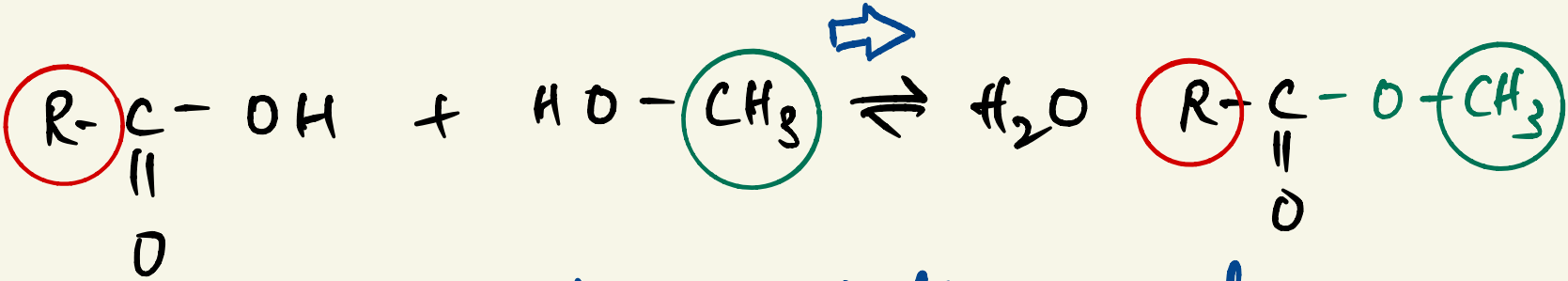


H_2SO_4 (conc.) : dehydrating agent.

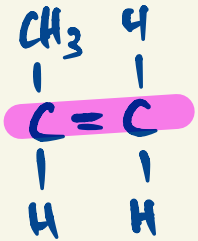
1. Reversible rxn
2. Rate of fwd rxn = Rate of backward Rxn
3. [Products] and [Reactants] (Remains unchanged)

Factors affecting equilibrium
(a) Temp.
(b) Pressure (acts ONLY on gas).
(c) Conc.

except Catalyst
(d) ↑ fwd & Bwd Rate By the same extent

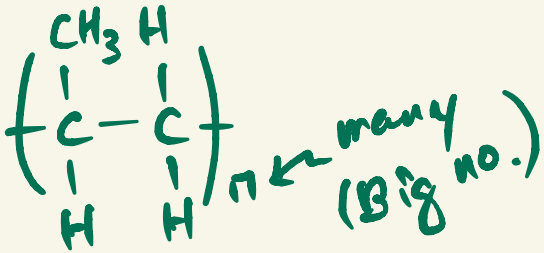
Addition Polymerisation involves Alkenes

i.e. C=C



← broken up

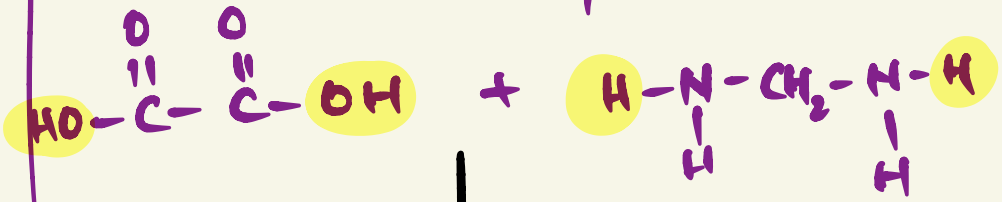
monomer

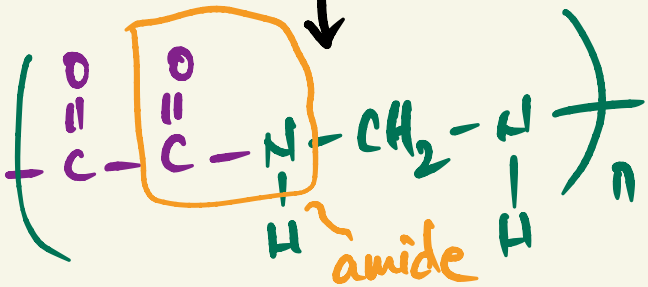


← many (Big no.)

