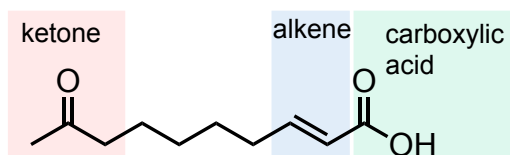


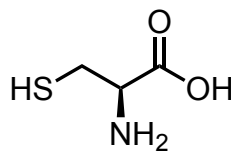
Terminology

1. Label the non-alkane functional groups (as shown) in the given molecules.

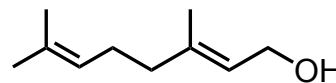
Example:



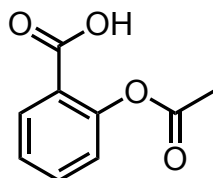
Honeybee sex pheromone



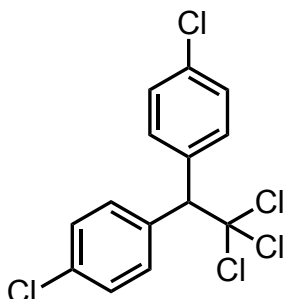
Cysteine
(amino acid)



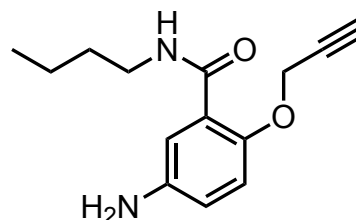
Geraniol
(fragrance)



Aspirin
"household" painkiller



DDT
(banned insecticide)



Parsalimide
(anti-inflammatory drug)

2. A. Draw out the bond line structure for each species, including non-zero formal charges where appropriate.

B. Classify each alkyl chloride, alcohol, and alkoxide as being either **primary**, **secondary**, or **tertiary**.

Et-Cl

iPr-Cl

tBu-Cl

PrOH

iPrOH

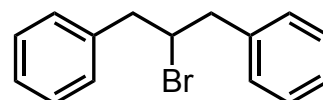
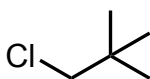
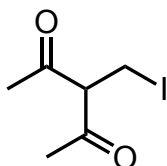
tBuOH

BuONa

iPrOLi

tBuOK

3. Identify the α carbon and β carbon(s) in each molecule below (relative to the halogen). Then, draw in any implied hydrogen atoms on all β carbons.



4. A. In the boxes provided, **label the functional groups present in each product.**

B. In the boxes provided below each reaction arrow, **identify what class of reaction** (Brønsted acid-base, substitution, elimination, or addition to pi bond) is taking place.

