PREVIOUS YEAR QUESTION

With Solutions

DEGREE-I (HONS.)

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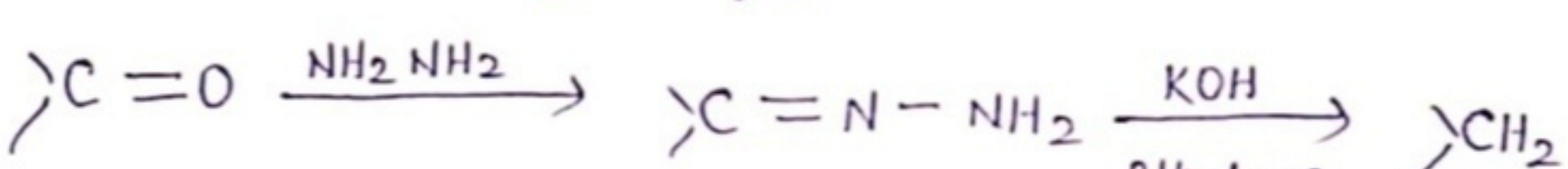
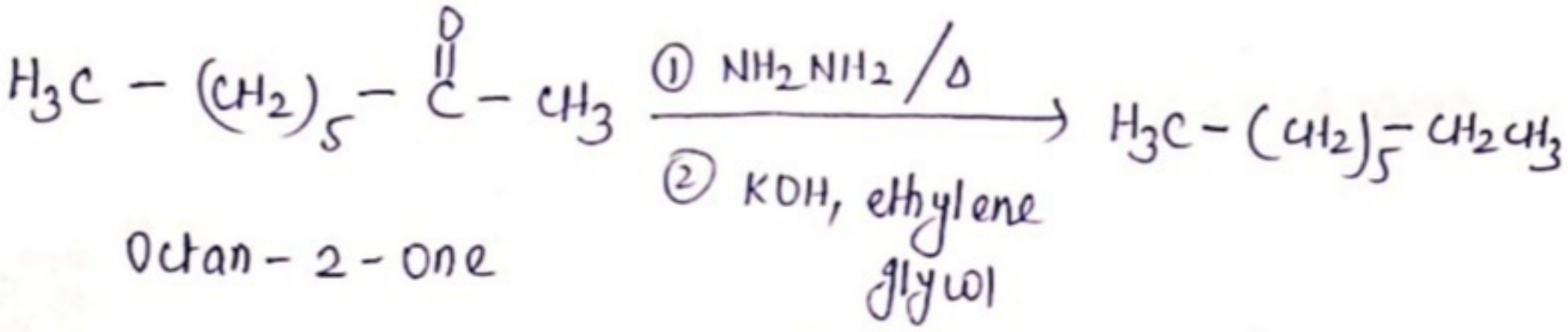
Write an account of the following reaction :-

WOLFF - KISHNER REDUCTION

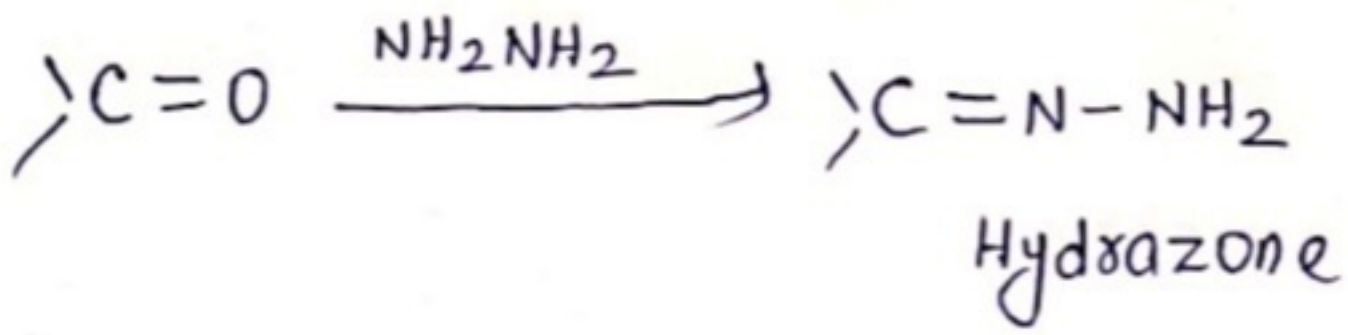
* The aldehyde and ketones can be reduced to the corresponding hydrocarbons by wolff kishner reduction.
* The reaction is carried out by heating the hydrazones of aldehyde and ketones with potassium hydroxide in Presence of ethylene glycol.



