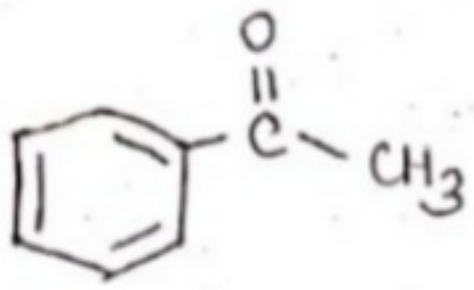
DEGREE-II (HONS.)

02/11/2020

TOPIC - " ACETOPHENONE "

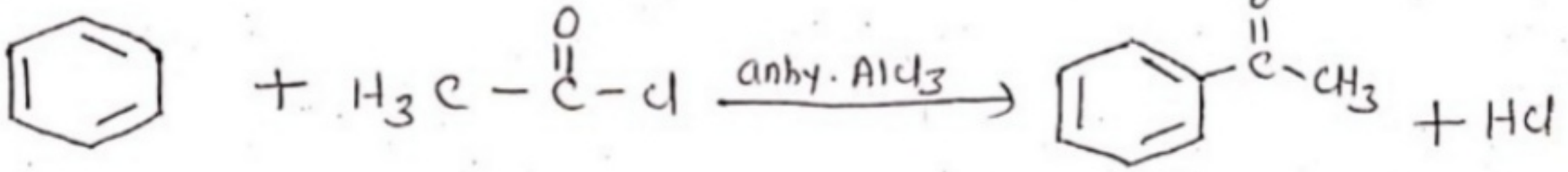
It is the simplest aromatic Ketone.



Acetophenone

PREPARATION

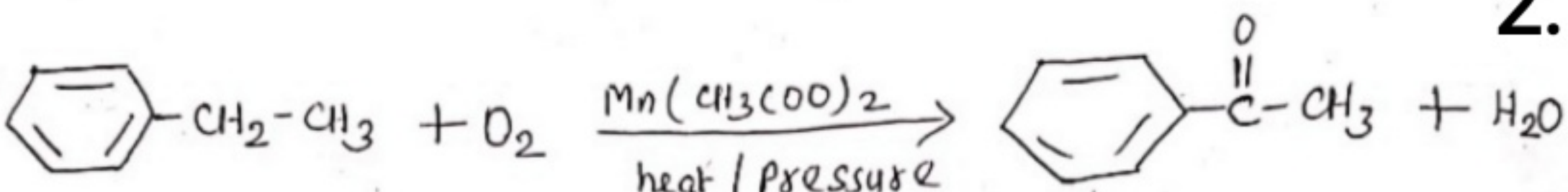
1. By Friedel craft's Acylation of Benzene (Lab. Method)



Acetophenone

2. By catalytic air- oxidation (Commercial Method)

This involves the treatment of ethyl benzene with Oxygen / air at 126°c under pressure in the presence of manganese acetate.



Ethyl benzene

Acetophenone

PHYSICAL PROPERTIES

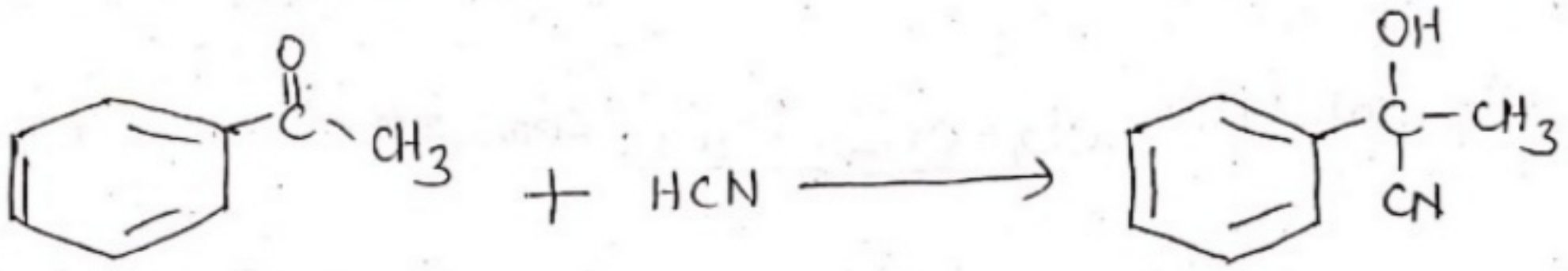
* Acetophenone is a colourless liquid.
* Boiling point = 202°c
* It is sparingly soluble in water but dissolve readily in ethanol and diethyl ether.