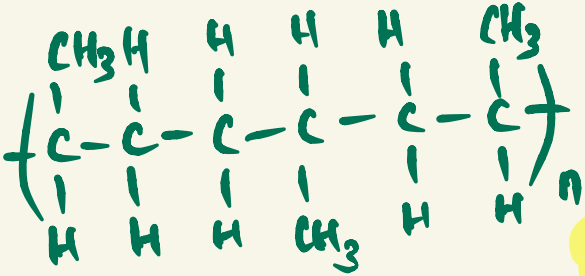
Polymer

Condensation Polymerisation

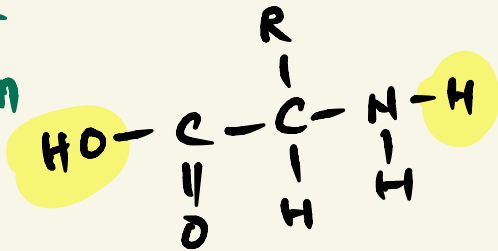


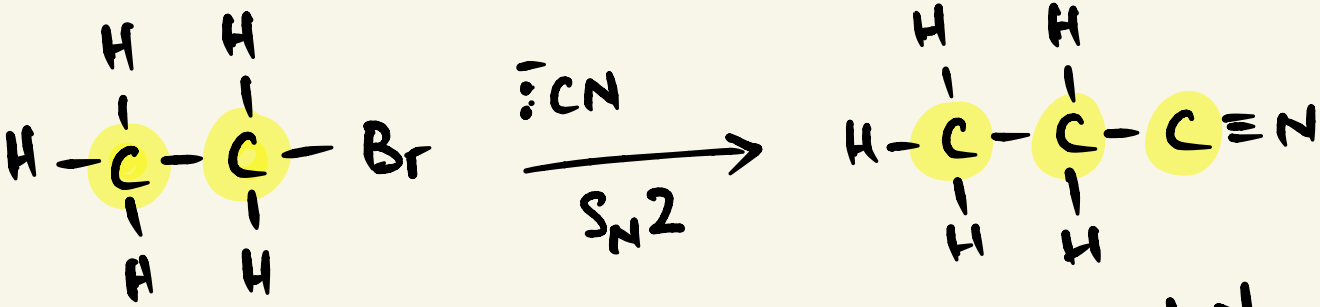


amide



Amino acids



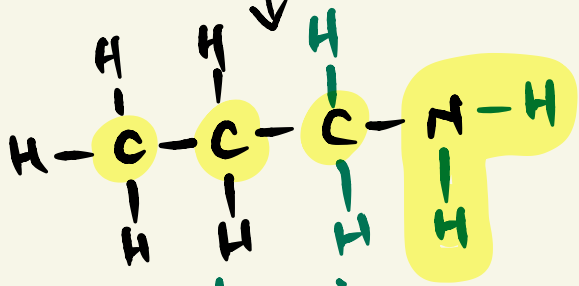


halogenoalkane
(bromoethane)
2 C's

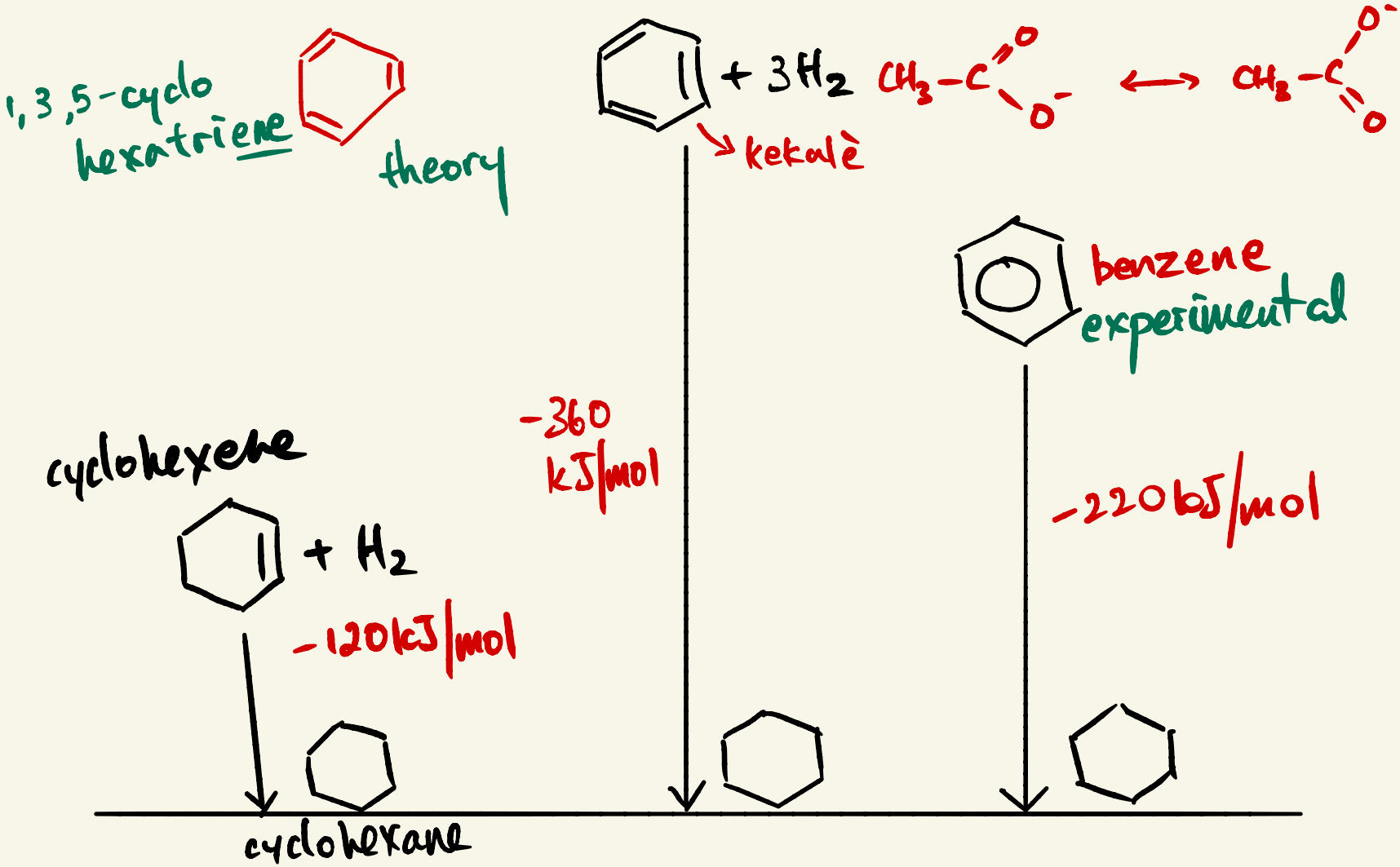
propanenitrile
3C's

Reduction

Q: how to get there?



propylamine


