

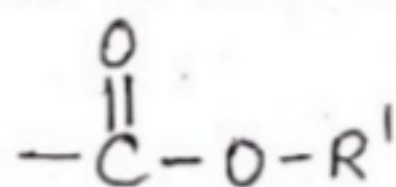
DEGREE-I (HONS.) 1.

05/11/2020

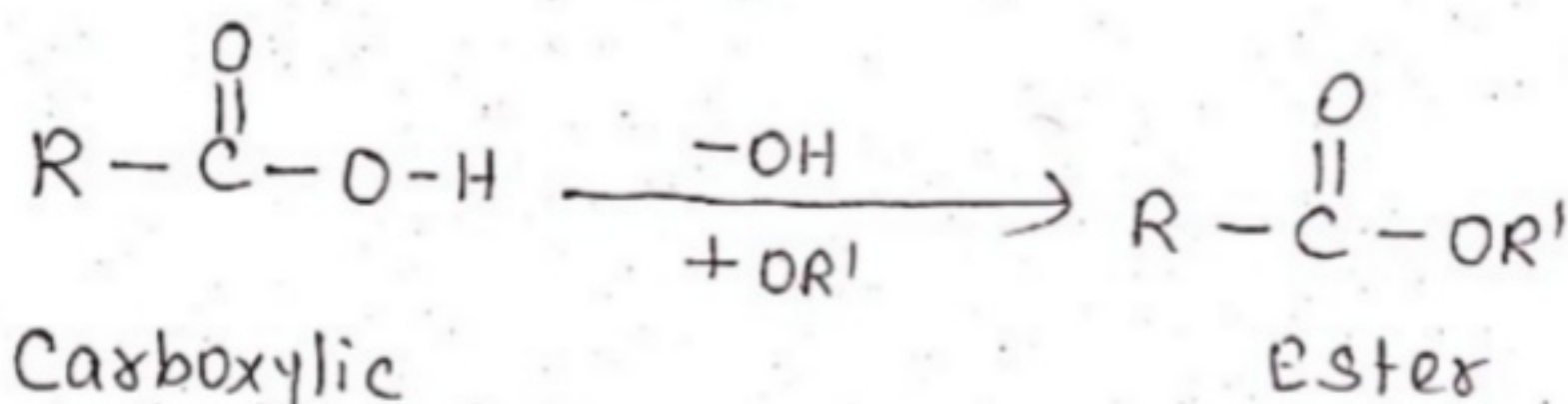
TOPIC - PREPARATION & PROPERTIES

OF ESTER

Functional group



It is derivatives of carboxylic acids in which the -OH group has been replaced by -OR' (alkoxy) group.

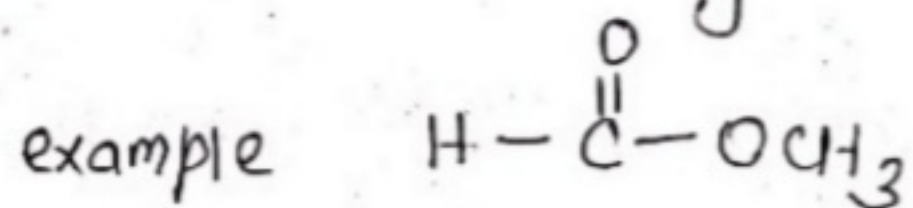


Carboxylic
acid

Ester

Nomenclature

- * The name of an ester is of two words. The name of the alkyl group attached to oxygen is the first word.
- * The second word is the name of the parent acid with the ending -ic acid changed to -ate.

