

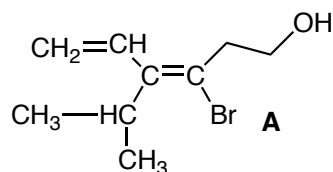
Name.....

L. I. U.

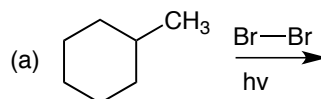
Chem. 121, Sect 012, Quiz 2

Fall, 2012, 50 points

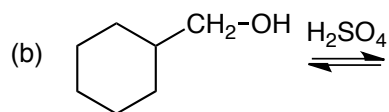
1. Name molecule **A**; be sure to specify the E or Z configuration as well as give the full name.
 (b) Draw (E)-2-chloro-3-fluoro-2-hexene.



2. Give the product of the following reactions, showing all of the steps by which they are formed. For (a) also calculate ΔH , using the given BDE's. If the exact BDE is not given, use the one that is the closest match. (10 pts)



BDE'S	ΔH KJ/mol
$(\text{CH}_3)_3\text{C}-\text{H}$	400
$\text{CH}_3\text{CH}_2-\text{H}$	439
$(\text{CH}_3)_2\text{CH}-\text{H}$	413
$\text{Br}-\text{Br}$	193
$\text{Br}-\text{H}$	366
$(\text{CH}_3)_3\text{C}-\text{Br}$	292
$\text{CH}_3\text{CH}_2-\text{Br}$	293
$(\text{CH}_3)_2\text{CH}-\text{Br}$	297



3. In the preparation of *t*-butyl chloride (MW = 92.57 g/mol, density = 0.85 g/mL) from 10 mL *t*-butanol (MW 74.12 g/mol, density = 0.775 g/mL) and excess aqueous concentrated hydrochloric acid, (a) show the complete reaction, including the reaction mechanism. (b) Explain briefly how we separated the product from the reaction mixture. (c) Explain the purpose of adding the boiling stones before doing the final distillation. (d) One student isolated 5.3 g of cyclohexene. Calculate her percent yield. (12 pts)

4. If copper has a heat capacity (amount of heat required to raise the temperature of one gram of one $^{\circ}\text{C}$) of 0.385 J and iron has a heat capacity of 0.449 J, which would be a better packing material for a fractionating column, copper wool or iron wool? Explain briefly. (4 pts)

5. In the preparation of cyclohexene from cyclohexanol, explain briefly (a) the purpose of adding the sodium chloride to the distillate (b) how we could tell that the initial distillation was complete? (4 pts)