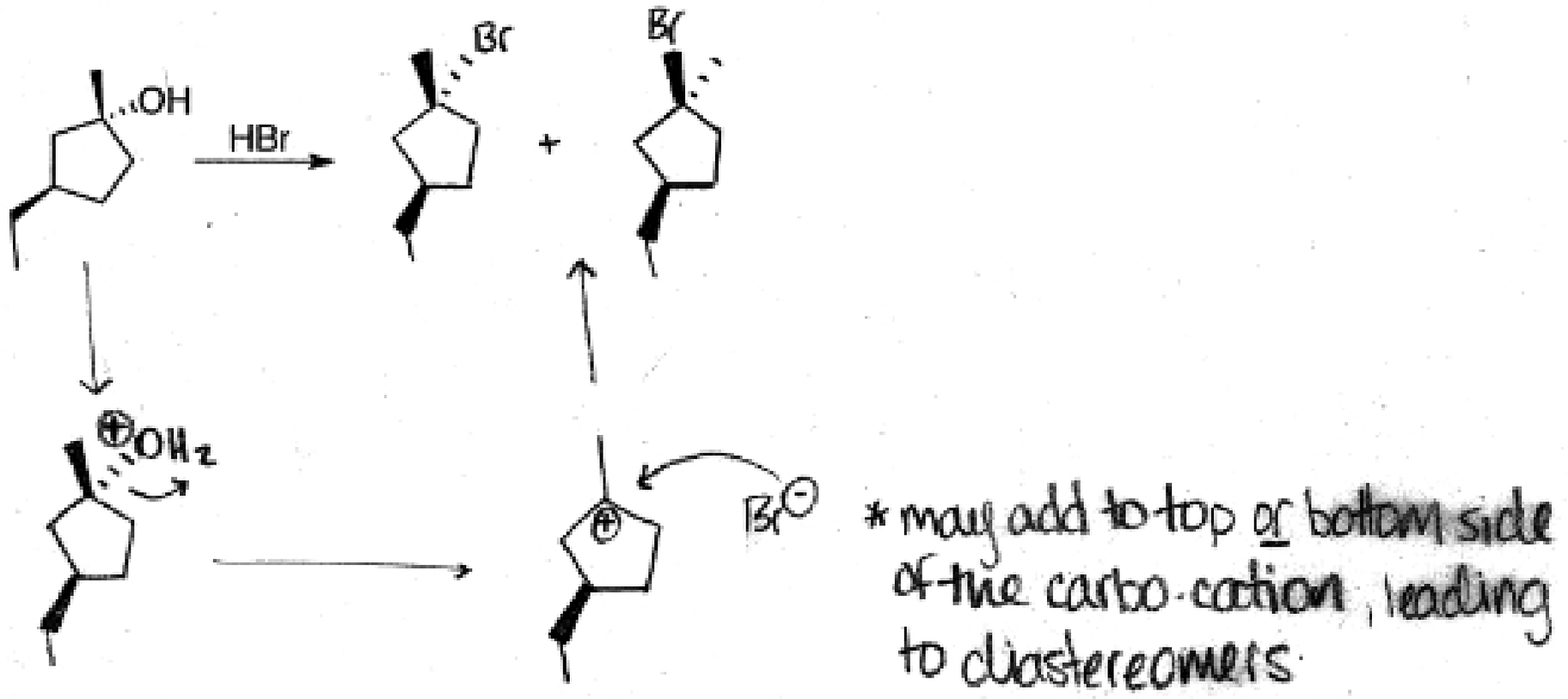
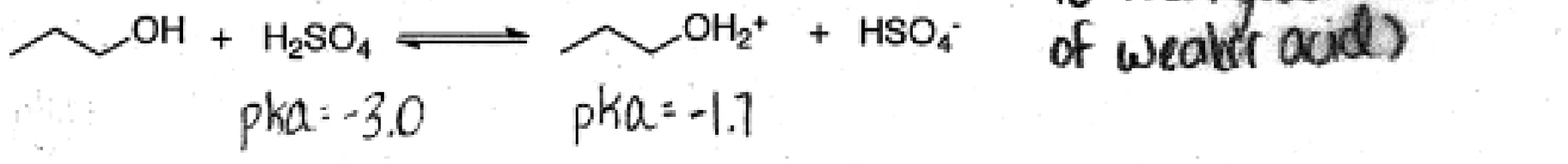
Chem 2510, Fall 2012