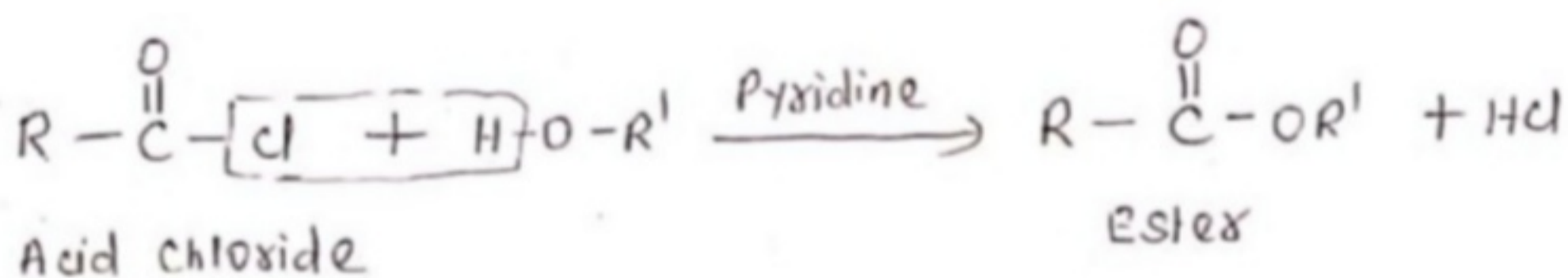


common name - Methyl formate
IUPAC → Methyl methanoate

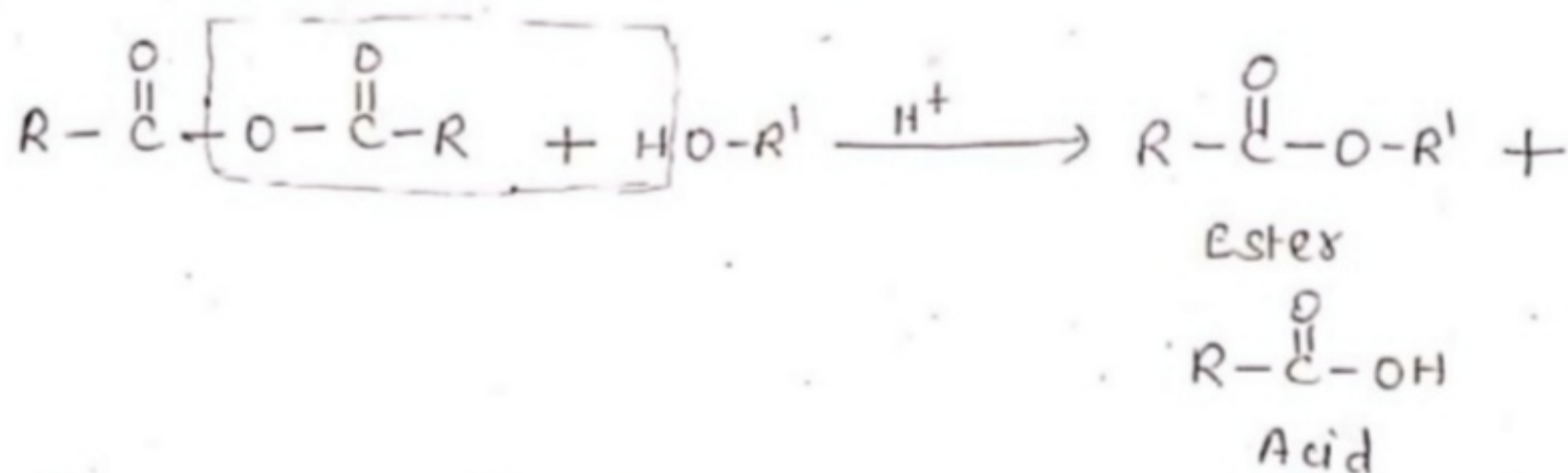
METHODS OF PREPARATION 2.