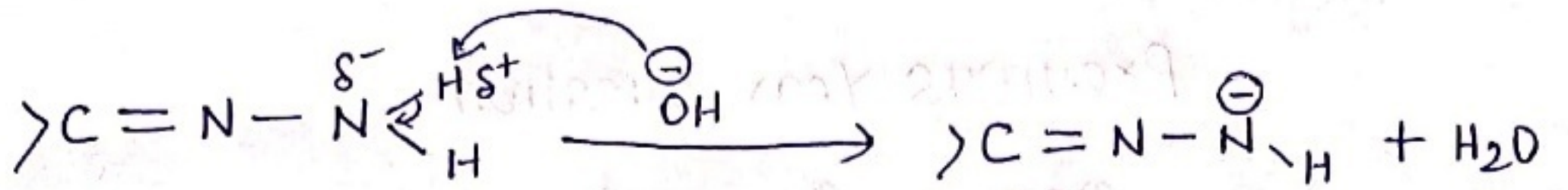
Example :

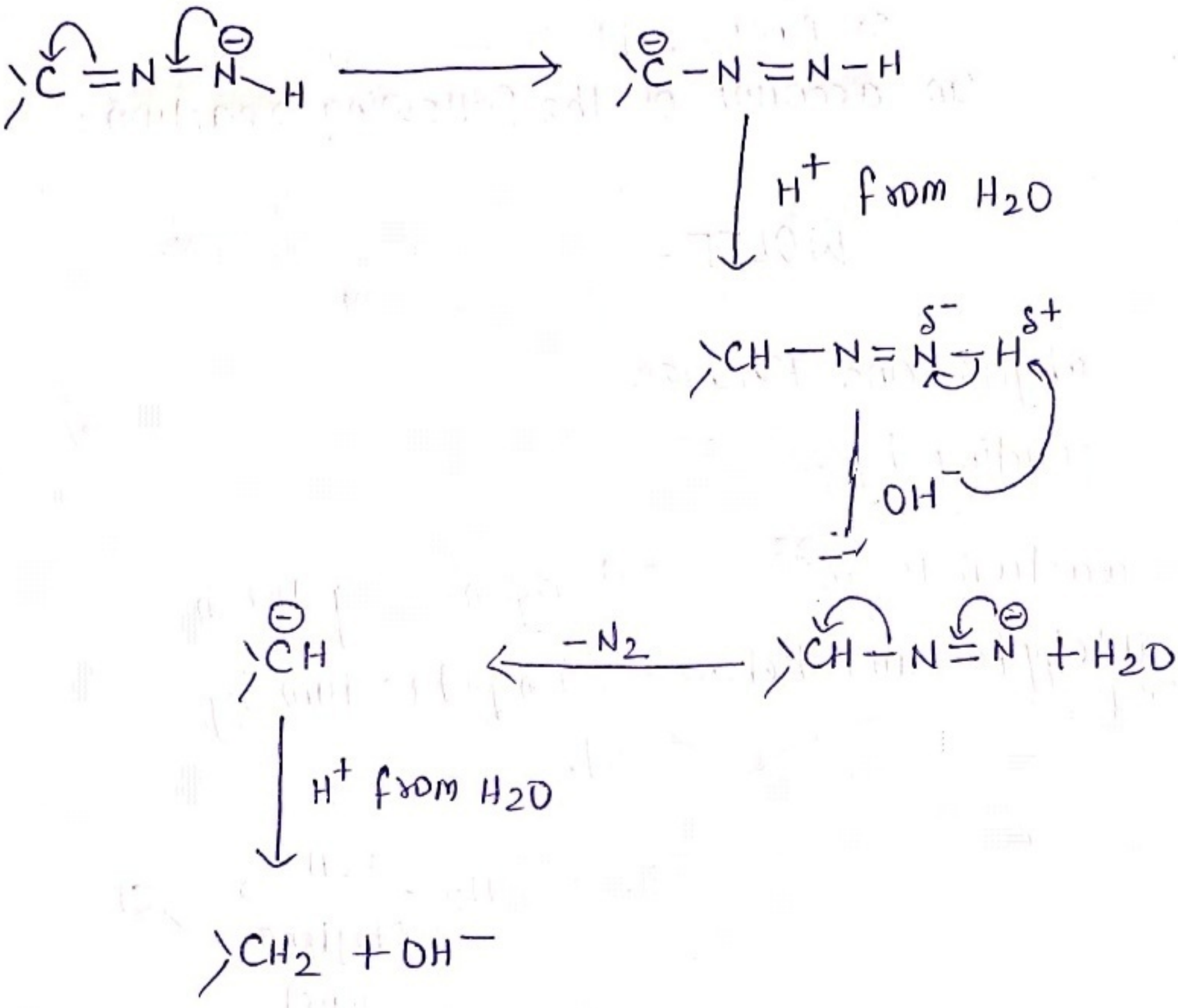


Mechanism



2.