Quiz 7

1. (A) Write the principal product of the following reaction? Next, discuss the stereoselectivity of the transformation by showing the mechanism of the product formation? (1 point)



(B) How is the following acid-base equilibrium shifted? Explain your answer. (0.5 points)

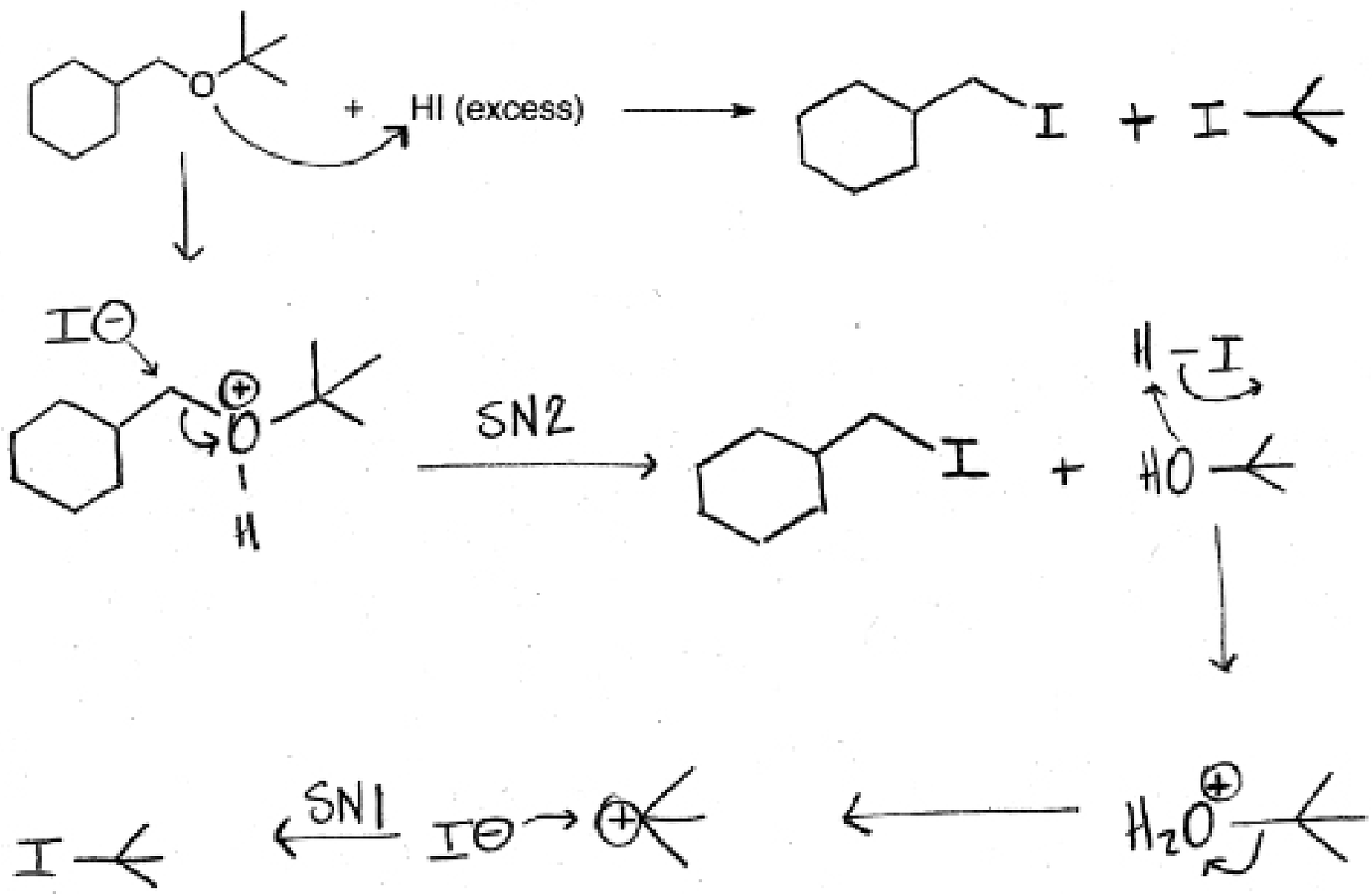


Equilibrium is shifted to the right (formation of weaker acid)

