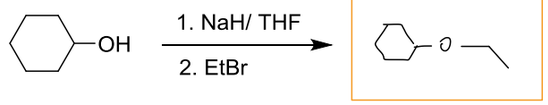
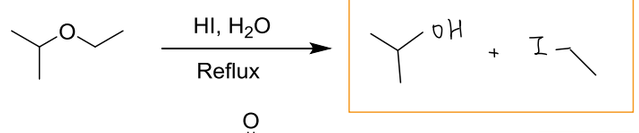
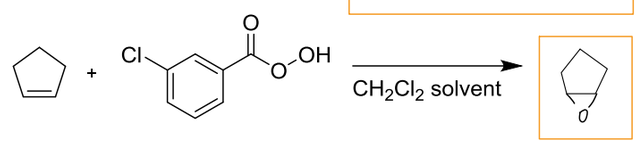
Please predict the products, reactants, reagents or intermediates in the following reactions. (100%)

(1) 

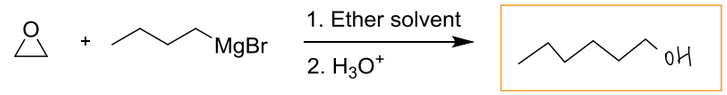
(3%)

(2) 

(3%)

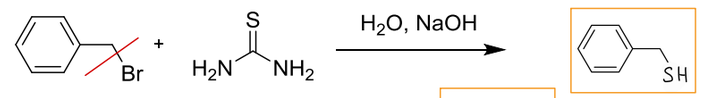
(3 

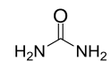
(3%)

(4) 

(3%)

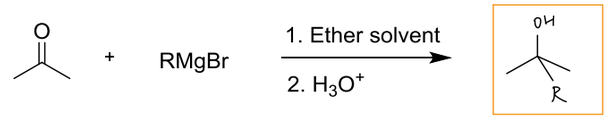
Preperation of thiol

(5) 

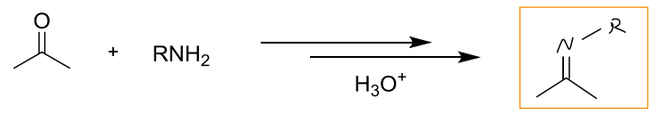
(3%) ※ by- product : urea 

(6) 

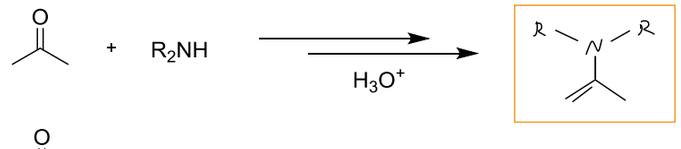
(3%)

(7) 

(3%)

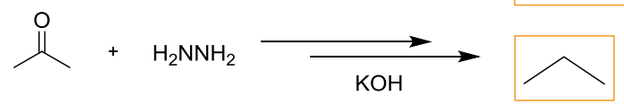
(8) 

(3%)

(9) 

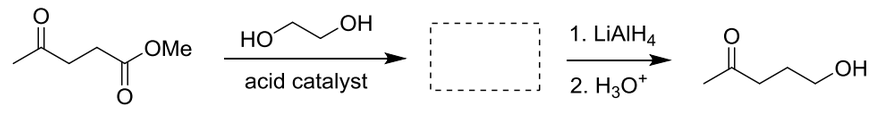
(3%)

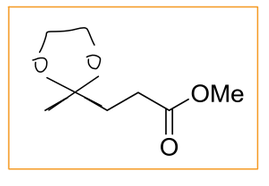
Wolff-Kishner reduction

(10) 

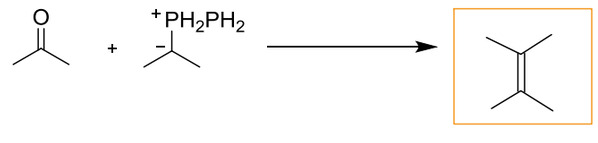
(3%)