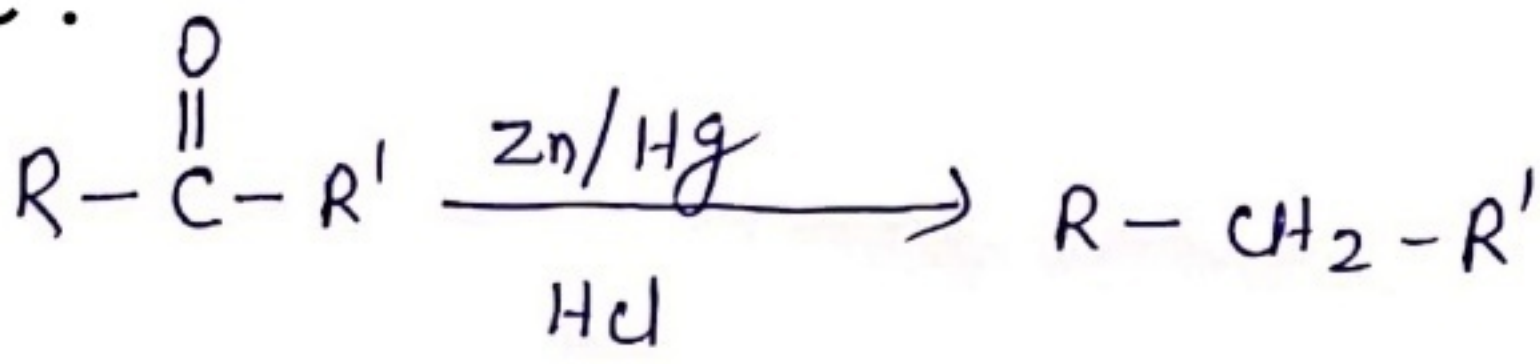
CLEMMENSEN REDUCTION

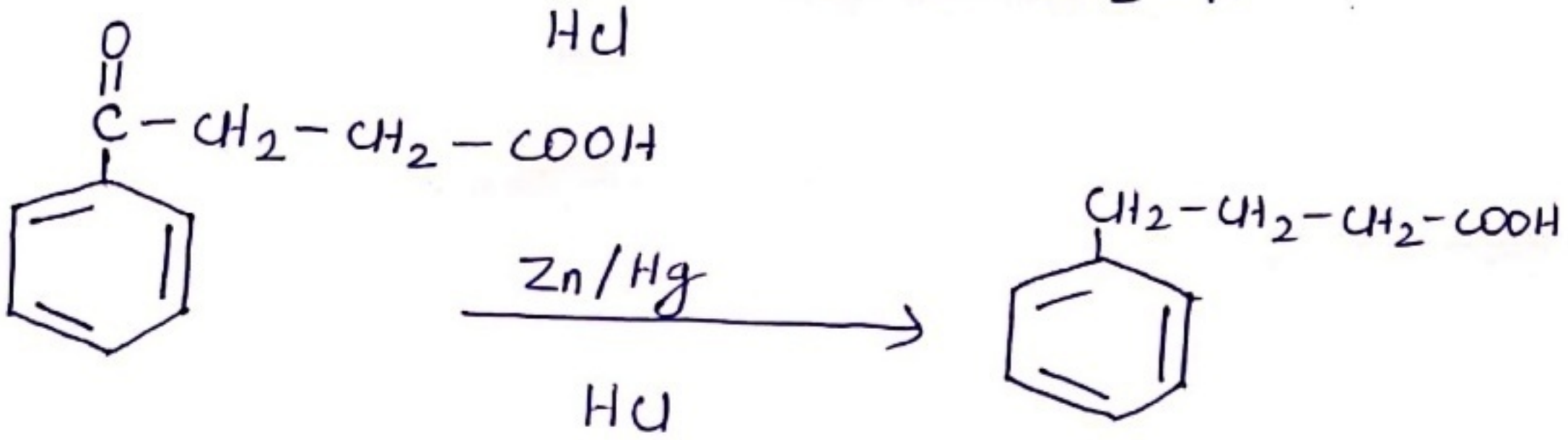
* Ketones and aldehydes on reduction with zinc amalgam and hydrochloric acid give the corresponding hydrocarbons, ie; carbonyl group is converted into methylene group.

This is known as clemmensen reduction.

example :

3.