(C) Will the reaction of propanol with sulfuric acid (see above) give rise to a particular product at ~130 ºC? If so, show the product and write the mechanism of its formation? (0.5 points)

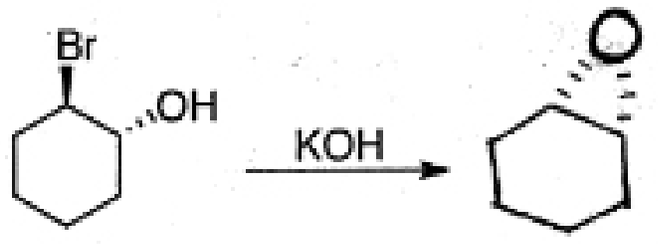
No further rxn will occur

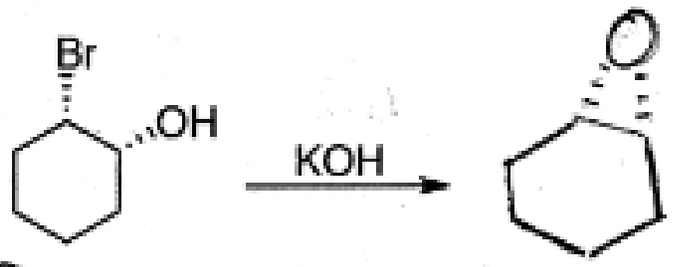
2. Write the major products of the following reaction, and show the mechanism of their formation? (1 point)

