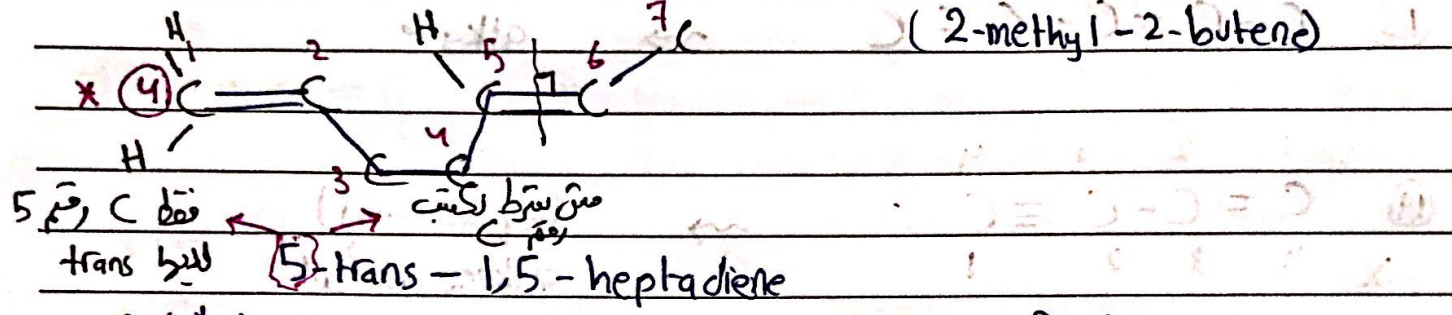
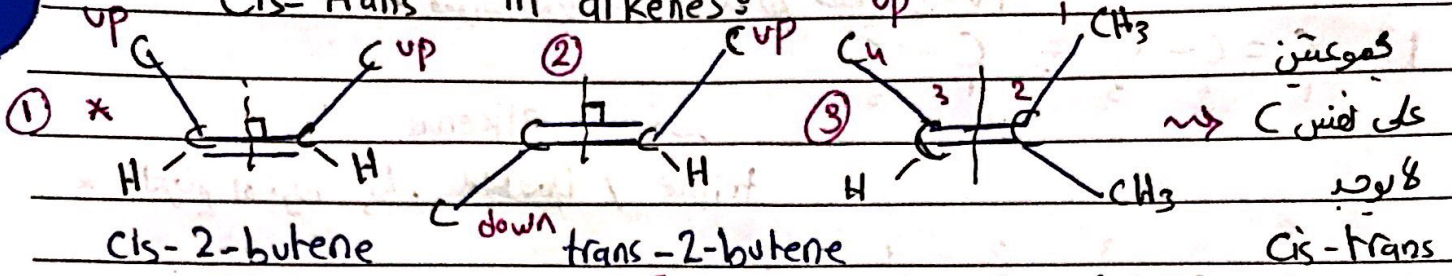
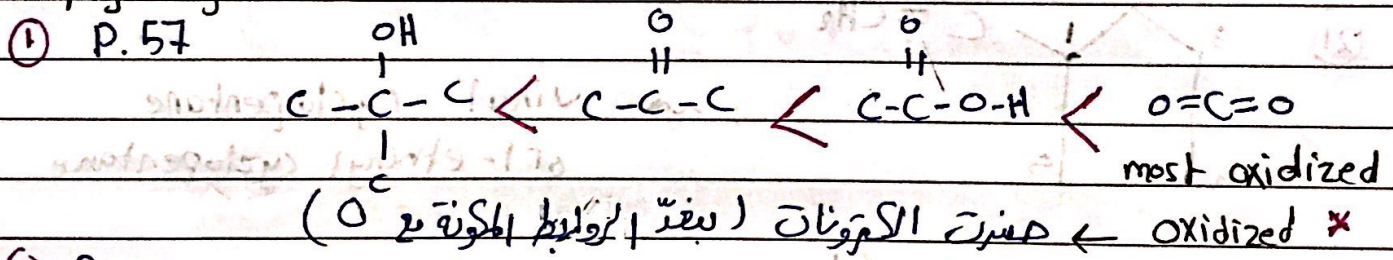


Cis-trans in alkenes



* 2-identical atoms (groups) at same carbon of C=C
no cis nor trans

* Regarding Ch.2:



② P.42

iso-butyl : 2-methyl propyl sec-butyl : 1-methyl propyl
iso propyl : 1-methyl ethyl tert-butyl : 1,1-dimethyl ethyl

