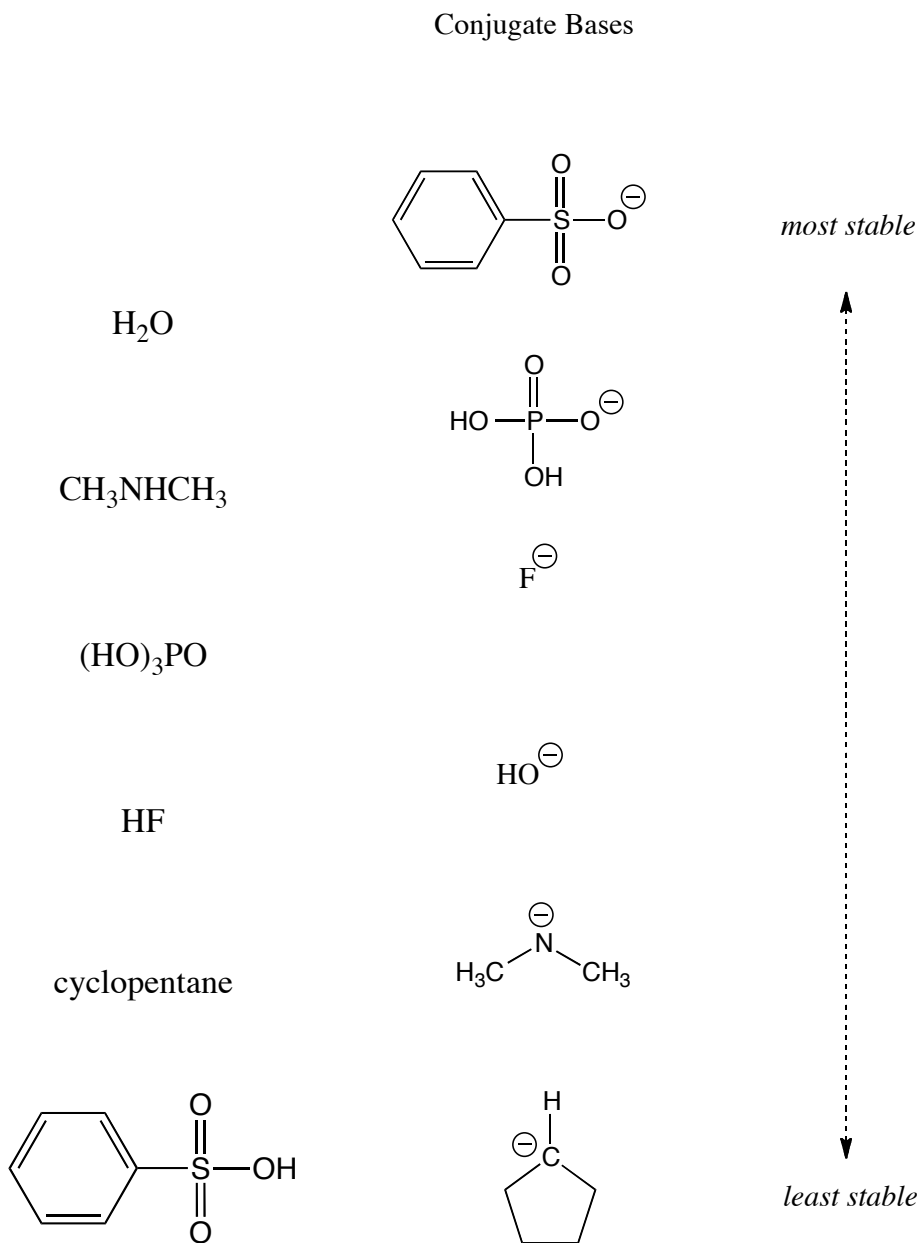


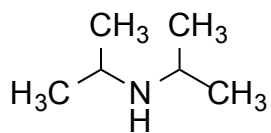
### Answers to Problem Set 6

Question 1. Identify the conjugate bases for each of the following molecules. Then rank the conjugate bases from **most** to **least** stable. Do not refer to the text unless you get stuck. *For molecules with multiple "types" of hydrogen, choose the most acidic hydrogen atom.*

