

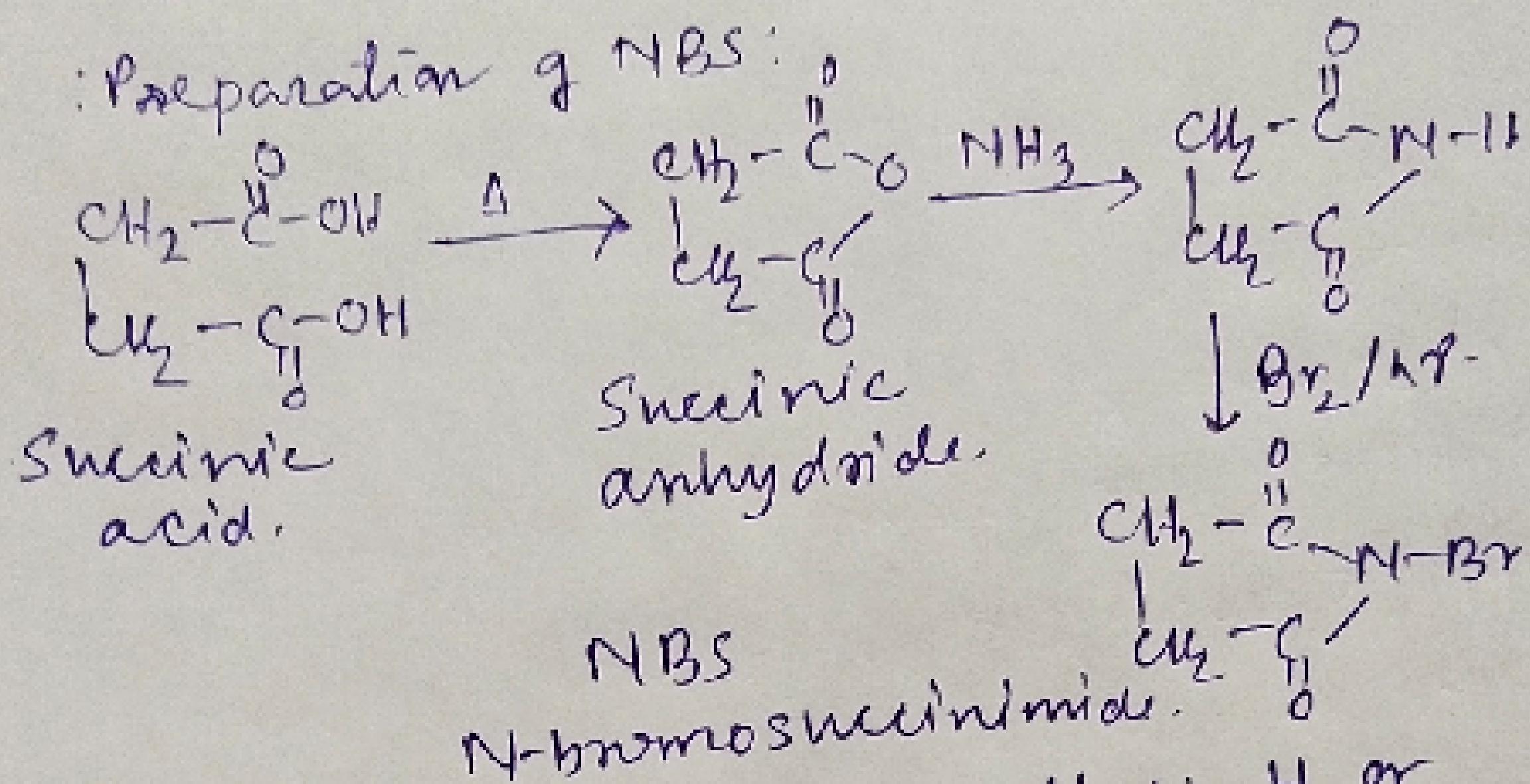
Other reagent used for free radical

Substitution.

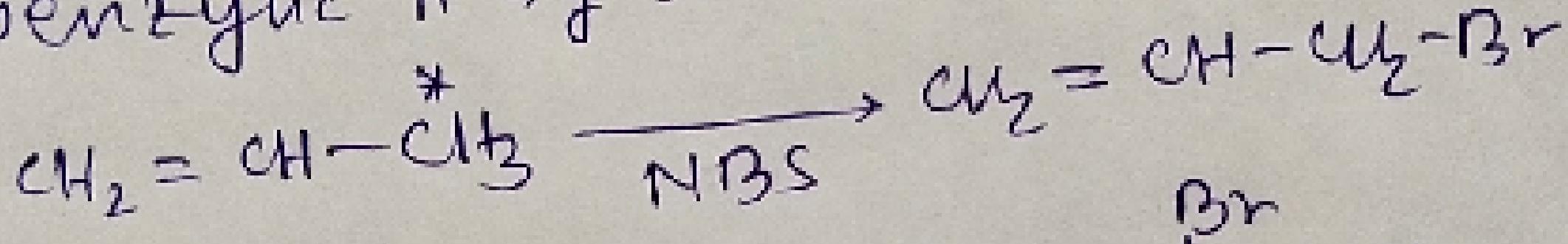
i) NCS (N-chlorosuccinimide)

ii) NBS (N-bromo succinimide)

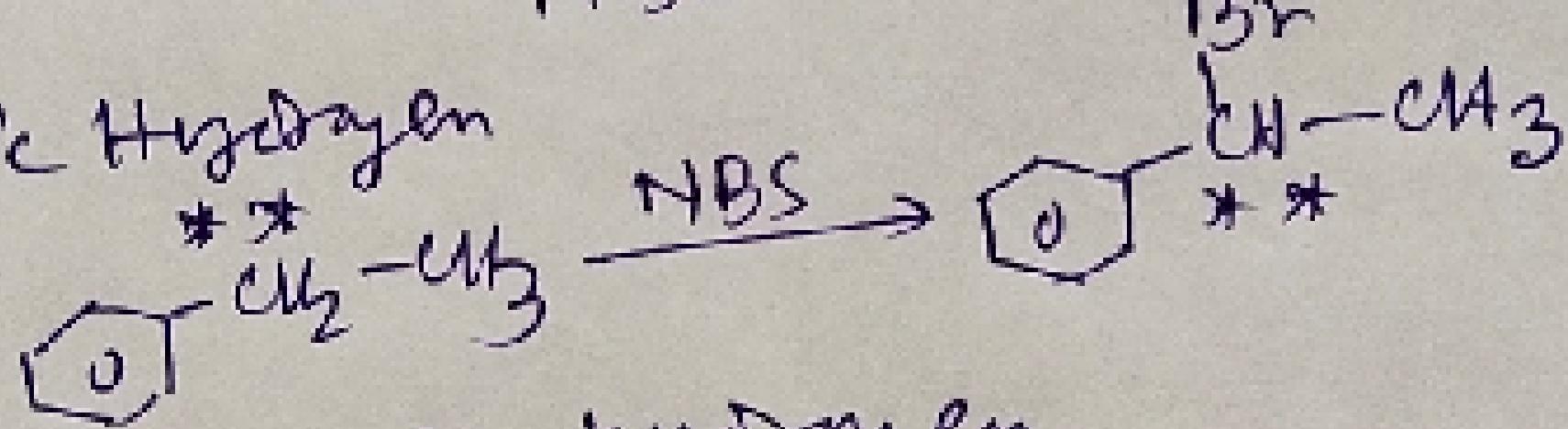
: Preparation of NBS:



It is used to substitute allylic H or benzylic H by bromine (very selective)



* allylic Hydrogen



* * = benzylic hydrogen.