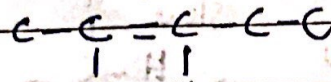
Q: Which one can show cis-trans isomers?

a) 1-pentene



X

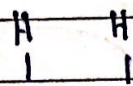
b) 2-pentene



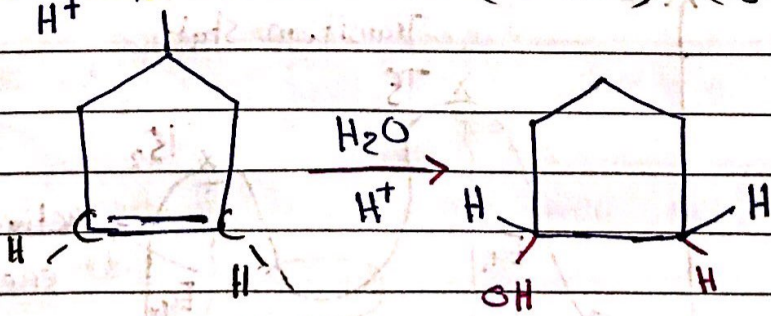
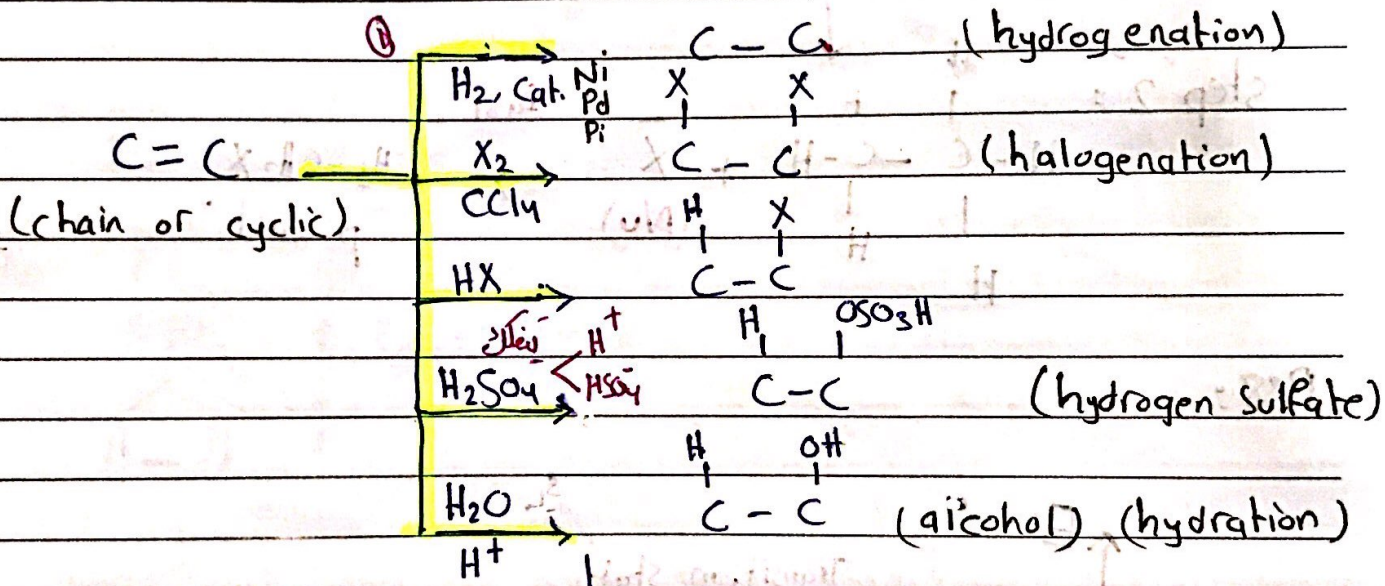
✓