1. By reaction of acid chlorides with alcohols:-

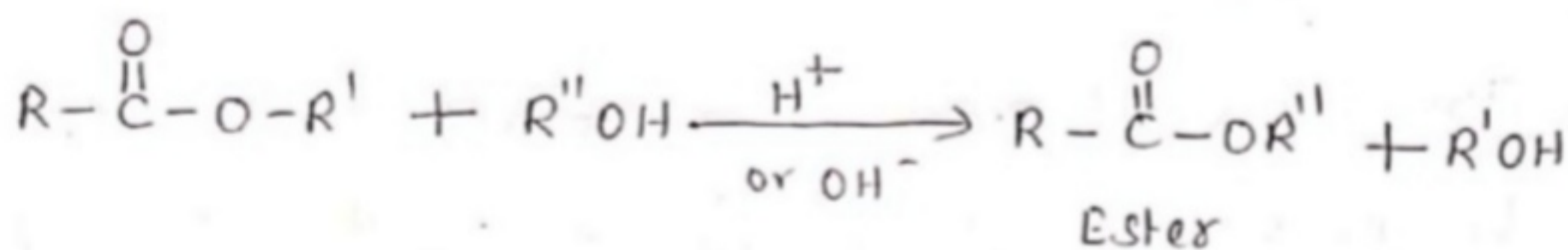
Pyridine is added to remove HCl as it is formed.



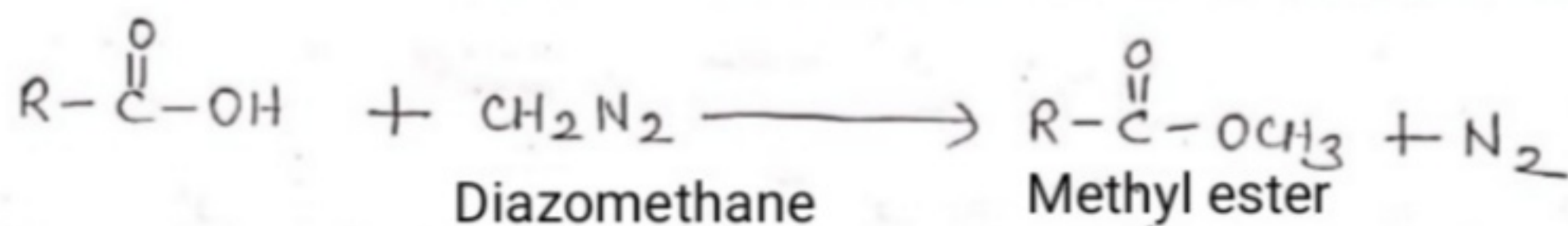
2. By reaction of acid anhydrides with alcohols:-



3. By transesterification (Ester interchange)



4. By reaction of a carboxylic acid with diazomethane



Note :- This method yields methyl esters only.

PHYSICAL PROPERTIES

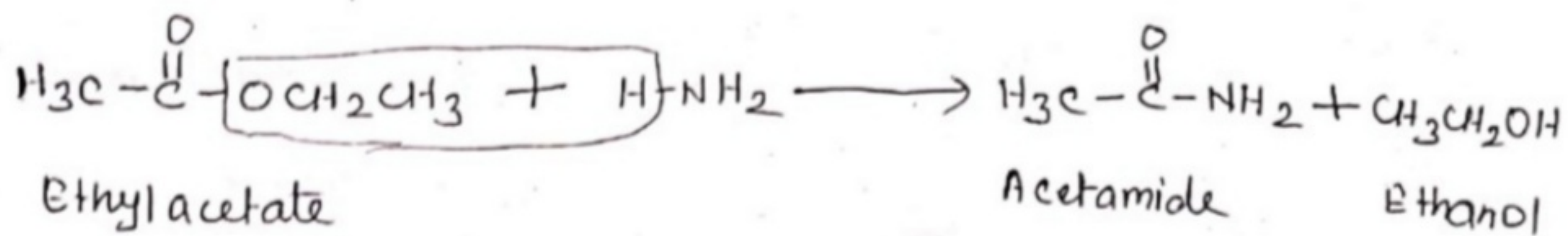
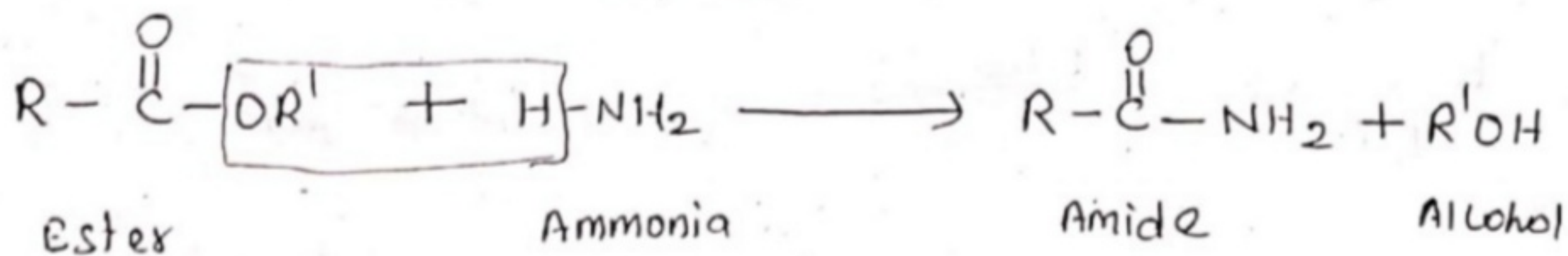
3.