CHEMICAL PROPERTIES

Acetophenone gives all the reactions of aliphatic ketones at the carbonyl group.

owing to steric hindrance offered by the phenyl group, it does not form the bisulphite compound.

1. Addition Of HCN

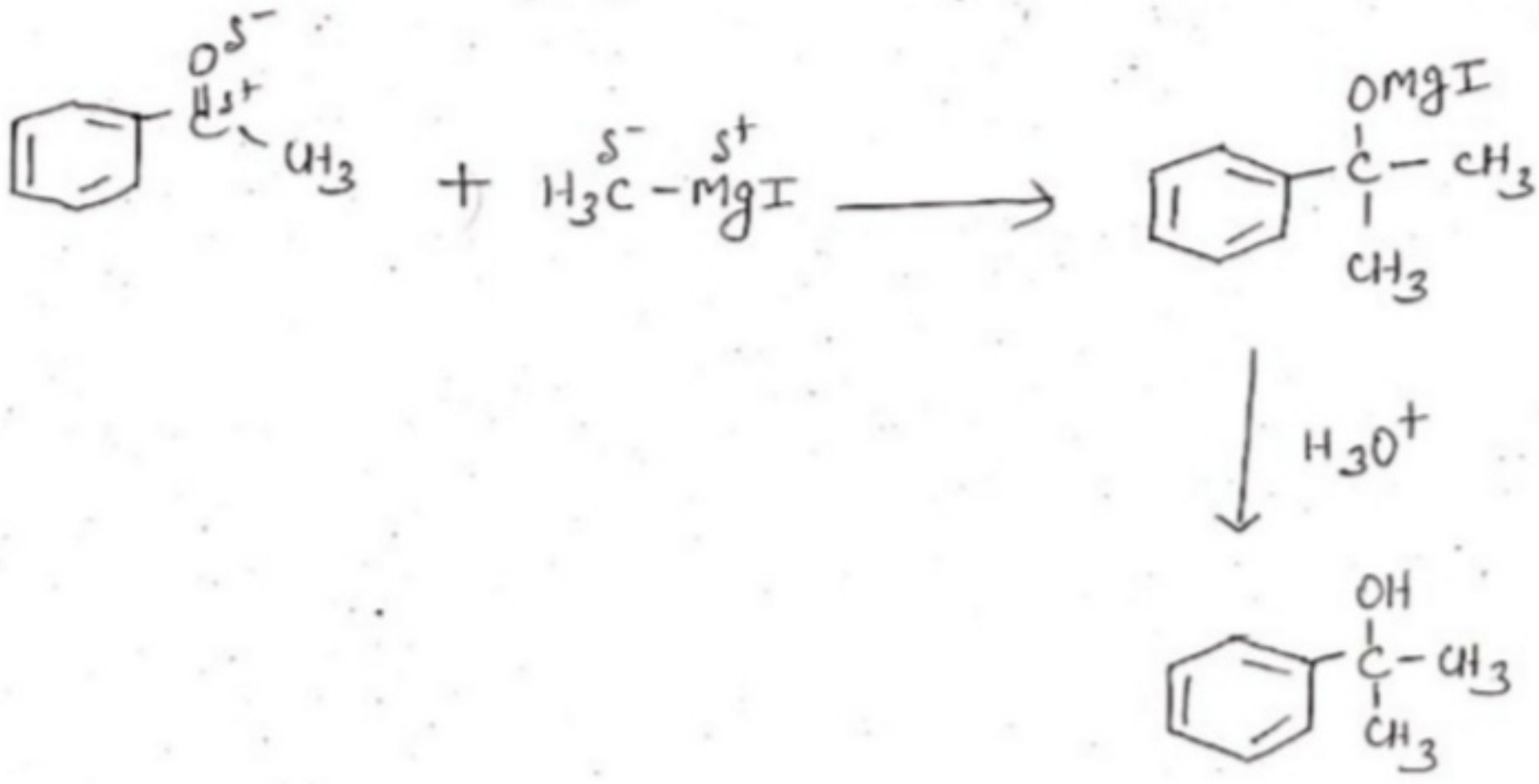


Acetophenone

Acetophenone cyanohydrin