The radical formed by removal of allylic or benzylic H is very much stable (due to resonance).

$\text{CH}_3 \xrightarrow{\text{NBS}}$ no reaction

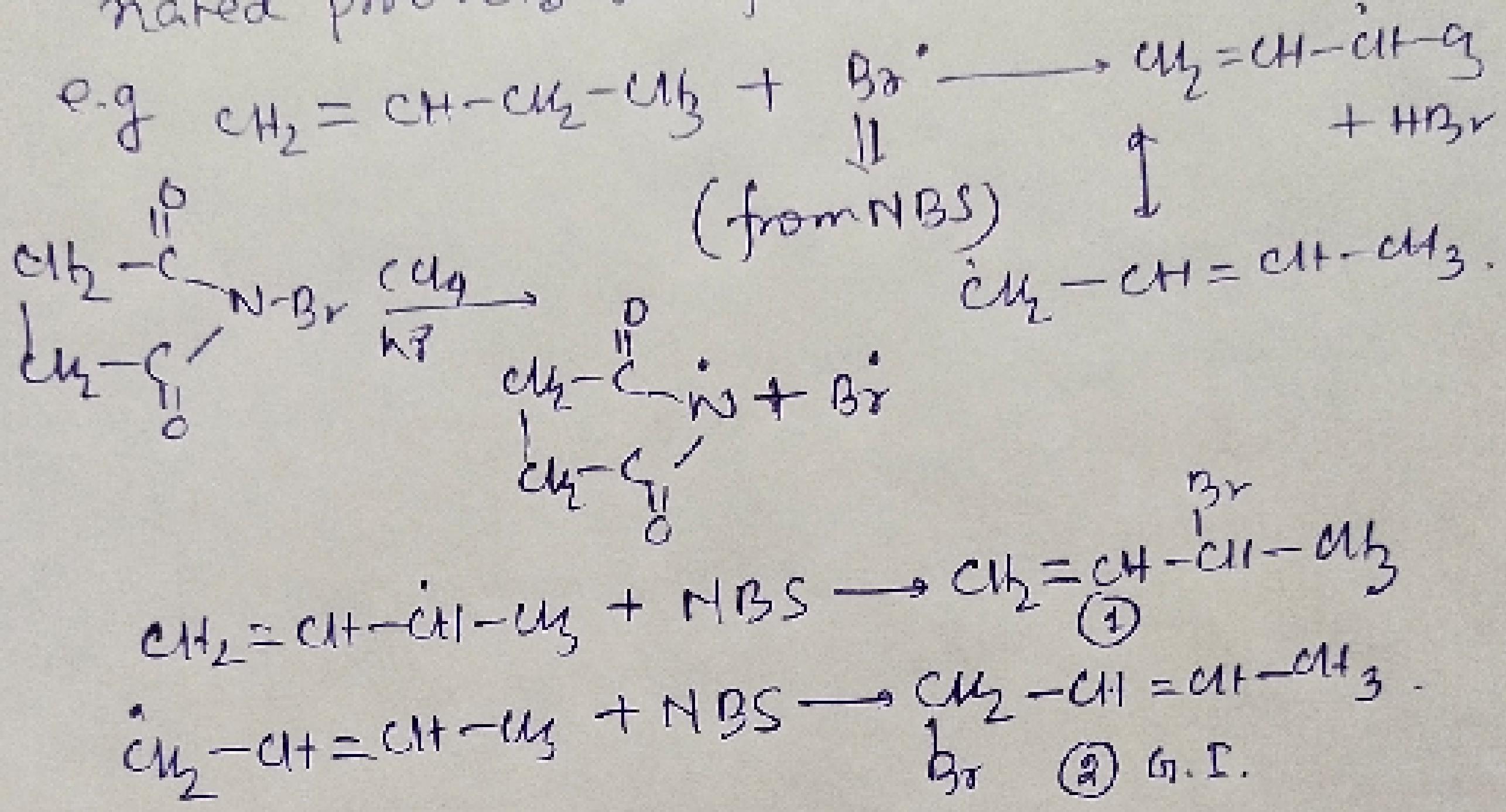
$\text{CH}_3-\text{CH}_3 \xrightarrow{\text{NBS}}$ no reaction

$\text{CH}_3-\overset{\text{CH}_3}{\underset{\text{CH}_3}{\text{CH}}}-\text{CH}_3 \xrightarrow{\text{NBS}}$ no reaction.

24

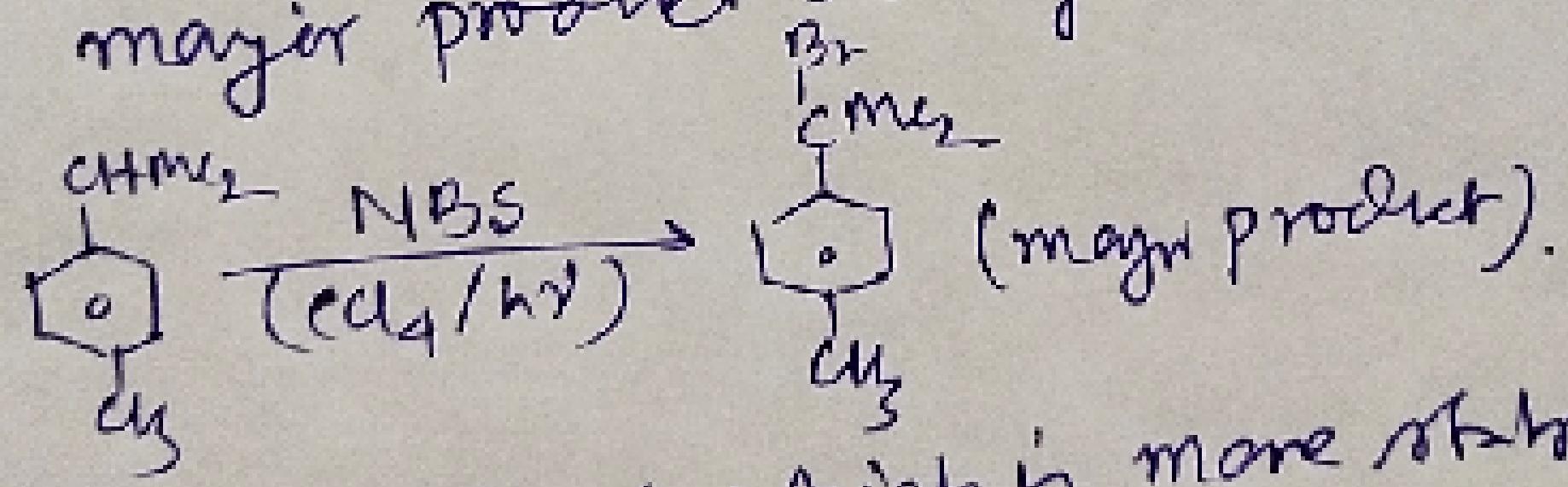
: Features of the reaction:

- ⇒ free radical is formed as intermediate
- ⇒ Radical formed undergoes resonance
if possible & other possible monobromo-
nated products are formed.