Acetal formation

(11) 

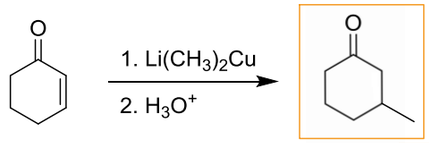
(3%) 

Witting reaction

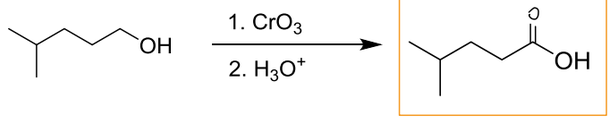
(12) 

(3%)

1. Michael reaction
2. Proton transfer

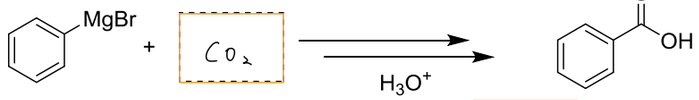
(13) 

(3%)

(14) 

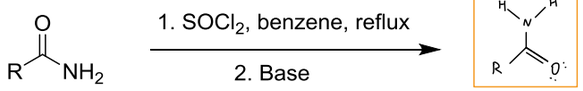
(3%)

Carboxylation of Grignard Reagent

(15) 

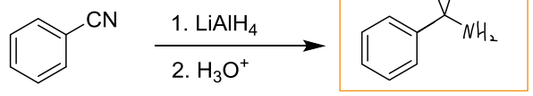
(3%)

1. Preparation of nitrile from amide
2. Hydrolysis of nitrile

(16) 

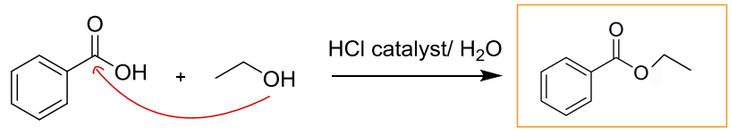
(3%)

Reduction of Nitrile

(17) 

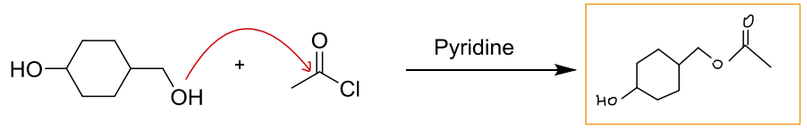
(3%)

Fischer esterification

(18) 

(3%)

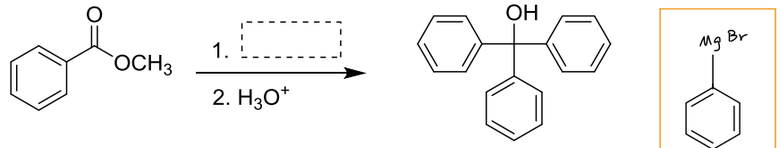
Alcoholysis of acid chlorides

(19) 

(3%)

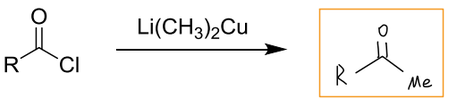
* In this case, the acylation is happened at the OH group.
* This process prefers primary alcohols (less hindered).

Reactions between Esters and Grignard Reagents

(20) 

(3%)

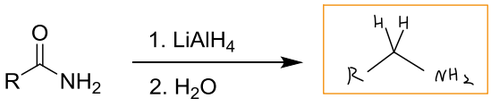
Gilman reagent

(21) 

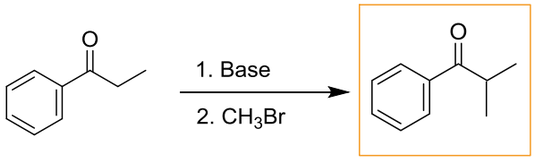
(3%)

* Gilman reagent is a selective reagent that can be used to produce ketones instead of alcohols.

