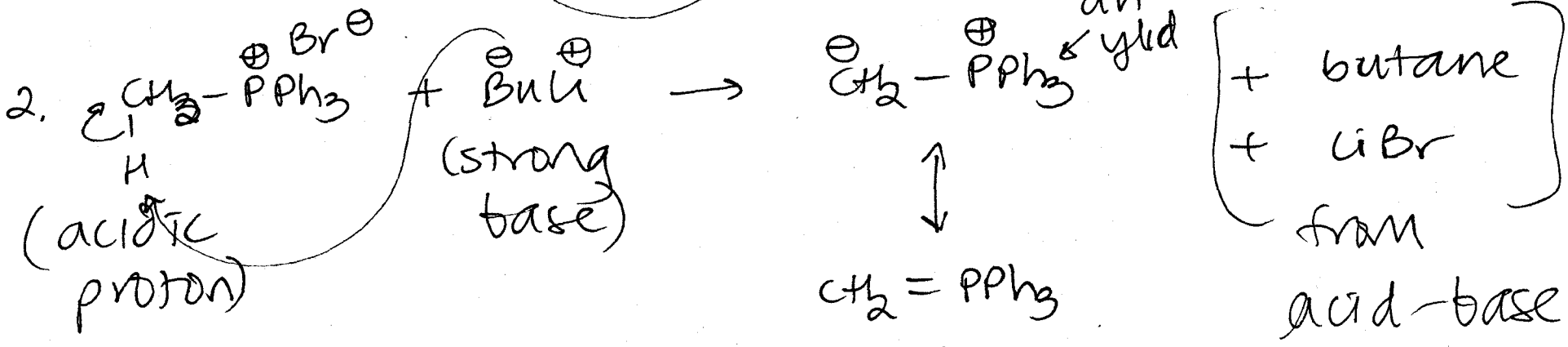
aldehydes

ketones

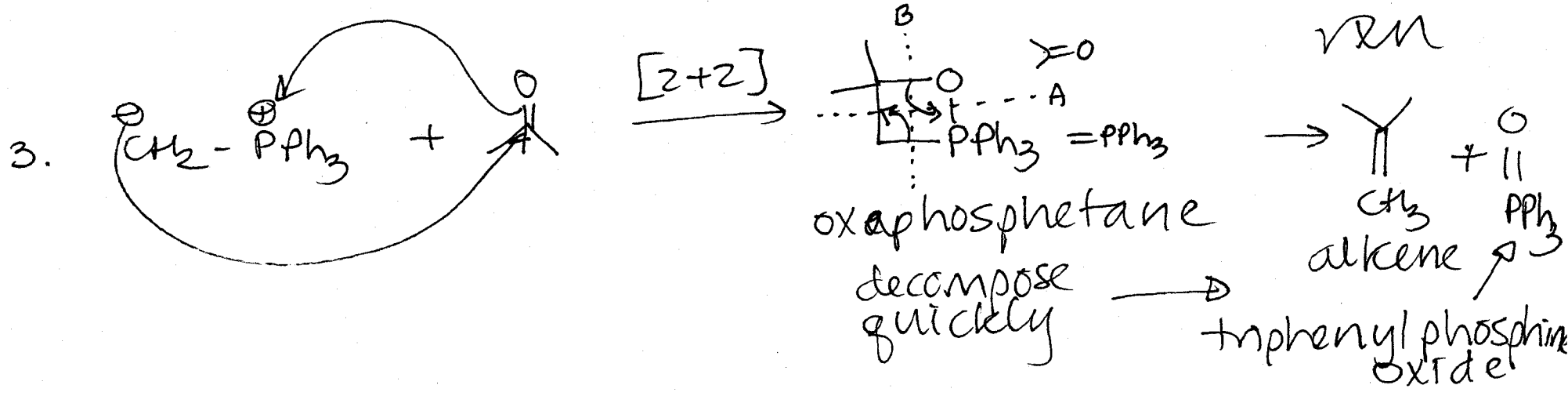
1. 1°/2° RX



2.



3.