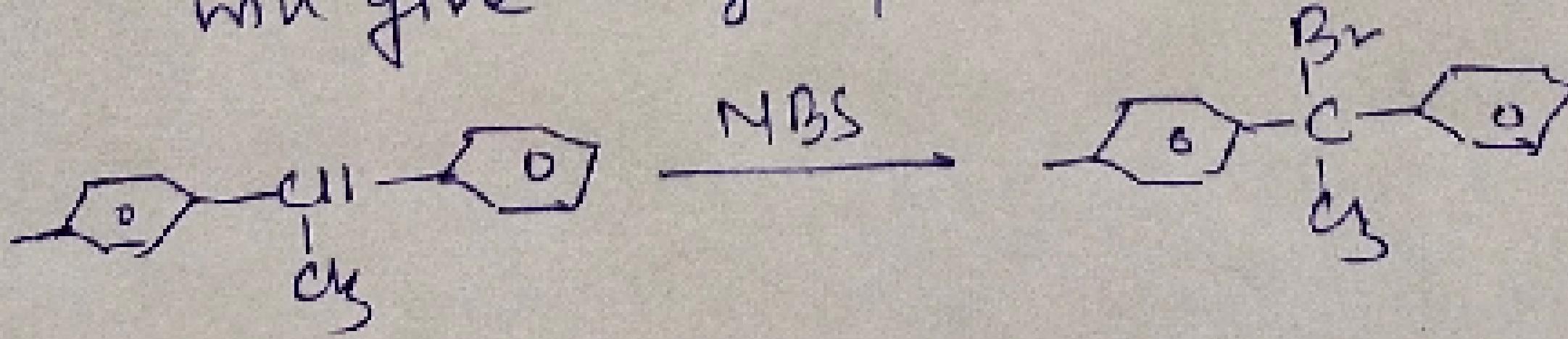


Total 3 products are formed.

