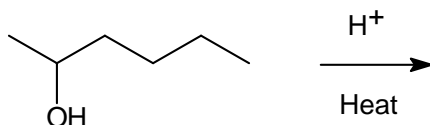


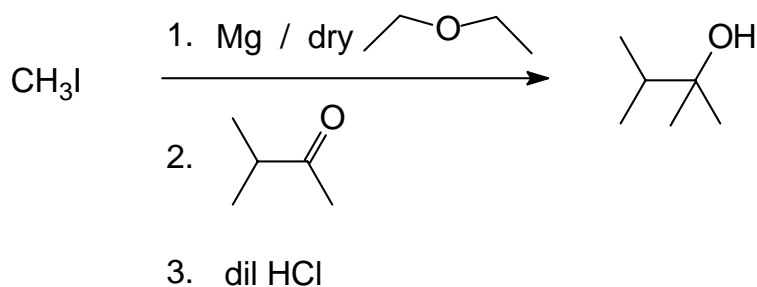
This Prelab is due at 1pm on Tuesday, Nov 10, for the T/R section, or Wednesday Nov 11, for the W/F section. Please read the section on the elimination of alcohols to make alkenes in your organic chemistry textbook and the rest of experiment II in your lab manual. This prelab has two pages.

1. (2 pts) Give all possible products for the following E1 elimination reaction. (Hint: there is more than one product possible.)



2. (1 pt) What is the **name (a)** and **structural formula (b)** for the organic molecule that you will use to catalyze the conversion of the alcohol to the corresponding isomeric alkenes mixture?
- a.
- b.
3. (2 pts) Give the boiling point for the following four compounds.
- a. 2,3-dimethyl-1-butene _____
- b. 2,3-dimethyl-2-butene _____
- c. diethyl ether _____
- d. 2,3-dimethyl-2-butanol _____
4. (1 pt) Would you expect to be able separate the 2,3-dimethyl-2-butene from 2,3-dimethyl-2-butanol to better than 95% purity using meter a 1 meter long spinning distillation column? Briefly explain why or why not and show calculations to prove this. Hint: see page 16 of the lab manual.

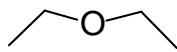
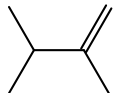
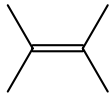
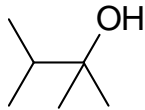
5. (4 pts) The following is the Grignard reaction that you performed in lab:



Answer the following questions given that you start with 45.0 g of methyl iodide (MW 139.9), 10.0 g of magnesium turnings (AW 24.3) and 26.0 g of 3-methyl-2-butanone (MW 86.1).

- a. What is the theoretical yield for 2,3-dimethyl-2-butanol in grams? Show your work. The MW of the alcohol is 102.2.

- b. The mass of the combined alcohol fractions after fractional distillation was determined to be 28.5 g. The GC analysis of the combined fractions gave the following percentage of each component by weight:

			
0.1%	8.2%	3.3%	88.4%

- b.i.) What is the mass in grams of only the alcohol in the combined fractions? Show your work.

- b.ii) Finally, what is the percent yield of the alcohol based on the above GC data for the combined fractions? Show your work.