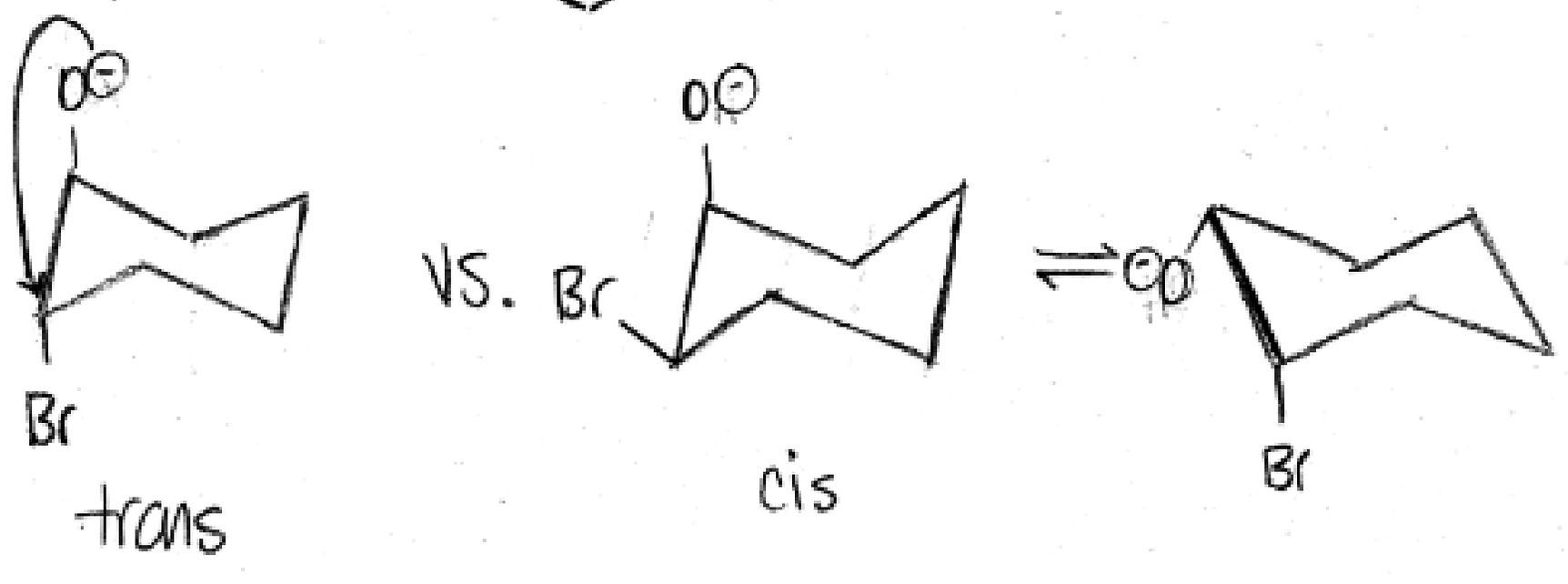


3. (A) Which of the following two reactions would you expect to occur at a greater rate? Show the expected product(s) and discuss the reaction's mechanism (1 point)

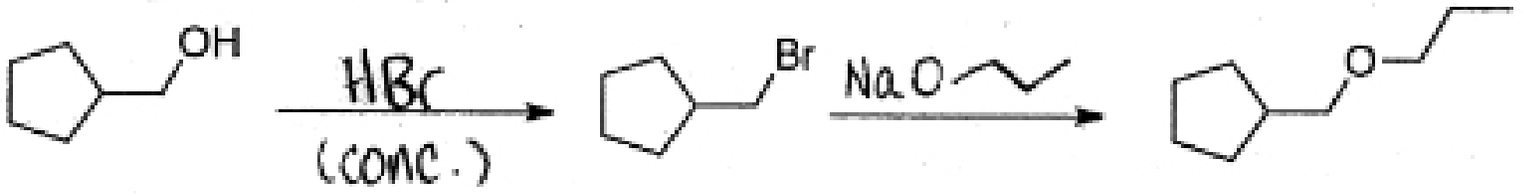
Intramolecular SN2 reaction

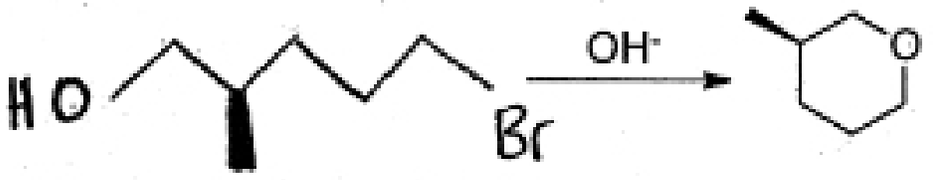
trans  *occurs at a greater rate

cis 



4. Propose reagents or reactants to complete the following syntheses? (1 point)





or

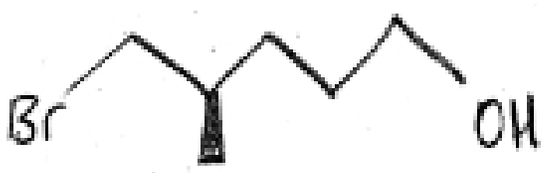


Table 6-4 Base Strengths and Leaving Groups

Conjugate acid			Leaving group		Conjugate acid			Leaving group
Strong	Stronger acid	pK_a	*Good*	Better leaving group	*Weak*	Stronger acid	pK_a	*Poor*
HI (strongest)		−10.0	I^- (best)		HF		3.2	F^-
HBr		−9.0	Br^-		CH_3CO_2H		4.7	$CH_3CO_2^-$
HCl		−8.0	Cl^-		HCN		9.2	NC^-
H_2SO_4		−3.0	HSO_4^-		CH_3SH		10.0	CH_3S^-
H_3O^+		−1.7	H_2O		CH_3OH		15.5	CH_3O^-
CH_3SO_3H		−1.2	$CH_3SO_3^-$		H_2O		15.7	HO^-
					NH_3		35	H_2N^-
					H_2 (weakest)		38	H^- (worst)