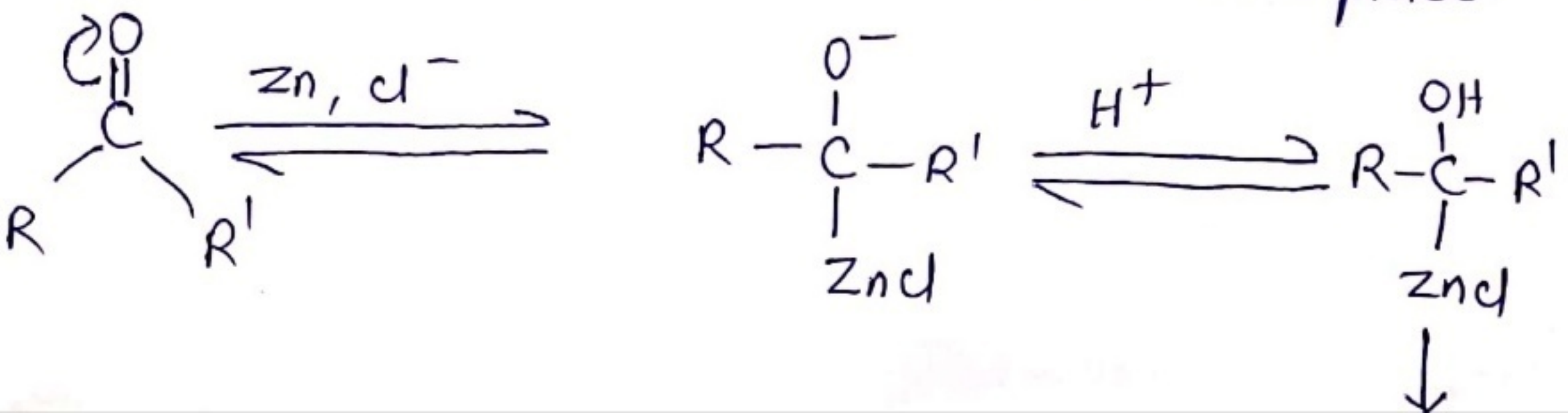


Mechanism

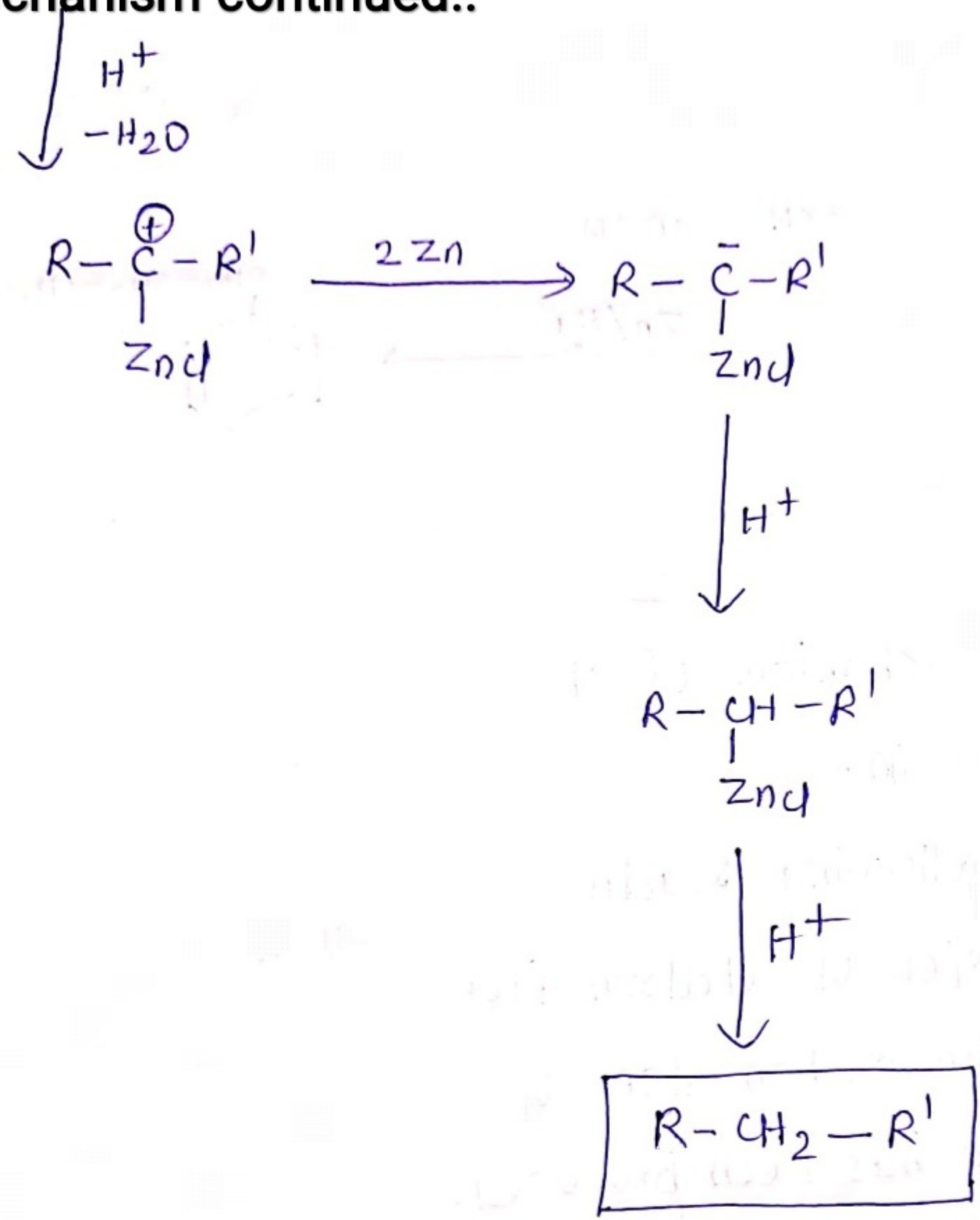
* The mechanism of clemmensen reduction is uncertain.

* The following reaction pathway involving the transfer of eletron from the metal surface to the carbon atom of protonated carbonyl group has been proposed.

Transfer of four electrons from zinc metal to one molecule takes place.



Mechanism continued..



~COMPLETED~