1. Lower carboxylic esters are neutral, colourless liquids possessing characteristic fruity odours.
2. They are generally insoluble in water and soluble in most organic solvents.
3. Many esters are excellent solvents for other organic substance. eg; ethylacetate.
4. In IR spectrum, esters show characteristic C=O stretching frequency at 1735 cm^{-1} .

CHEMICAL PROPERTIES

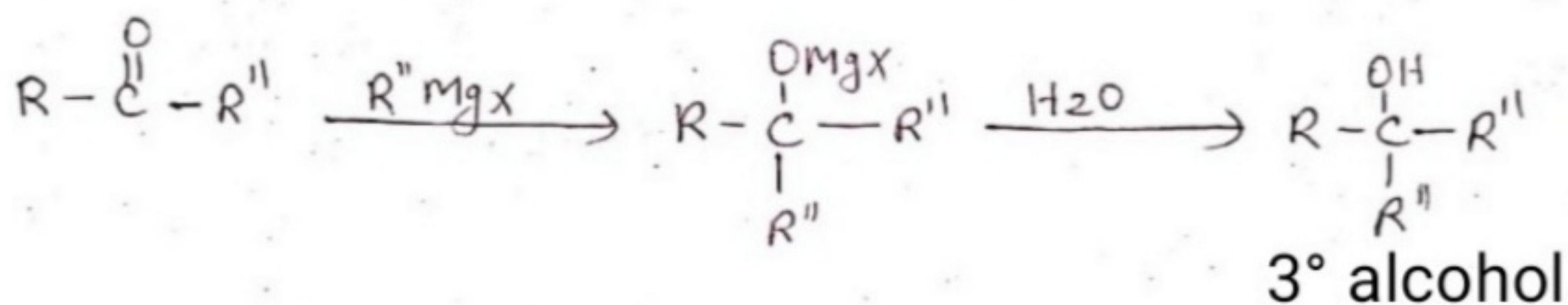
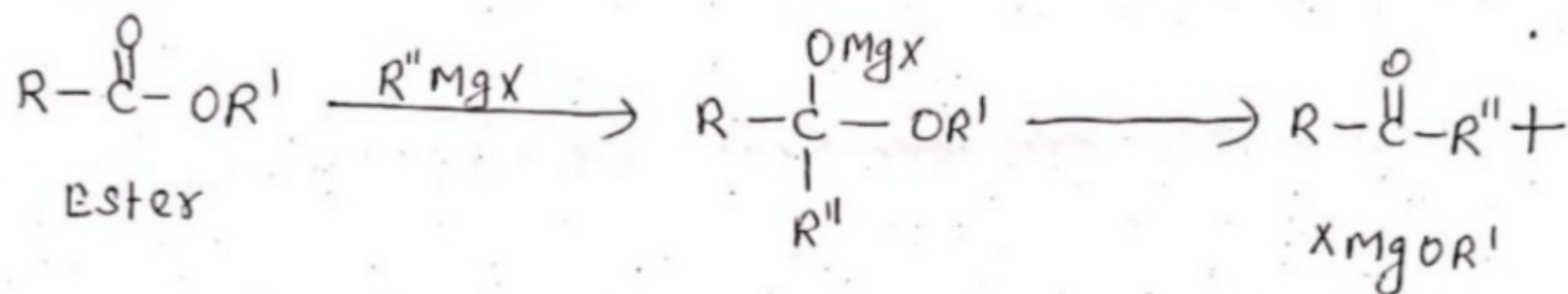
1. Reaction with Ammonia