2. Addition Of Grignard Reagents

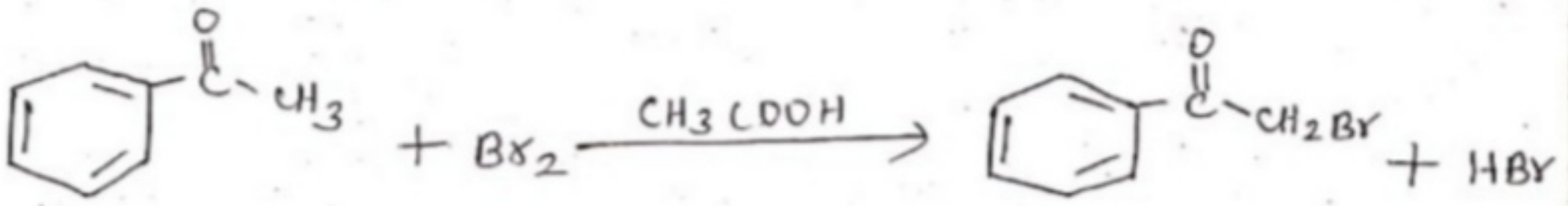
With Grignard Reagent, acetophenone form tertiary alcohol



3° alcohol.

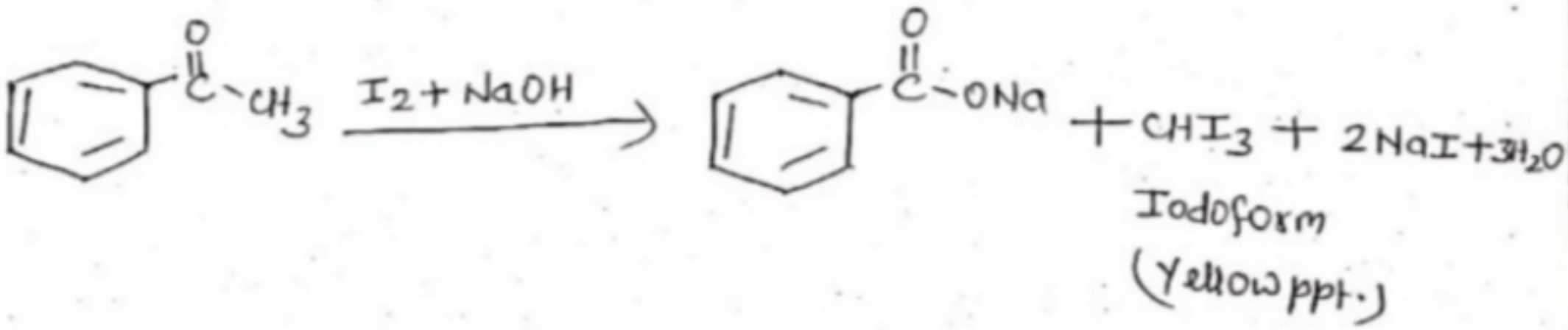
3. α - Halogenation

Acetophenone reacts with bromine in acetic acid to form an α-bromo ketone.