1,3,5-cyclo hexatriene
theory
+ 3H2
kekulè
benzene
experimental
-360 kJ/mol
-220 kJ/mol
cyclohexene
+ H2
-120 kJ/mol
cyclohexane

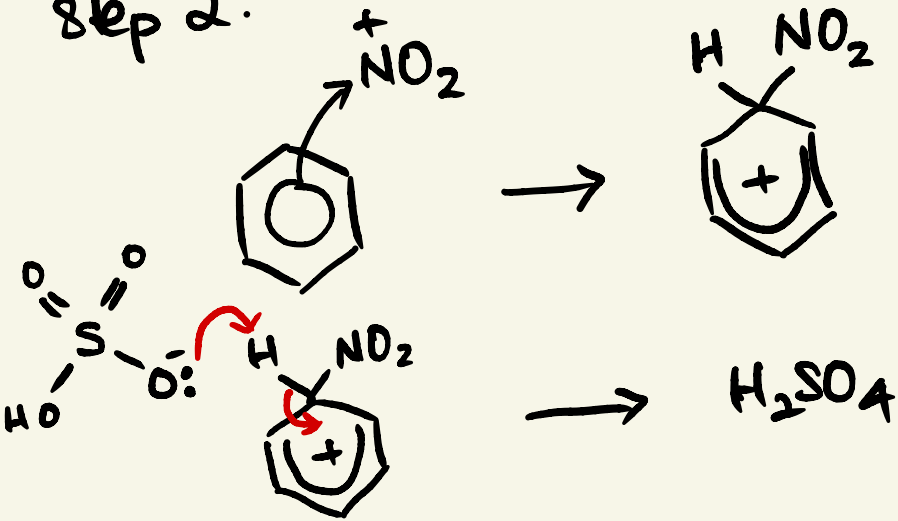
Nitration (Electrophilic Substitution)

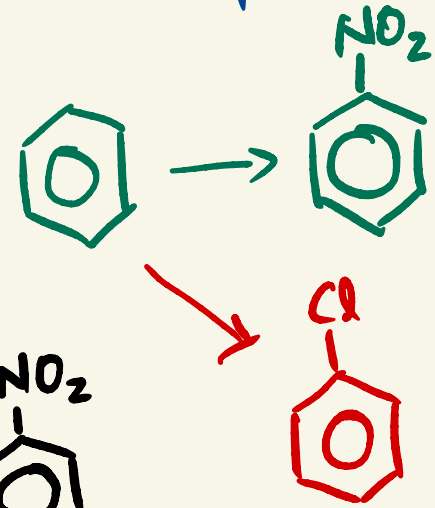
Step. 1. Generation of electrophiles

$$H_2SO_4 + HNO_3 \longrightarrow HSO_4^- + NO_2^+ + H_2O$$

conc. conc. electrophile

Step 2.