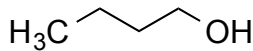


Question 2. Supply structures for the following compounds:

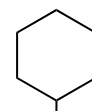
- Diisopropyl amine
- Butanol
- Cyclohexyl amine
- Methyl *tert*-butyl ether
- Glycerol
- Cyclopentyl bromide
- Vinyl fluoride



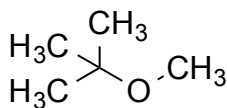
diisopropyl amine



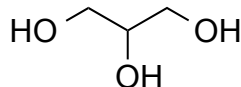
butanol



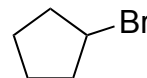
cyclohexyl amine



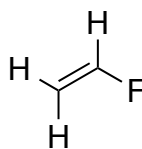
ethyl *tert*-butyl ether



glycerol



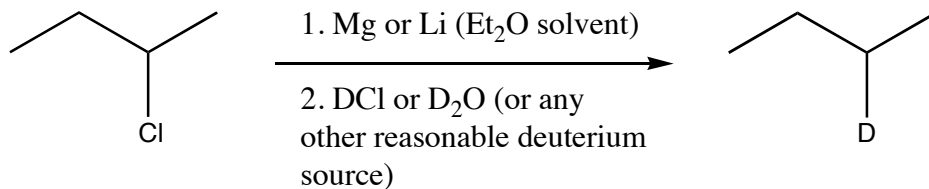
cyclopentyl bromide



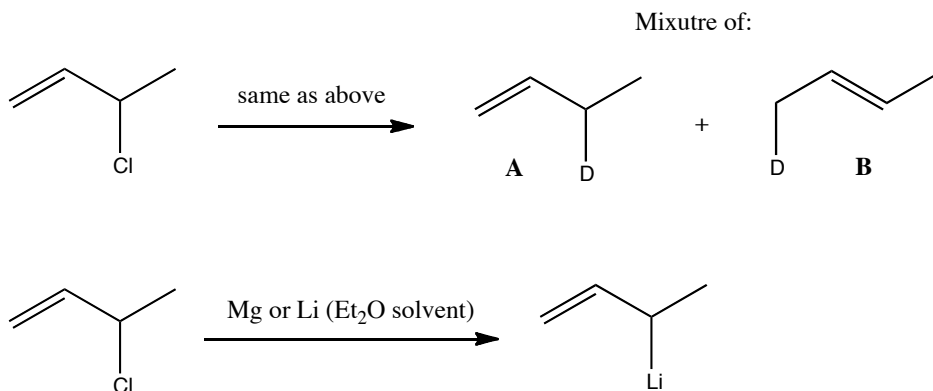
vinyl fluoride

## Question 3.

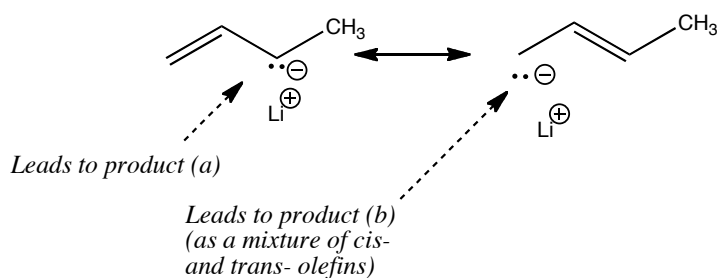
a) Identify what reagents are needed to transform 2-chlorobutane into 2-deuterobutane.



b) A student treats 3-chloro-1-butene with the same reagents used for part (a). This time, a mixture of products results. Why does this happen? What does this tell you about the nature of the species that you are using?



The carbon-lithium bond cannot be viewed solely as covalent. The "ionic" picture of this compound would have two resonance structures:



The "aggregate" picture of the above resonance structures would look something like:

