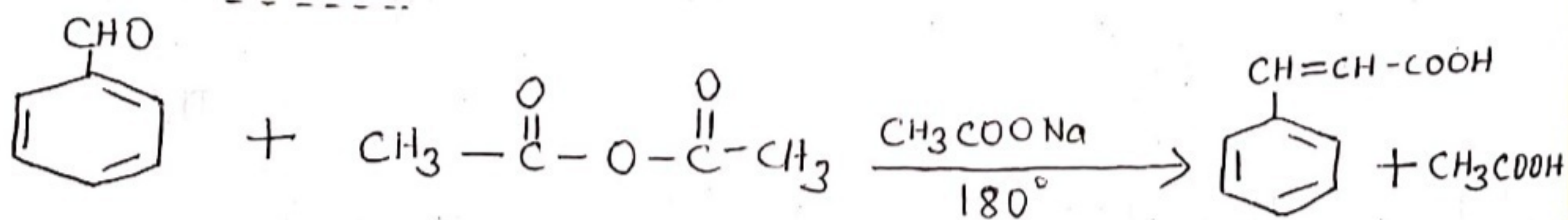


Perkin's Reaction

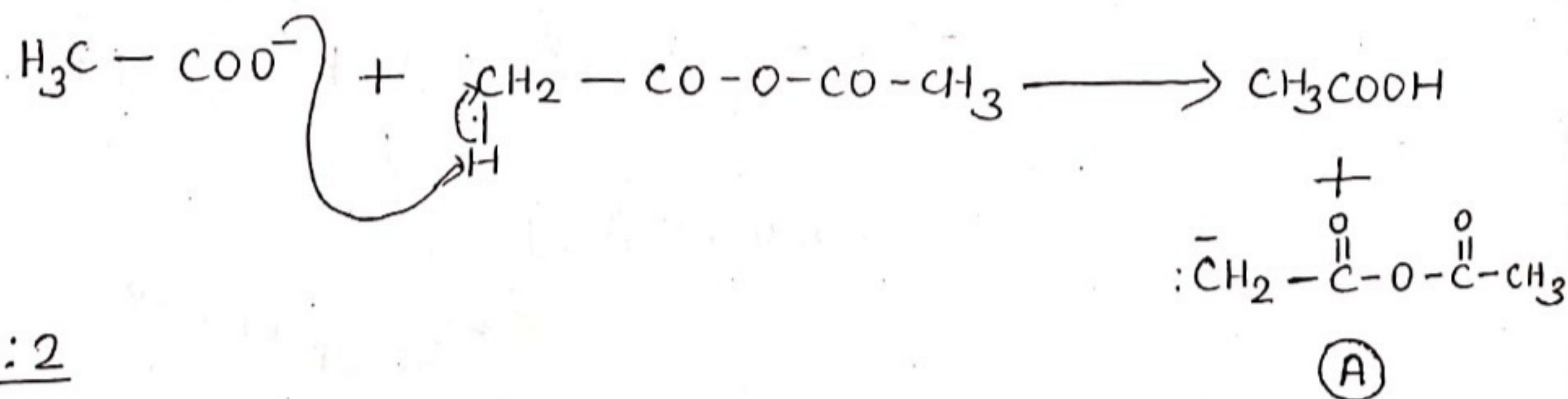
11-04-2020

The Perkin's reaction involves the treatment of an aromatic aldehyde with an aliphatic acid anhydride in presence of sodium or potassium salt of the acid corresponding to anhydride to give an α, β -unsaturated acid.

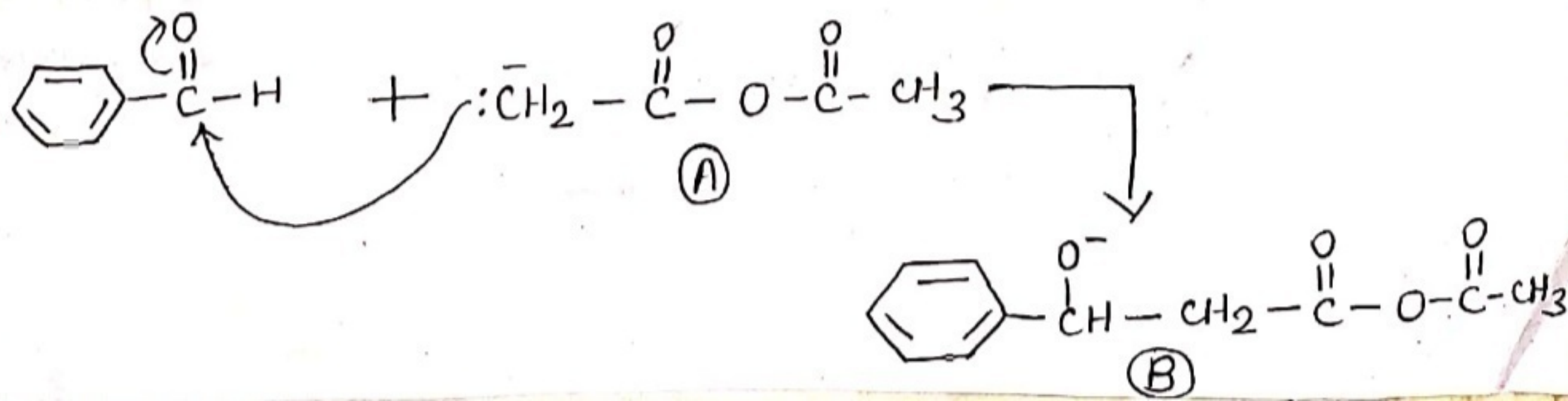
For example, Benzaldehyde reacts with ethanoic anhydride in the presence of sodium ethanoate at 180°C to form "CINNAMIC ACID".

MECHANISMStep: 1

Formation of the anion of ethanoic anhydride (A)

Step: 2

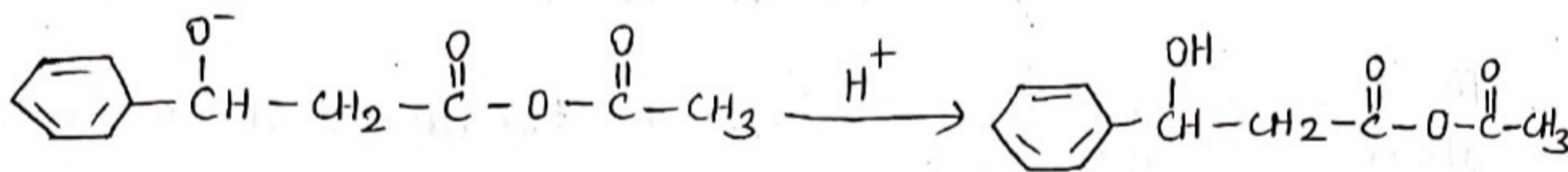
Addition of (A) to benzaldehyde gives (B).



Step: 3

Protonation of (B) gives (C).

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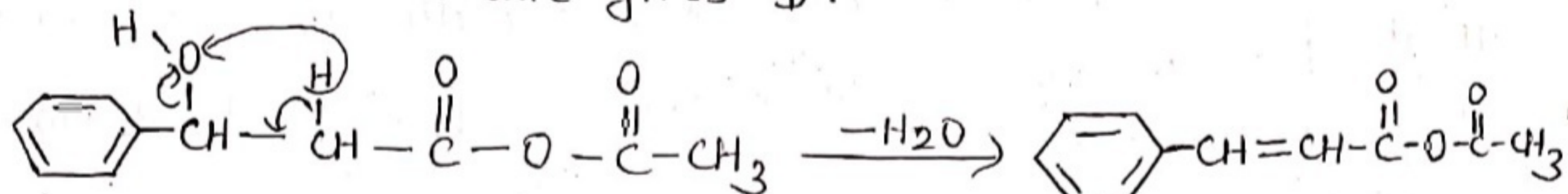


* (H^+ is supplied by CH_3COOH from step 1.)

(C)

Step: 4

Internal proton transfer in (C) followed by elimination of water molecule gives "D".