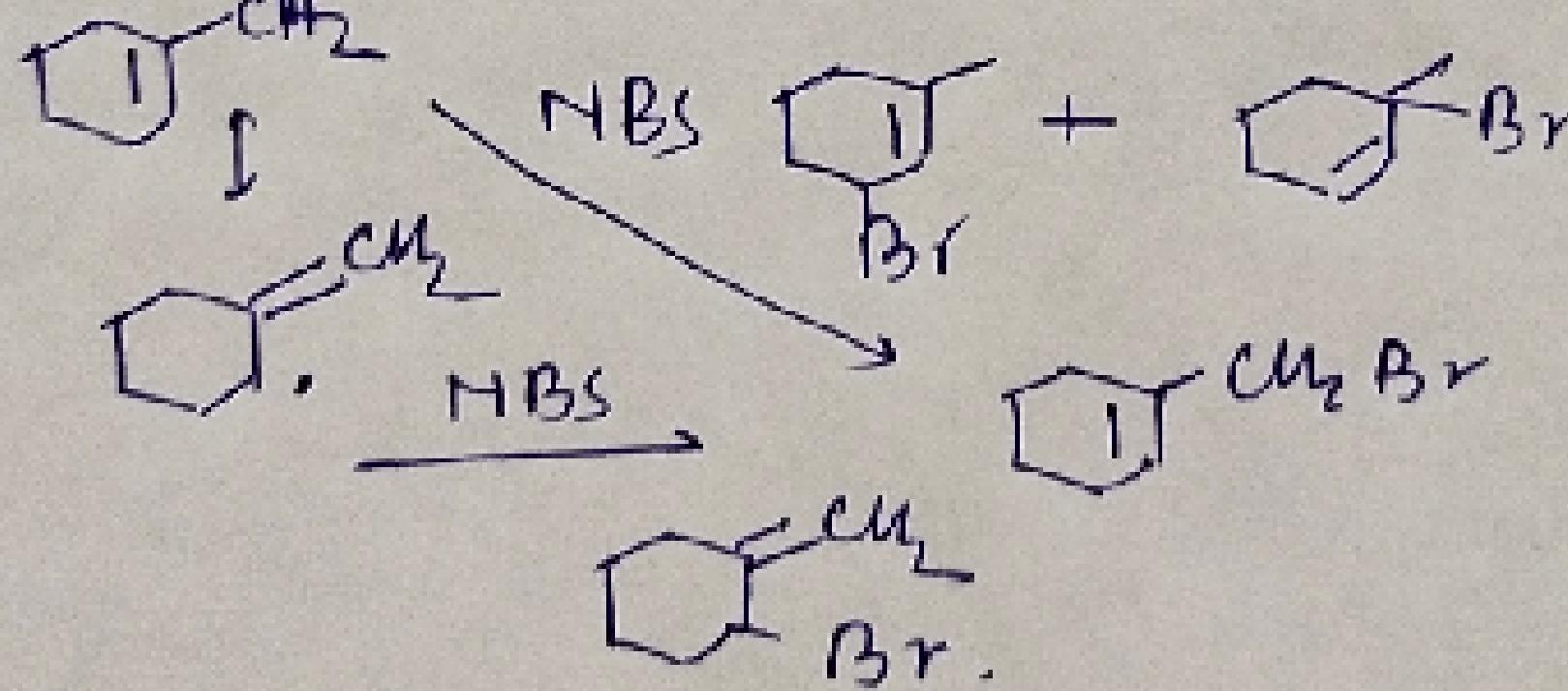
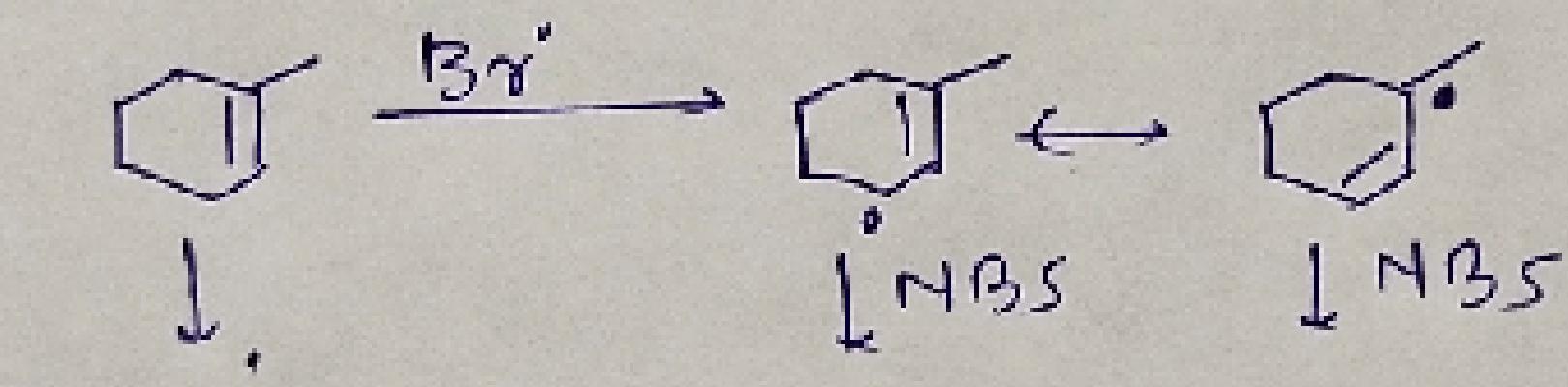
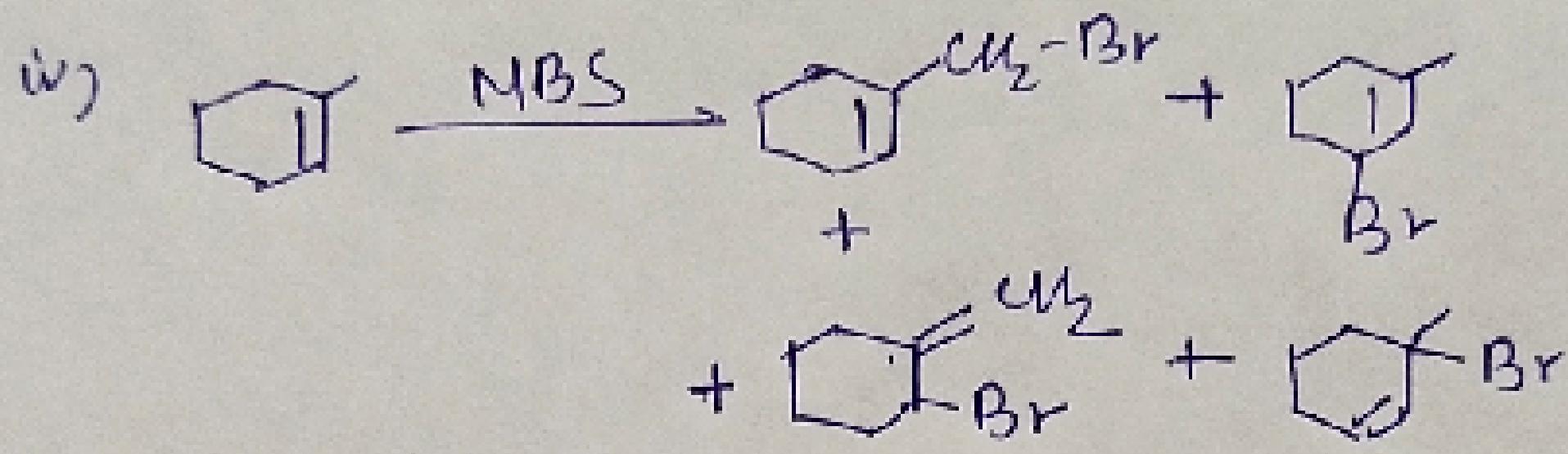
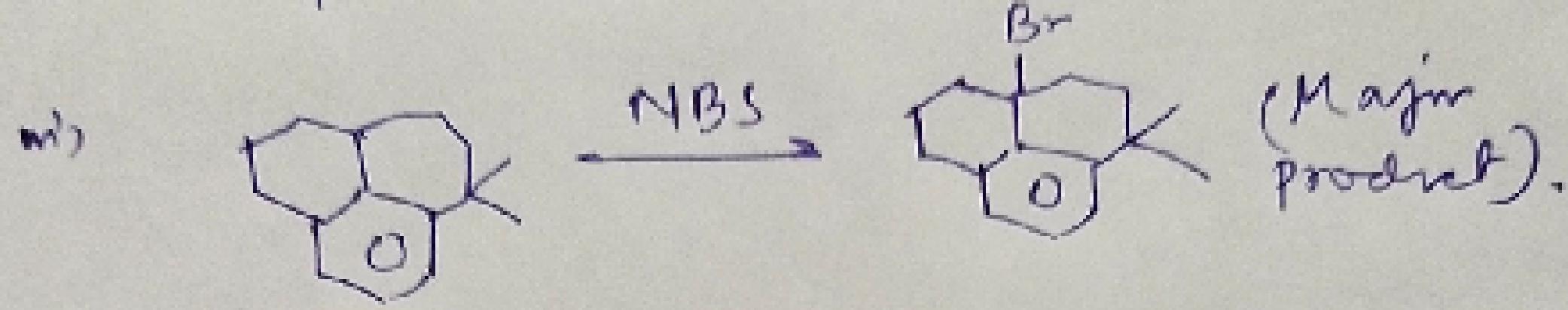
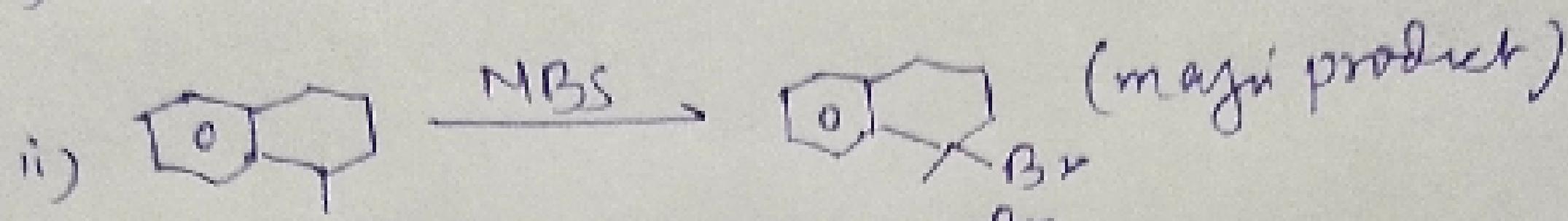
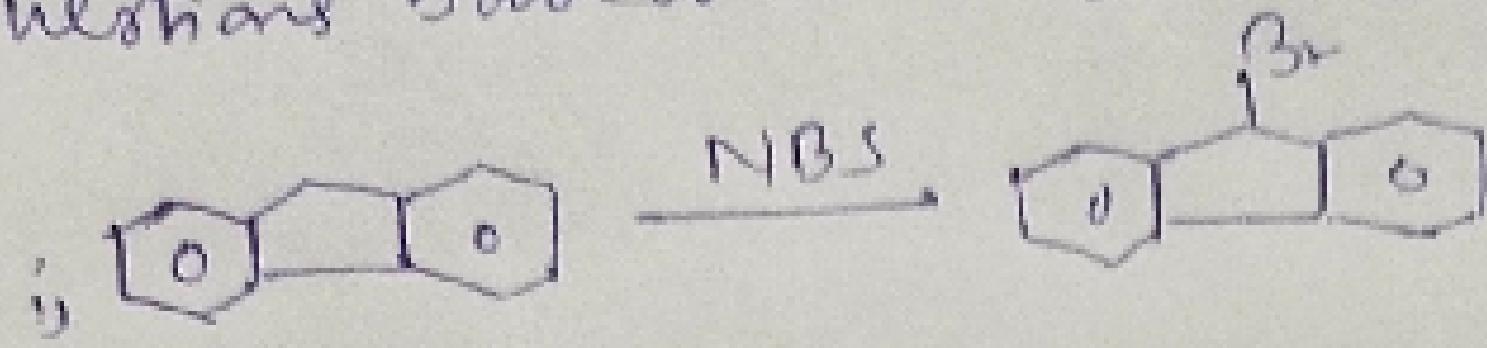
Total 3 products will be the
In NBS, more stable alkene will be the
major product always.