Chlorination of Benzene

Step 1: Generation of electrophiles.

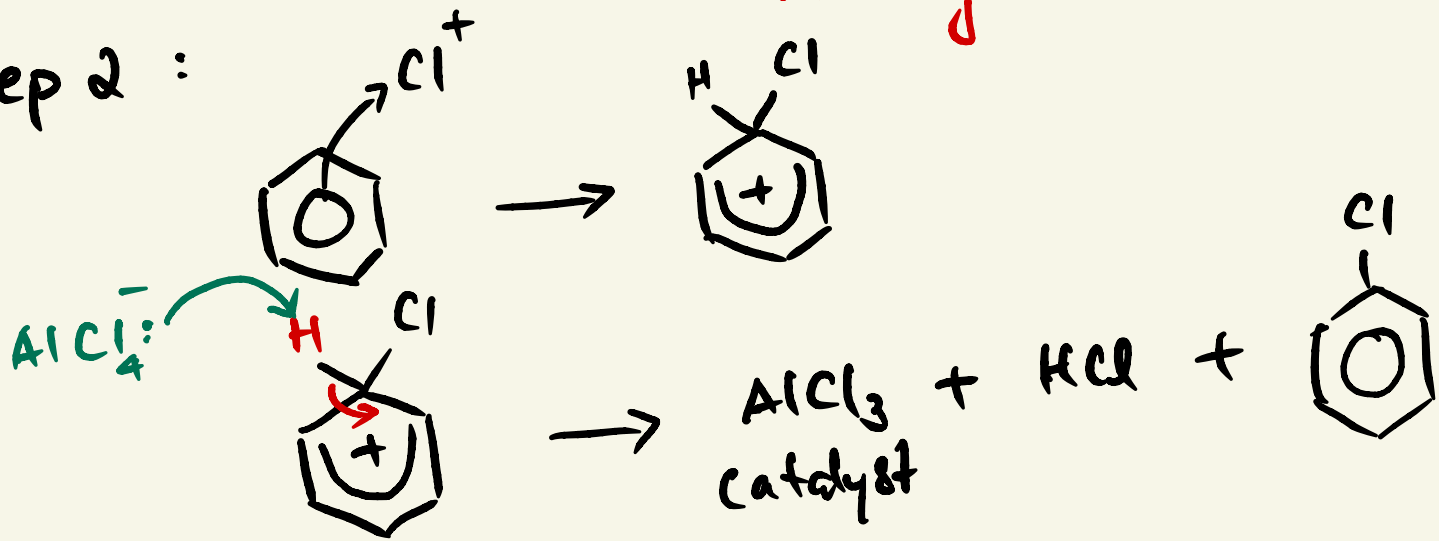
$$AlCl_3 + Cl_2 \rightarrow AlCl_4^- + Cl^+$$

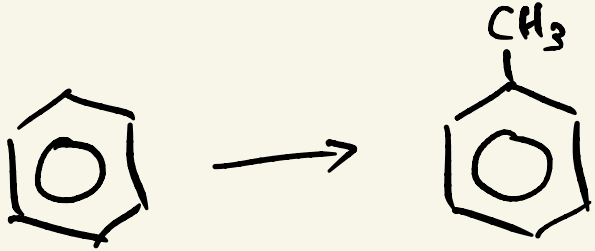
catalyst

$(Cl-Cl \rightarrow Cl^+ + Cl^-)$

heterogenous

Step 2:



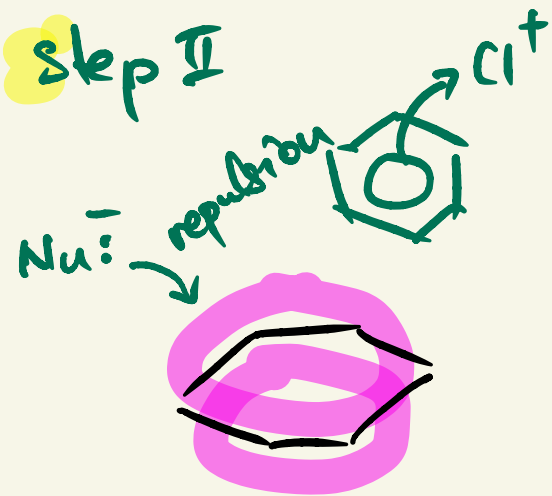


methylbenzene

Step I

$$AlCl_3 + CH_3Cl \rightleftharpoons AlCl_4^- + {}^+CH_3$$

Step II



Why is Nucleophilic substitution not possible with Benzene (Arenes)

Nu^- (Nucleophiles) repel with the delocalised e^- cloud in Benzene, making it impossible.