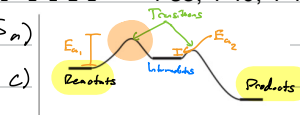


Ch4 HW - 4-35; 4-40; 4-41c; 4.42; 4.46; 4.47b, f; 4.52

4-35a)



b) The reactants have higher energy than the products,

so the reaction is **exothermic**, which is a $-\Delta H$.

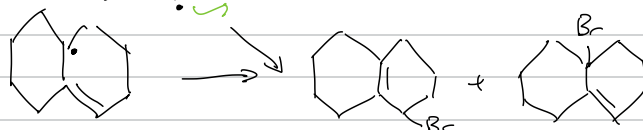
d) The transition state of the rate-determining step is

highlighted in orange. (It resembles the intermediate because it is closest in energy).

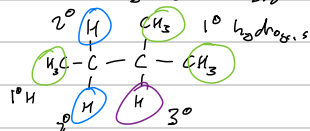
4-47b) methylcyclopentane, bromination



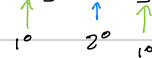
f)



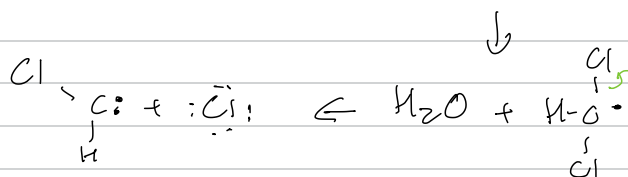
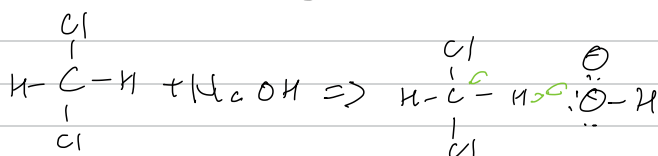
4-40a) $\text{CH}_3\text{CH}_2\text{CH}(\text{CH}_3)_2$



b) $(\text{CH}_3)_3\text{CCCH}_2\text{CH}_3$



4-52) Dichloromethane treatment with NaOH.



Review Mechanisms!

4-41c) $(\text{CH}_3)_3\text{C}-\text{OH} + \text{HCl} \rightarrow (\text{CH}_3)_3\text{C}-\text{Cl} + \text{H}_2\text{O}$

$$\Delta H = \sum \text{reactants} - \sum \text{products}$$

$$\Delta H = (432 + 401) - (447 + 355) = -169 \text{ kJ/mol}$$

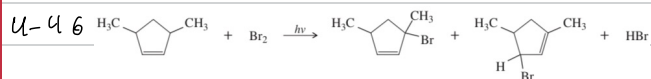
4-42)

3 > 6 > 4 > 5 > 2 > 1

most stable

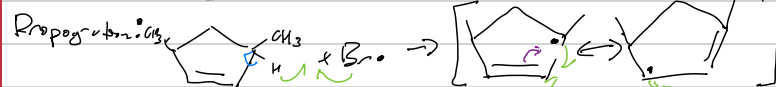
least stable

Stability decreases as non-hydrogen substitution



a) Mechanism

Initiation: $\text{Br}-\text{Br} \xrightarrow{h\nu} 2 \text{Br}\cdot$



Second Propagation Step: $\text{Br}-\text{Br} + \text{Radical} \rightarrow \text{Product} + \text{Br}\cdot$

b) The 3° hydrogen is removed in this case, which creates a more stable radical. The hydrogen removed in compound 1 is also allylic.