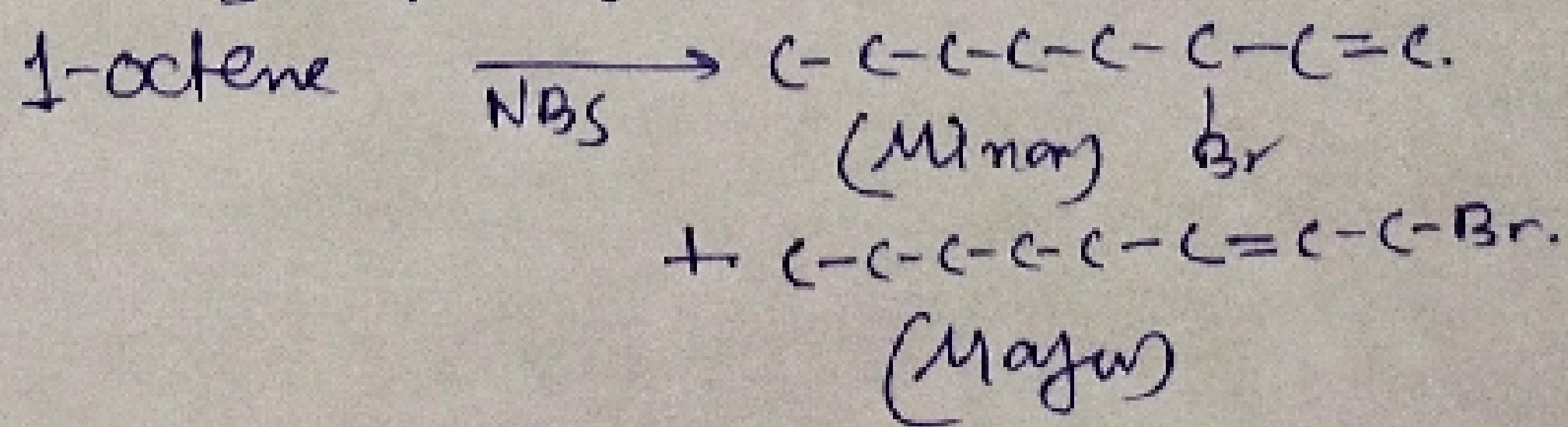
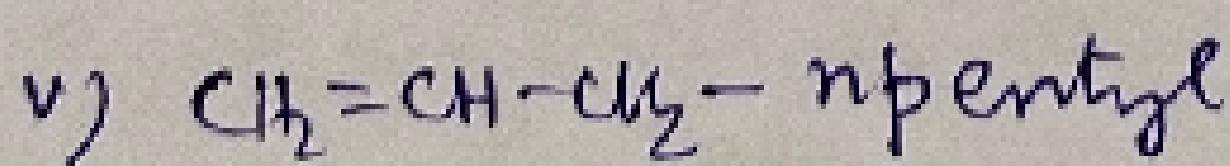
That radical which is more stable (if there
are 2 different types of H present), it
will give major product.



Questions based on NBS: 25



Possible products.

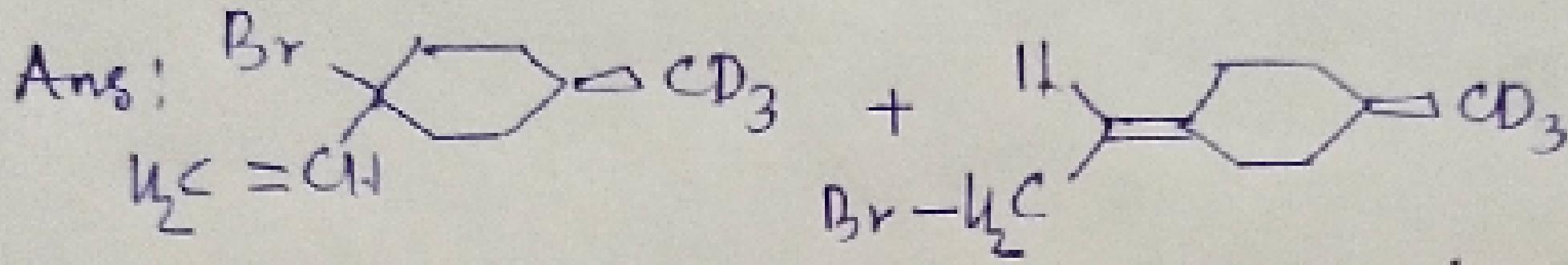
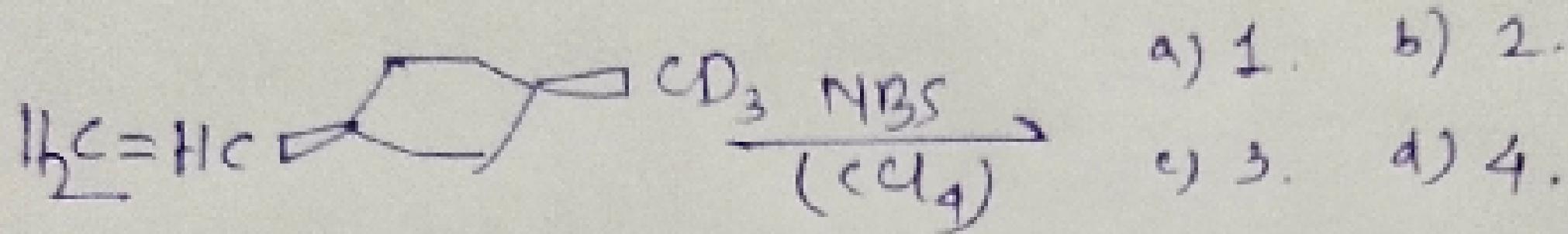


Questions based on NBS:

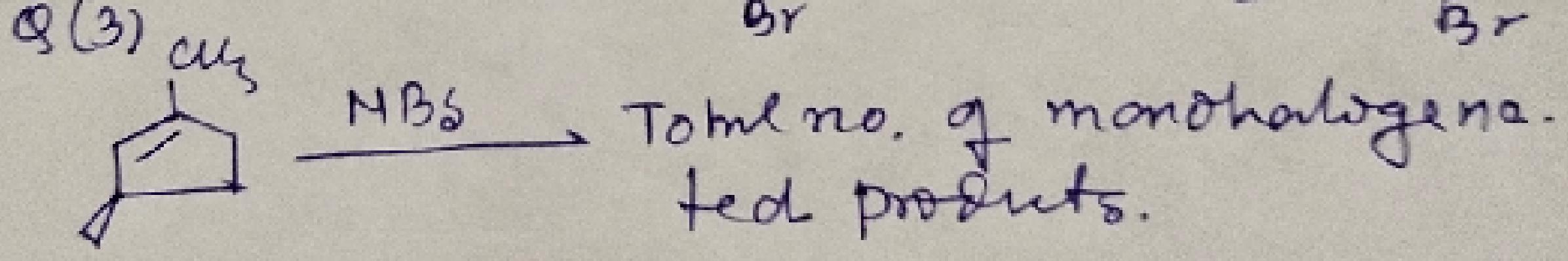
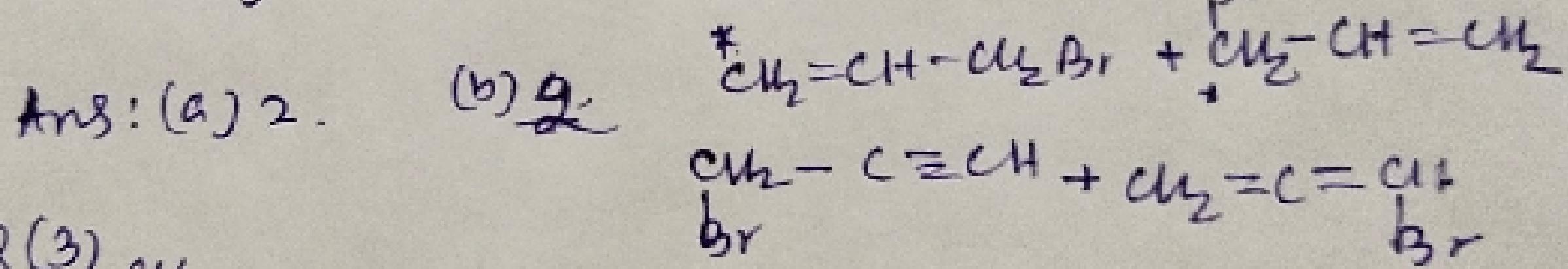
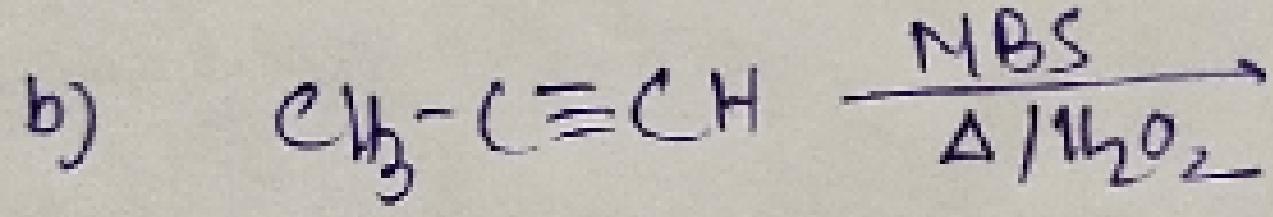
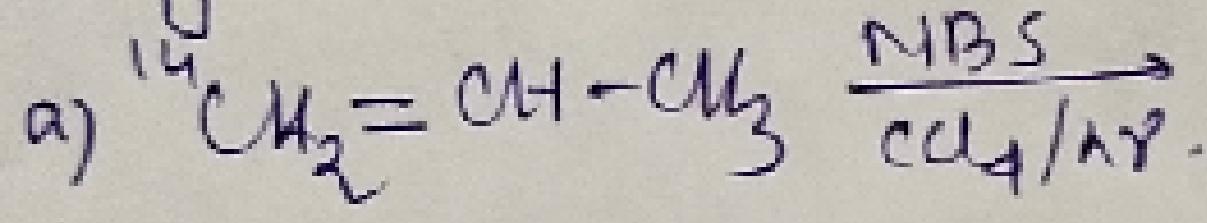
26