α-bromoacetophenone

4. Iodoform Reaction

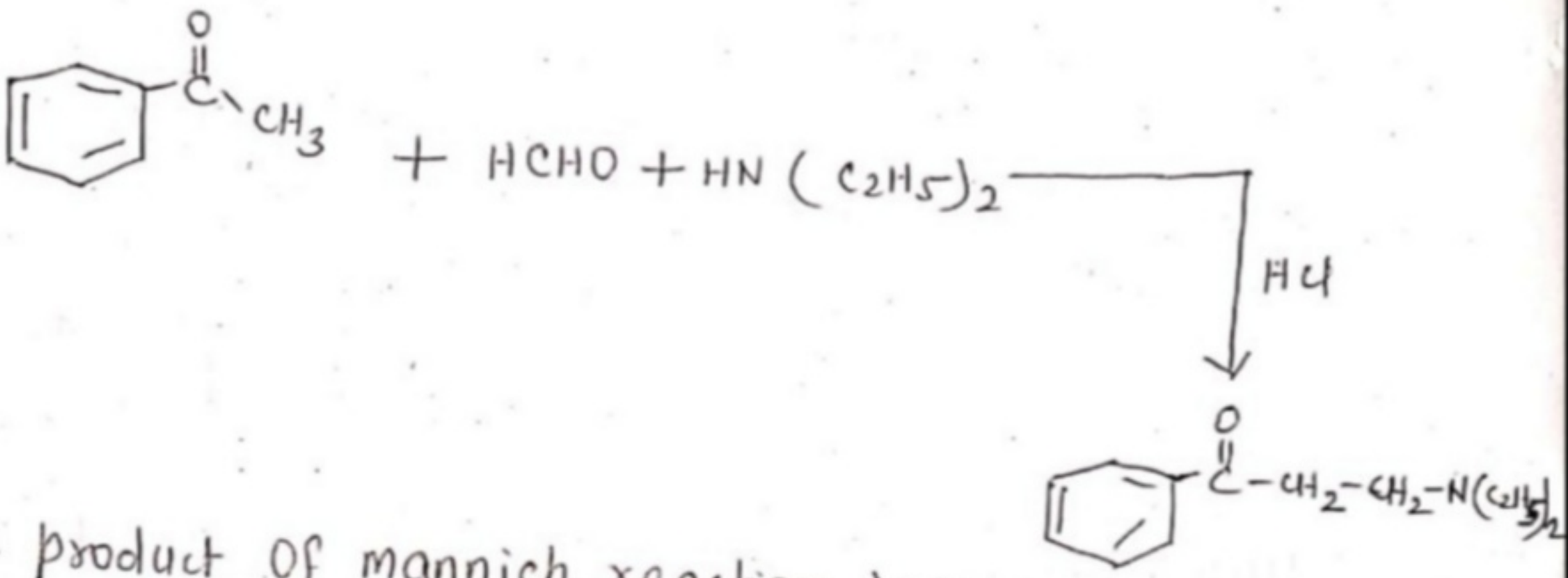


Iodoform
(Yellow ppt.)

5. Mannich Reaction

Acetophenone reacts with formaldehyde and ammonia or a primary amine or a secondary amine to form β- aminoketones.

For example;