Note: book says "stabilized" ylides → E alkenes
"unstabilized" ylides → Z alkenes

<u>Not always</u>.

Also: section on "re" + "si" faces of carbonyls
*not on exam.

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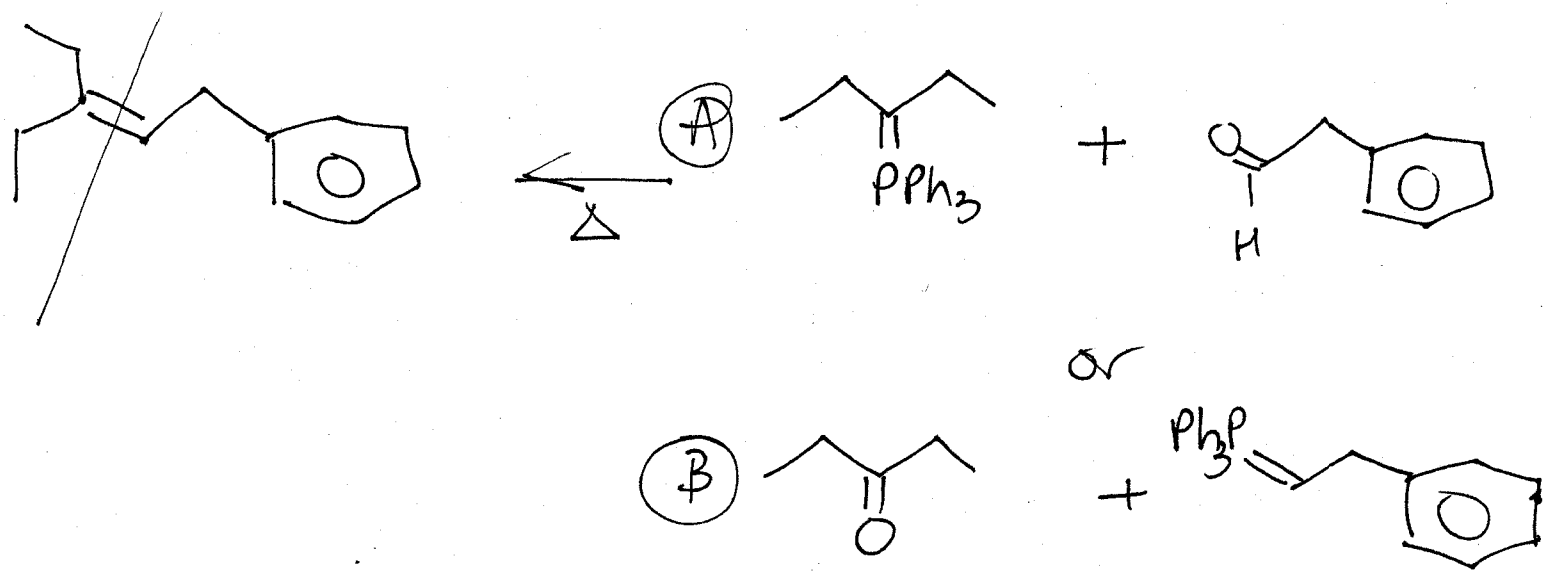
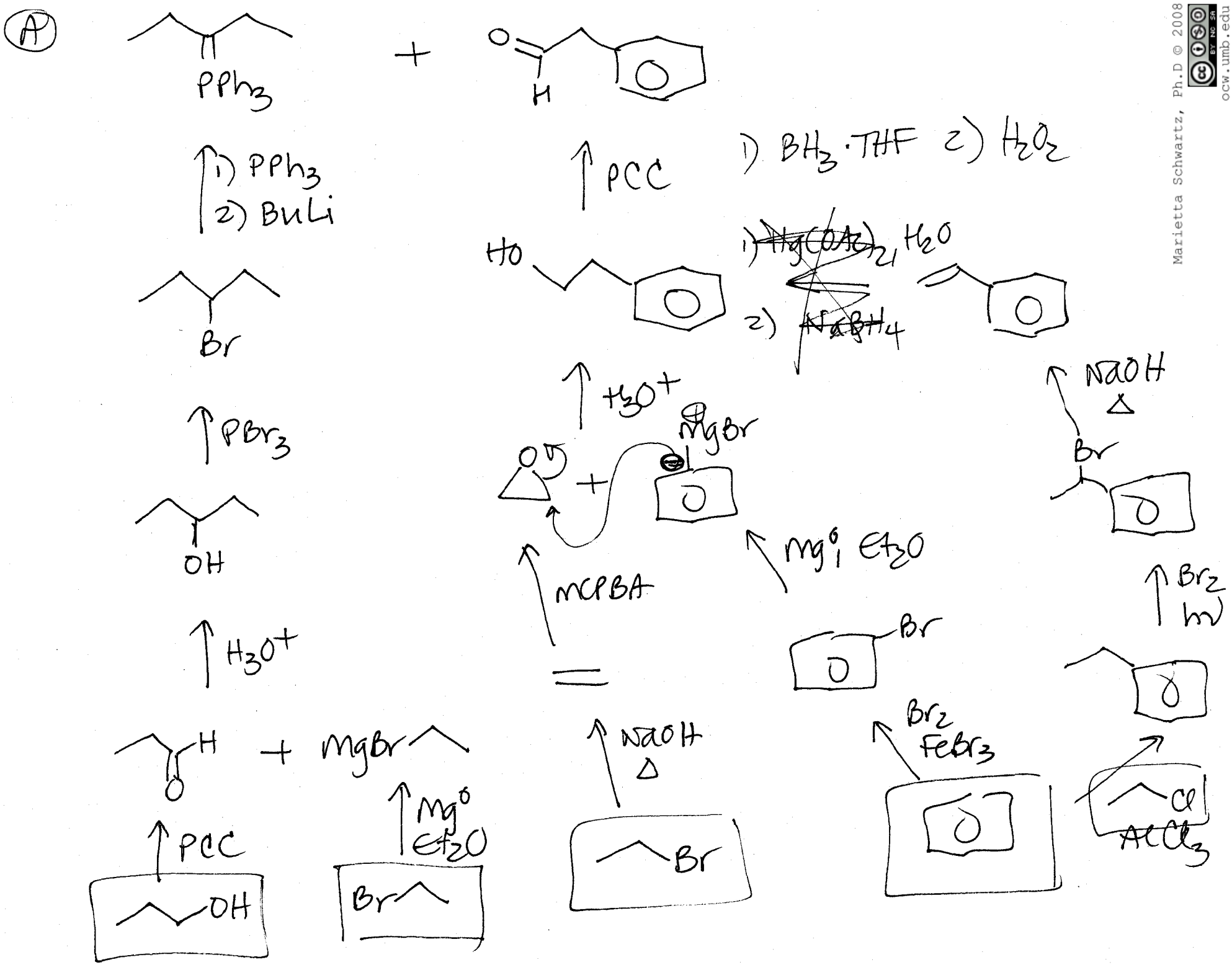
make:





Other oxidations of aldehydes

1. aldehyde → carboxylic acid - any of the Cr^{VI}

2. Silver reagents

a. $Ag_2O/NaOH$ then H_3O^+ → RCO_2H

b. $Ag(NH_3)_2^+/H_2O$ Tollen's reagent

↳ RCO_2H + Ag^0

*functional group test specific for aldehydes

Baeyer-Villiger oxidation

aldehyde + peracid → carboxylic acid

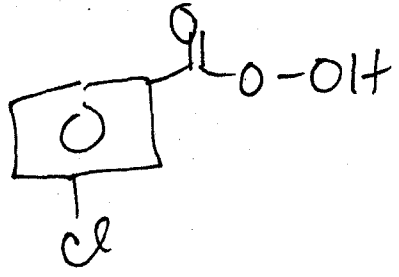
ketone + peracid → ester

A peracid is $R\overset{O}{\overset{\|}{C}}-O-OH$

(Recall: peroxide is HO-OH)

most common: mCPBA

metachloroperbenzoic acid



Migratory Aptitudes of R group:

H > Ph > 3° > 2° > 1°