Total number of monobrominated

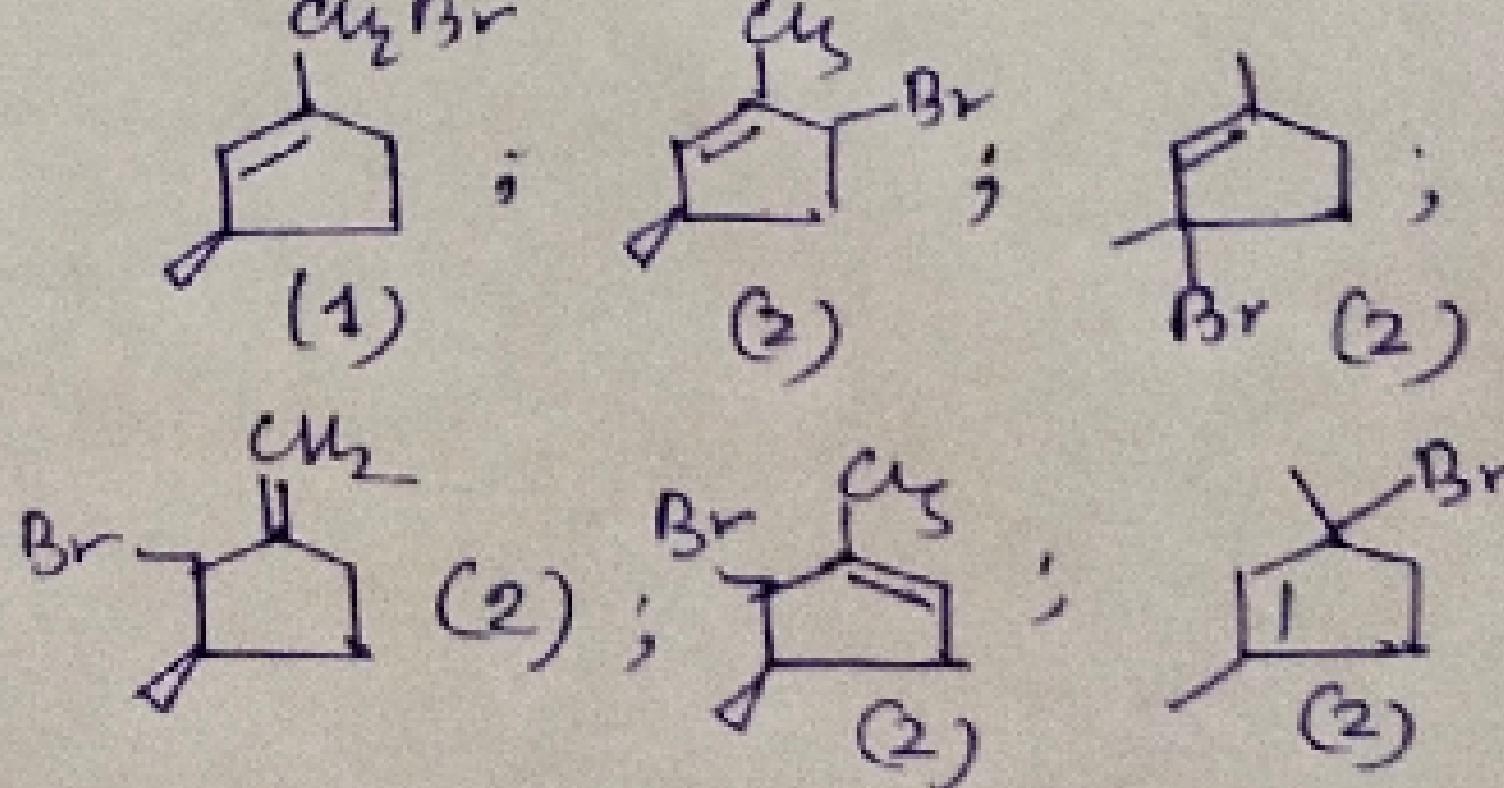
Q(1). organic products formed in following reacn.



Q(2). Total number of monobrominated organic products formed in following reacn.