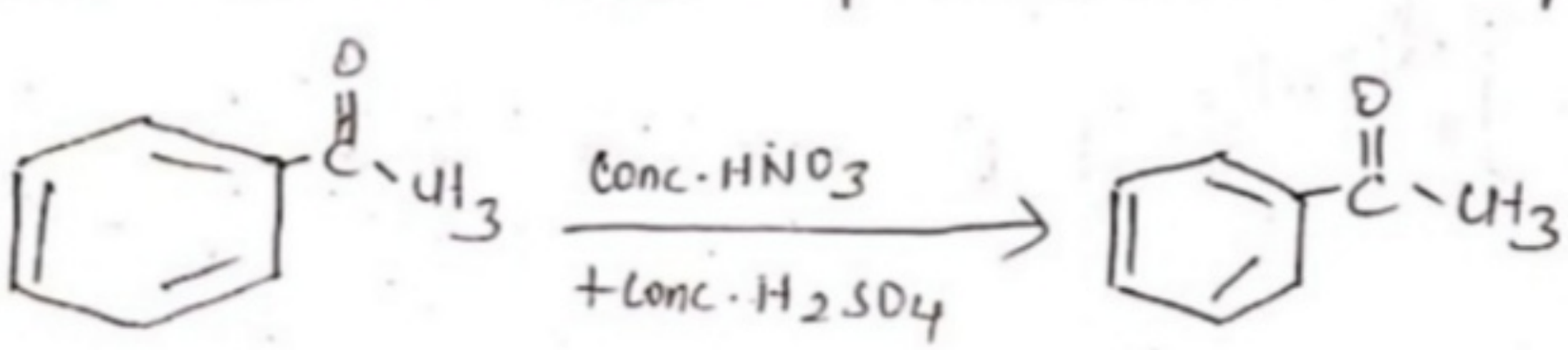


The product of mannich reaction is known as mannich Base.

6. Electrophilic Substitution

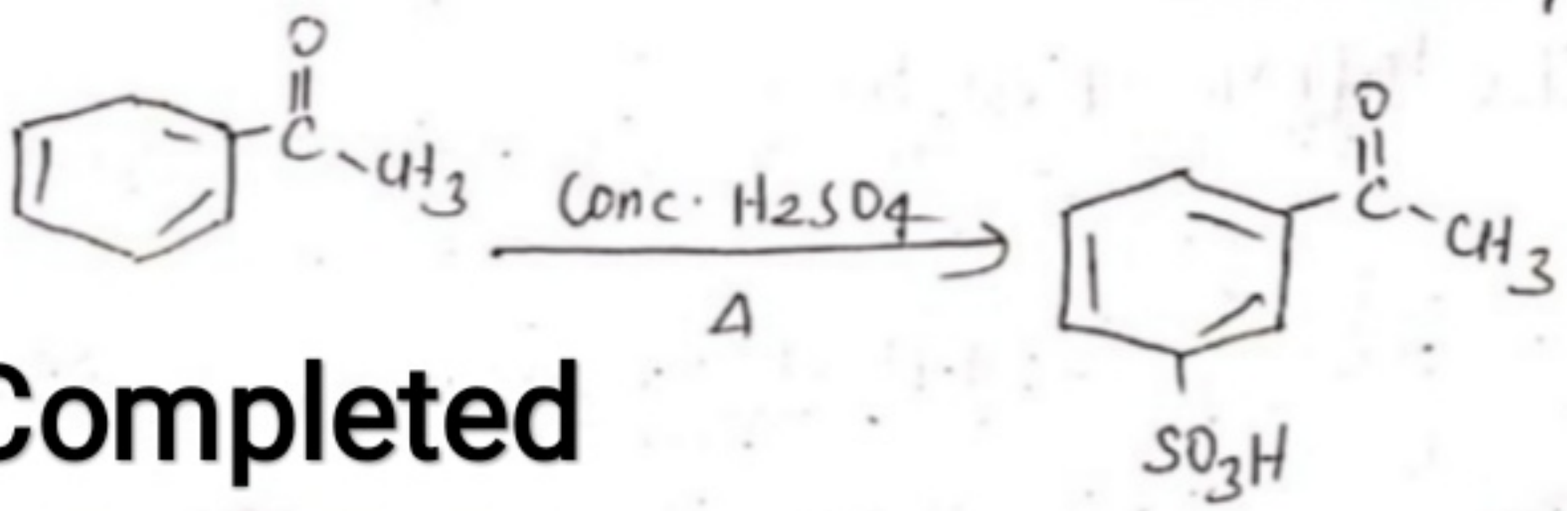
It undergoes nitration and sulphonation as meta position.

Nitration :-



m-nitroacetophenone

Sulphonation :-



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