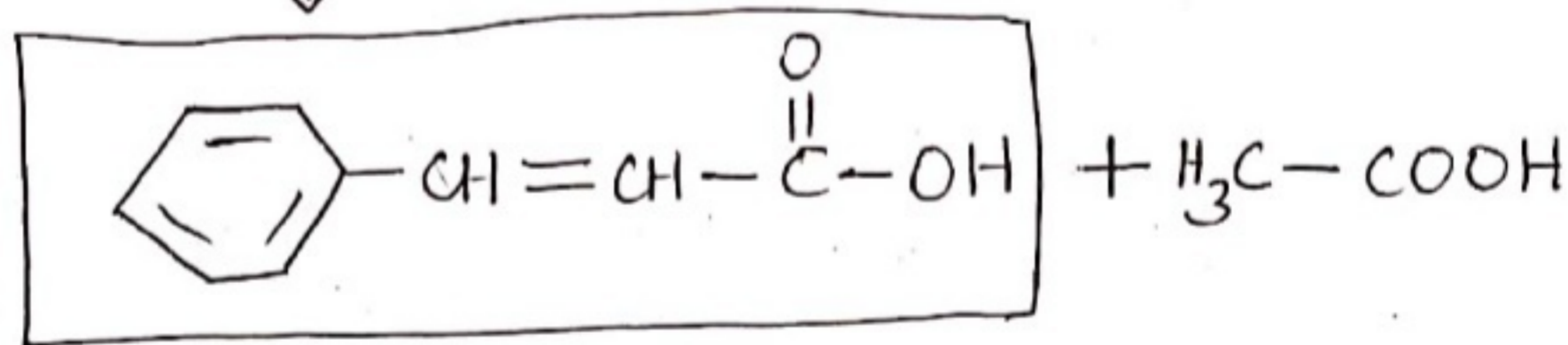
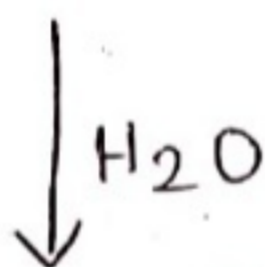
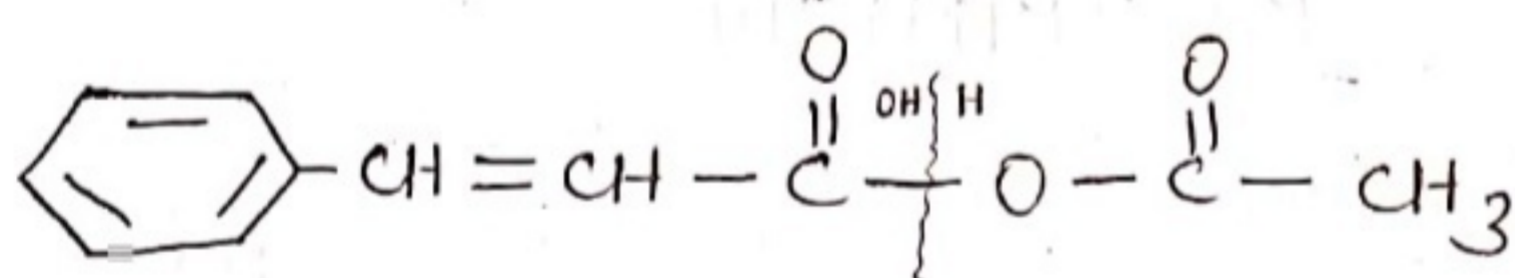


(C)

(D)

Step: 5

Hydrolysis of "D" gives Cinnamic Acid.



Cinnamic Acid

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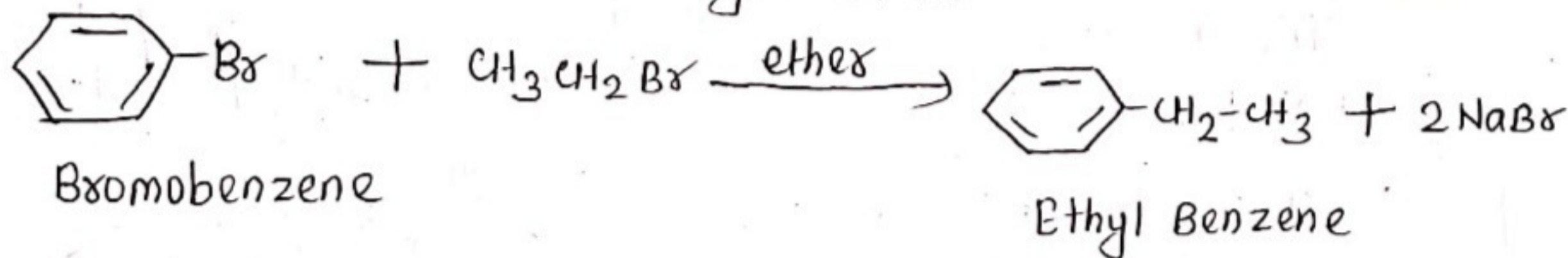
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Wurtz Fittig Reaction

Page no.-3

* Aryl halides and alkyl halides undergo coupling reaction in the presence of sodium to form alkylated aromatic hydrocarbons (Arenes).

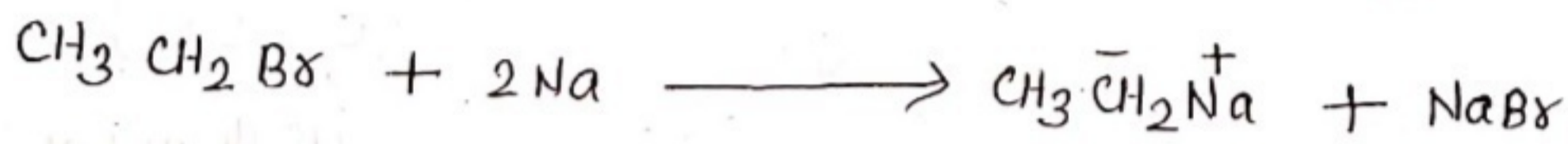
* This reaction is an extension of Wurtz reaction and is often referred to a Wurtz-Fittig reaction.



* Although it is possible to get biphenyl by coupling of two phenyl groups and butane by coupling of two ethyl groups, ethyl benzene is much higher yield.

MECHANISM

The more reactive alkyl halide forms an organosodium first, and this reacts as a nucleophile with an aryl halide.



End

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