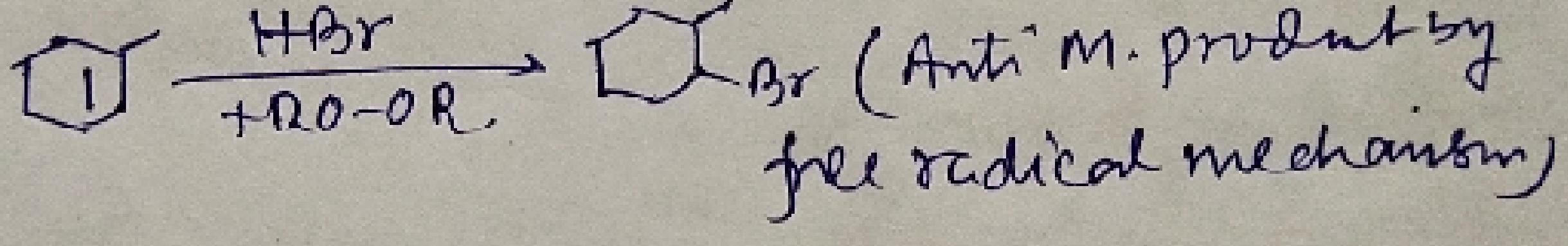
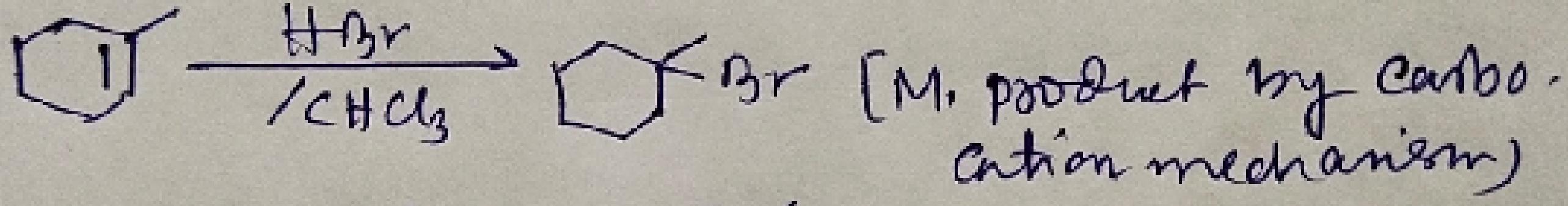
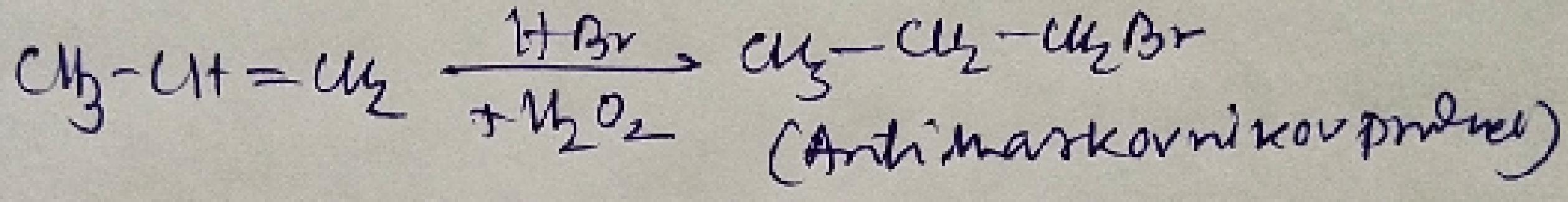
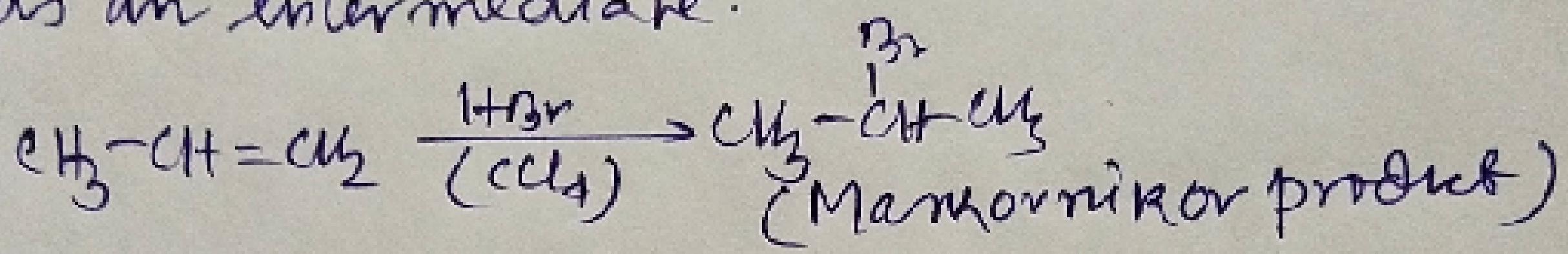
Ans: 11.



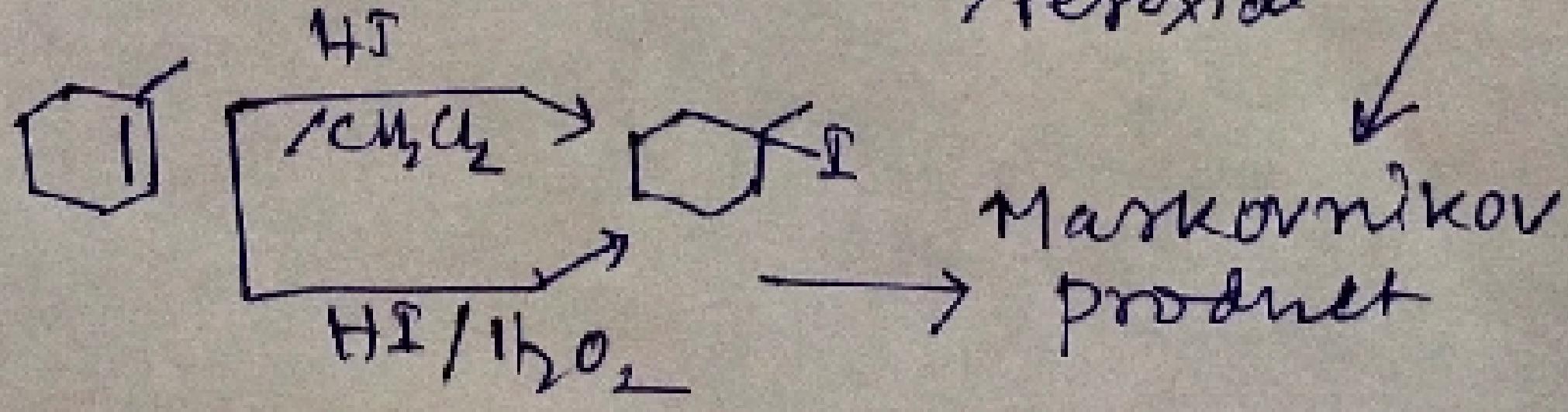
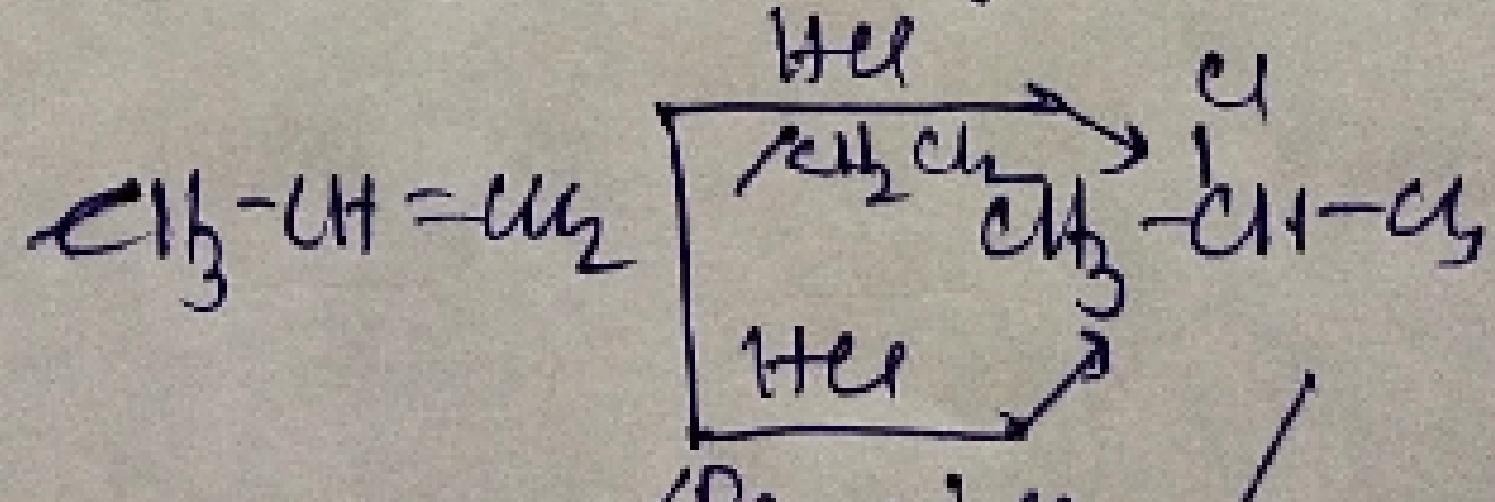
27

Anti-Markovnikov Product

It is observed non-symmetrical alkene e.g. $\text{CH}_3\text{-CH=CH}_2$ in presence of $\text{HBr} + \text{H}_2\text{O}_2$ gives anti-Markovnikov product. It is example of reaction where free radical is formed as an intermediate.