Cis-Trans isomers possible

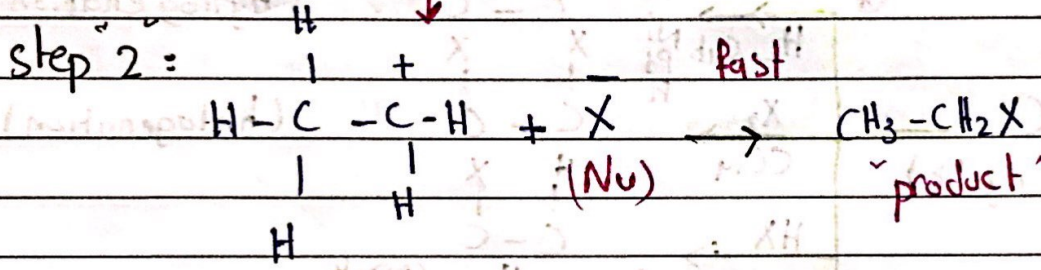
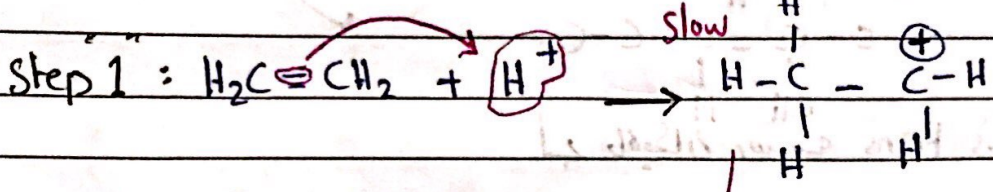
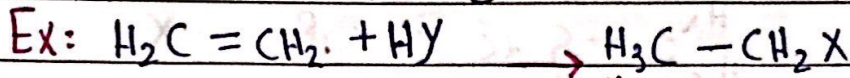
Reactions of alkenes:



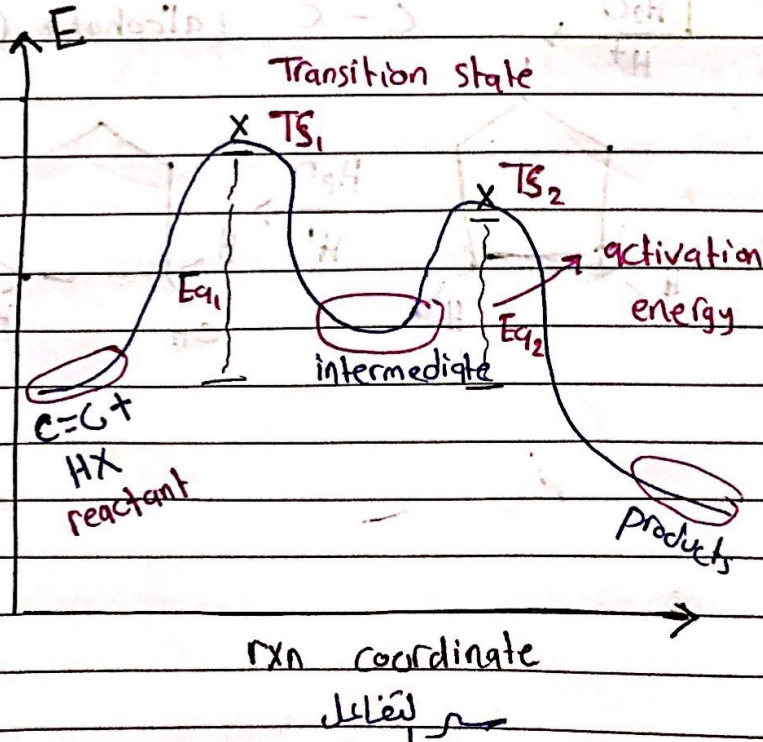
Catalys: blue jobs



* Mechanism: (المرحلة الأولى لبقايلات)



P.88:



T.S: bonds are formed and broken at same time (energy لا تتغير في وقت واحد) (highly unstable)

Activation Energy: E_a
 Difference in energy between reactants and T.S

* rxn is exothermic (spontaneous)

intermediate


E_a is endothermic

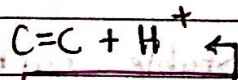
* Electrophile: H^+ , $-C^+$, $H-B-H$, $FeCl_3$
(E)

Species are electron-deficient, neutral

* Nucleophile: X^- , H_2O , OH^- , NH_3
(Nu)

Species are electron-rich (negative charge or neutral)

Note: $C=C$
 $C\equiv C$
 } (π electrons)