Ester react with ammonia, often in a solvent such as ethanol, to give amides.



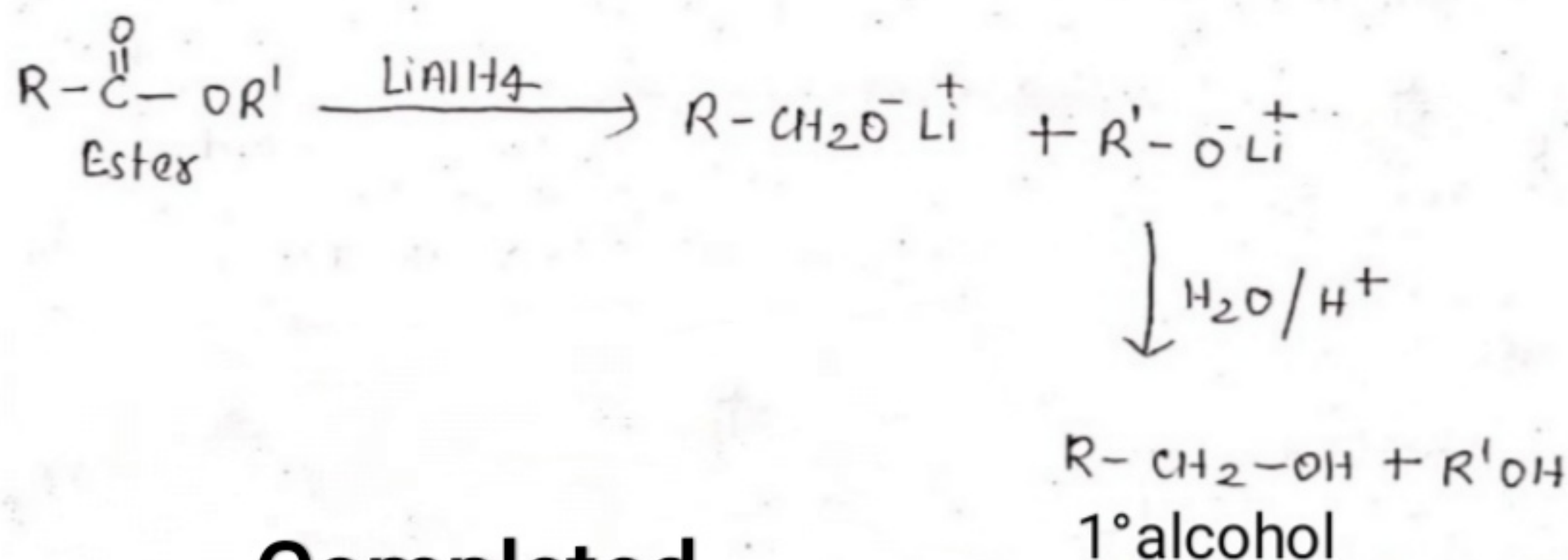
2. Reaction with Grignard Reagents

Esters react with G.R to form ketones which at once react with another molecule of the G.R to yield a tertiary alcohol.



3. Reaction with Lithium Aluminium Hydride

Ester undergoes reduction with LiAlH_4 to form primary alcohols.



Completed