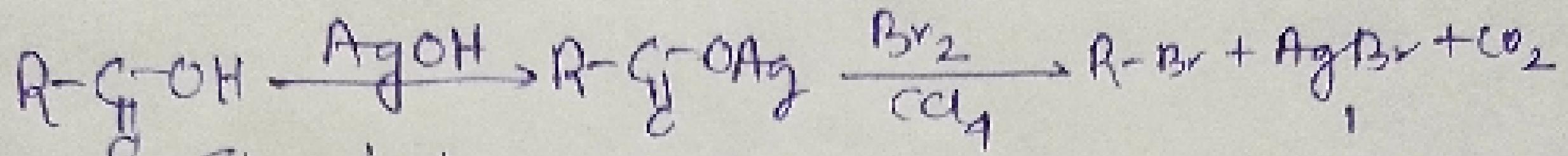
In presence of HCl , HI , always markovnikov product is formed in presence of absence of peroxide



28

Hunsdicker Reaction:

It is a name reaction in organic chemistry whereby silver salts of carboxylic acid react with halogen to produce an organohalide.

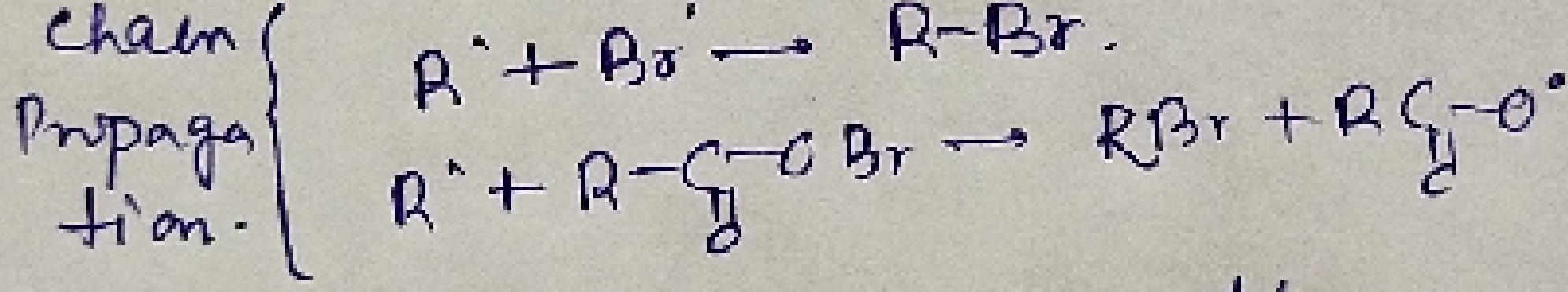
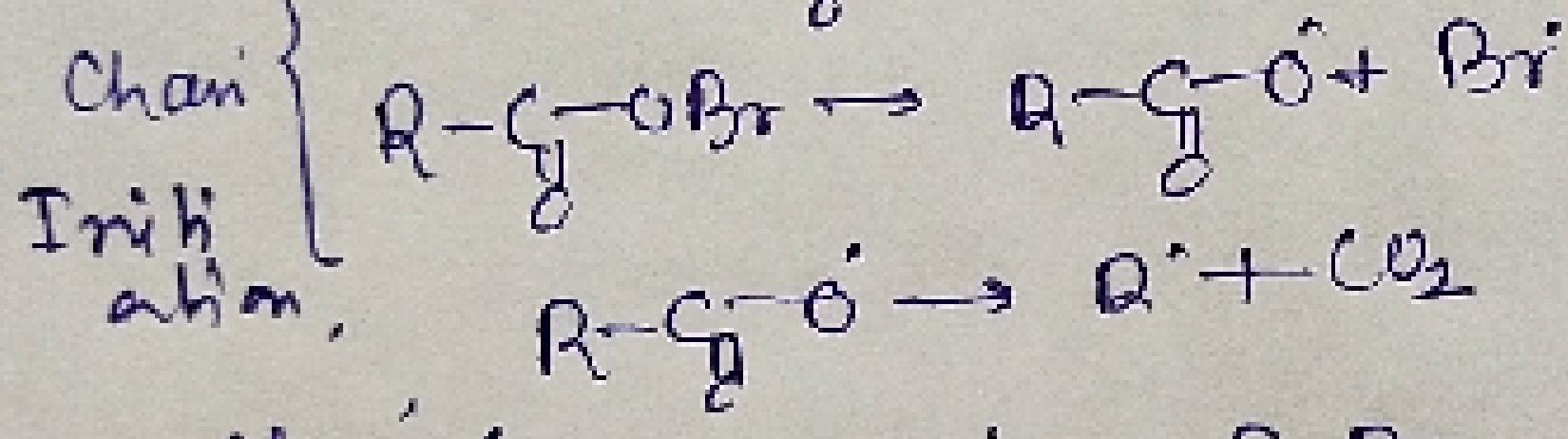
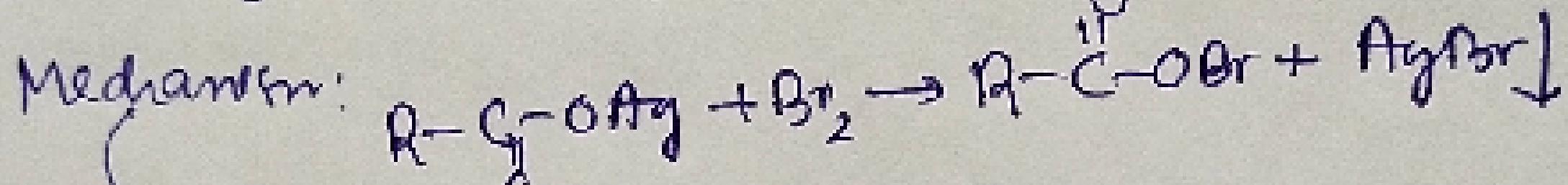
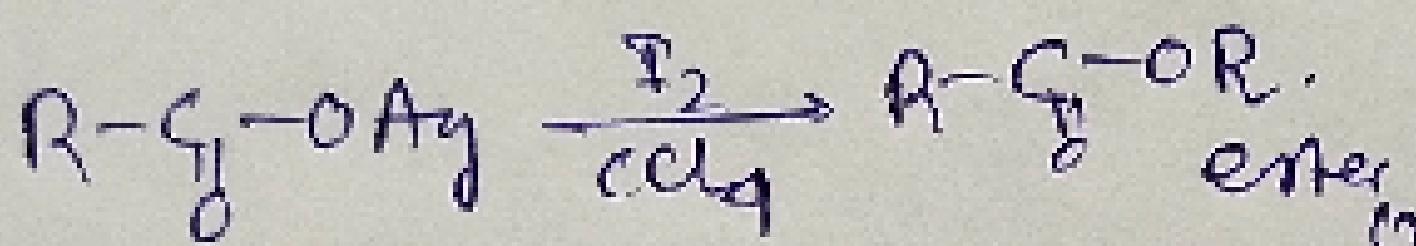


Simoniini

Hunsdicker - Borodin reaction:

If X_2 is I_2 then the reaction is called

Hunsdicker - Borodin reaction



for I_2 , as I^{\cdot} is very unreactive.
then I^{\cdot} combines with $\text{R}-\overset{\text{O}}{\underset{\delta}{\text{C}}}-\text{O}^{\cdot}$ to give $\text{R}-\overset{\text{O}}{\underset{\delta}{\text{C}}}-\text{OR}'$.