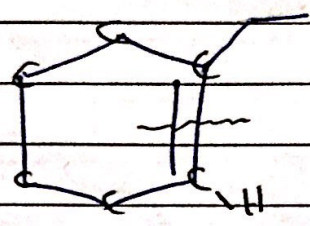
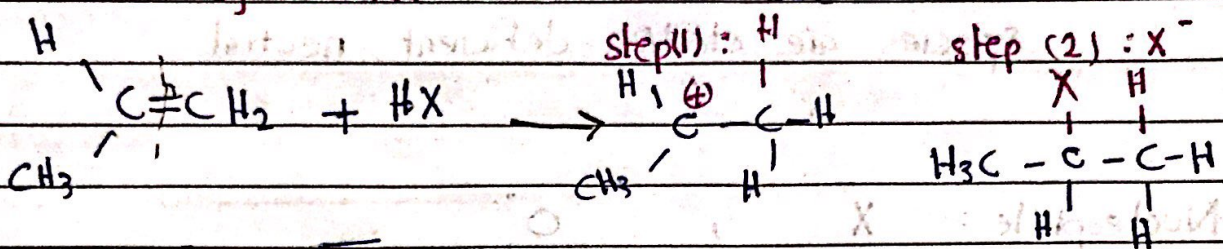
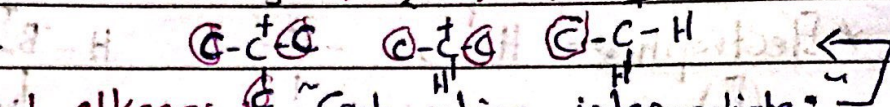


* Name of alkane / alkene rxns: Electrophilic Addition rxn.
+ reagent

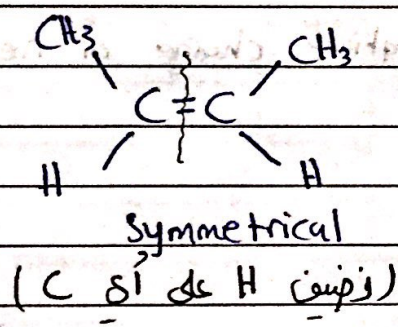
in these reactions π -bond is broken and new σ -bond is formed in product.

$3^\circ > 2^\circ > 1^\circ$

Markovnikov's rule :-



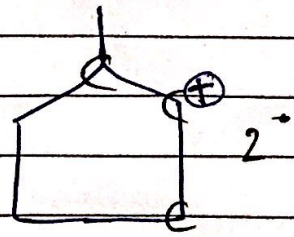
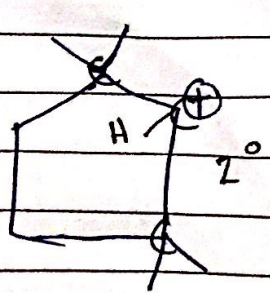
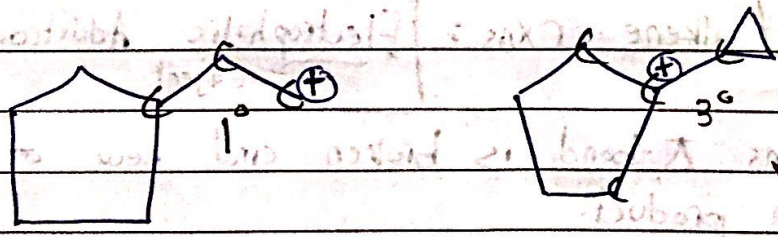
$\text{H} \cdot \text{H}^+$ (electrophile)
 is added to C of
 $\text{C} = \text{C}$ that has more
 H atoms



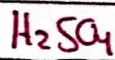
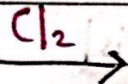
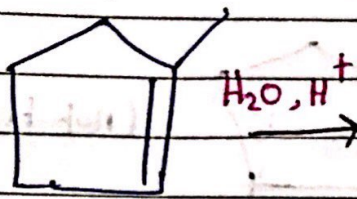
(Direct attachment)

Stability :

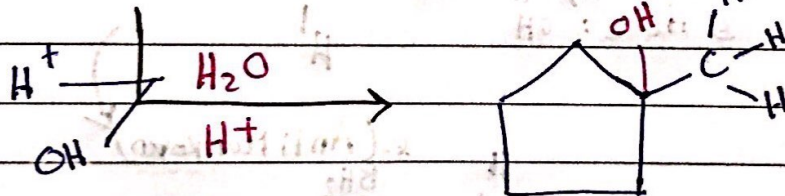
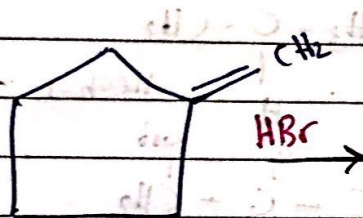
Q: The most stable Carbo cation is : tert > sec > prim



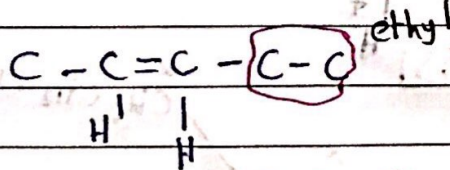
Q2: Complete: H.W



Q3:

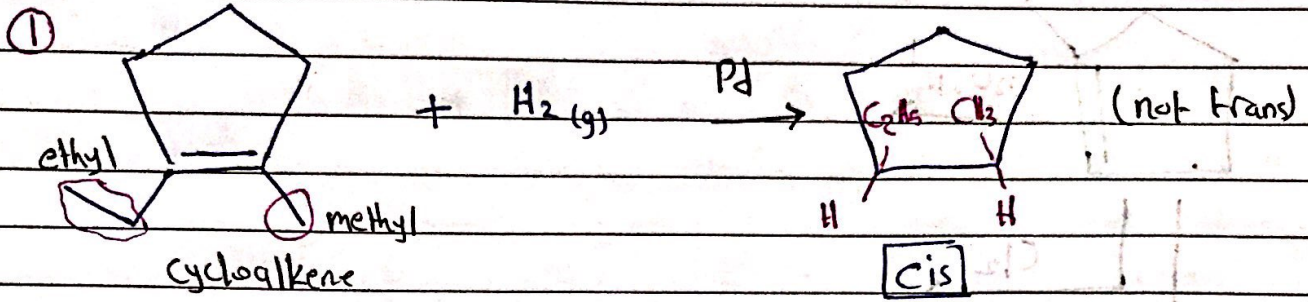


Q4: 2-pentene + HX

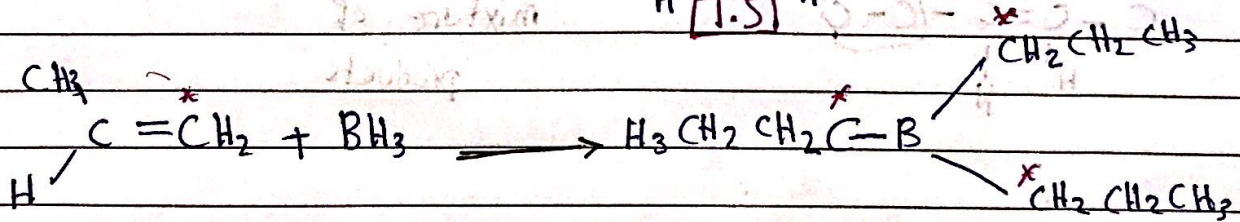
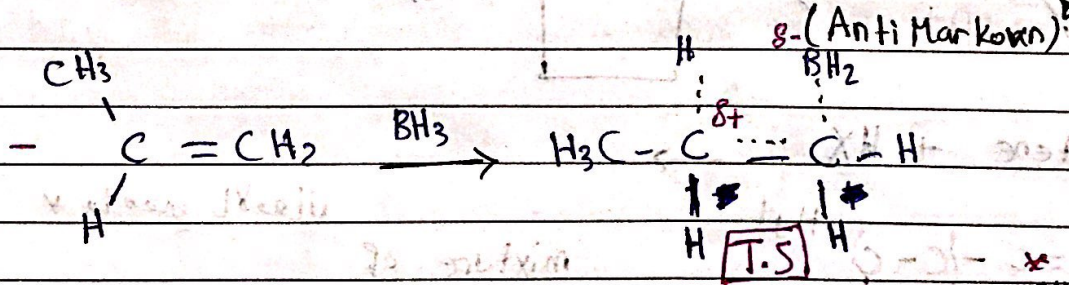
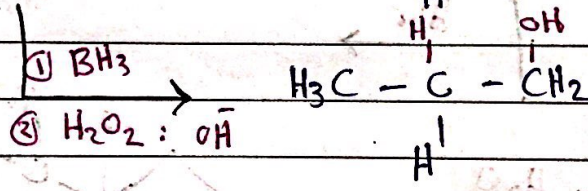
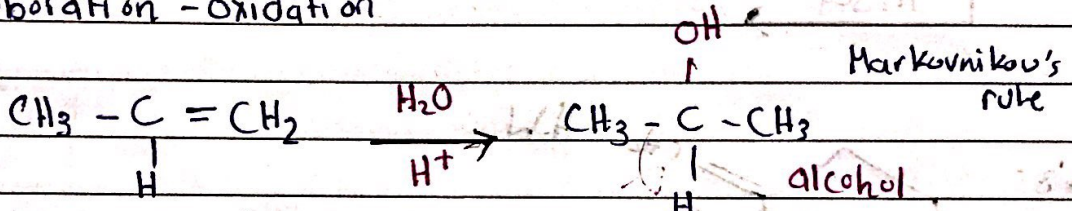


mixture of products

Important note :



② Hydroboration - oxidation



- ليجو 5 جزيئ اللى هو * ليه اللى اللى *

