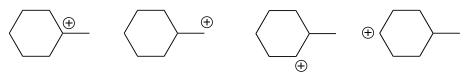
Recitation Week 9

3/13/13

- 1. Give the products of these substitution reactions:
- (a) $CH_3I + NaOCH_3 \rightarrow$
- (b) $CH_3CH_2CH_2Br + NaCN \rightarrow$
- (c) $(CH_3)_3CBr + H_2O \rightarrow$
- 2. What reagents would you need to do the following reactions?
- (a) $CH_3CH_2CH_2Br \rightarrow CH_3CH_2CH_2OH$
- (b) $(CH_3)_3CBr \rightarrow CH_2=C(CH_3)_2$
- (c) $CH_3CH_2CH_2Br \rightarrow CH_3CH_2CH_2SCH_3$
- 3. What is the relative stability of these carbocations?



- 4. Give the products of these reactions, including their stereochemistry.
- (a)

(b)

$$H_3C$$
 \longrightarrow Br \longrightarrow H_3C

(c)

- 5. Rank these nucleophiles in order of increasing strength for $S_{\rm N2}$ reactions in DMF:
- (a) H_2O OH- CH_3CO_2 -
- (b) $F^ Cl^ Br^ I^-$

6. What type of reaction is each of these? In each case, draw the mechanism:

(a) CH_3 CH_3OH CH_3 CH_3

(b) $CH_3CH_2CH_2Br + CN^- \rightarrow CH_3CH_2CH_2CN + Br^-$

7. Sketch a reaction coordinate diagram for a <u>two-step exergonic reaction</u>, in which the first step is rate-determining. Indicate the locations of any transition state(s) and intermediate(s), as well as ΔG_{rxn} and the activation energy (ΔG^{\dagger}).