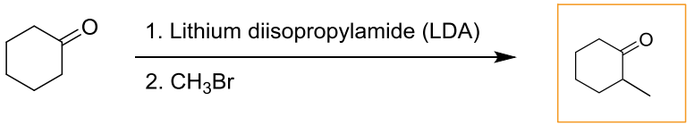
Reduction of amide

(22) 

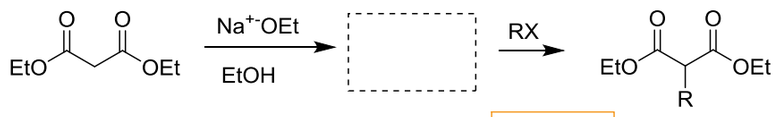
(3%)

(23) 

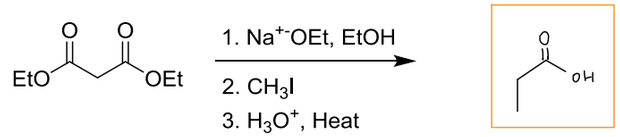
(3%)

(24) 

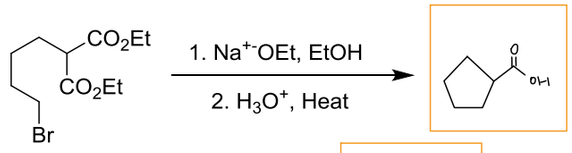
(3%)

(25) 

(3%)

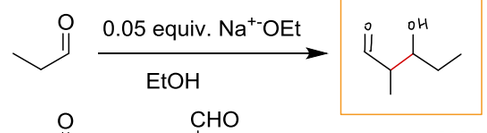
(26) 

(3%)

(27) 

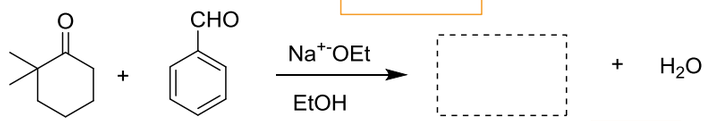
(3%)

aldol addition

(28) 

(3%)

aldol condensation

(29) 

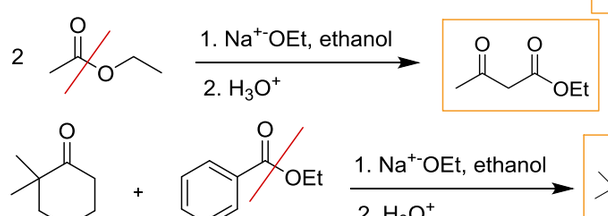
(3%)

Intramolecular aldol condensation

(30) 

(3%)

Claisen condensation

(31) 

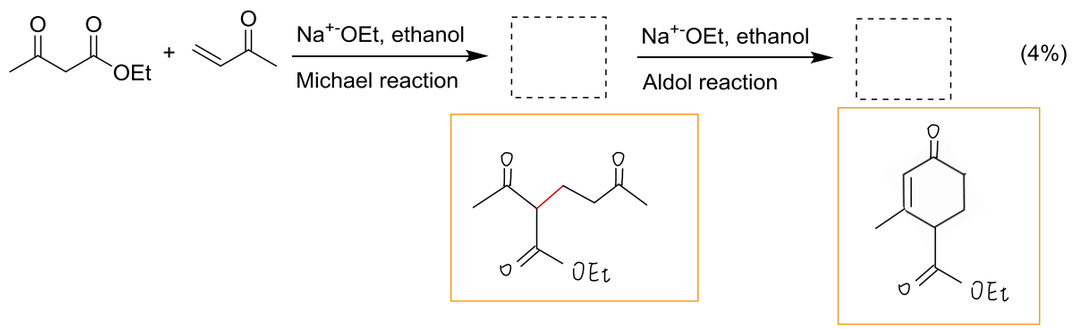
(3%)

crossed Claisen condensation

(32)

(3%)

Robinson annulation reaction

(33) 

(4%)