



CHEMISTRY 2600

Topic #0: First Class Activity (CHEM 2500 Review)

Fall 2018

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In 10 Atoms or Less...

Draw a molecule meeting each description using 10 or fewer atoms.

If that's not possible, say so.

(a) an aldehyde

(b) a ketone

(c) a phenol

(d) an amine

(e) an amide

(f) a nitrile

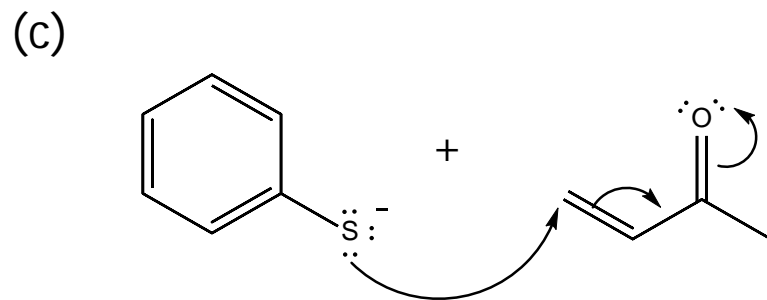
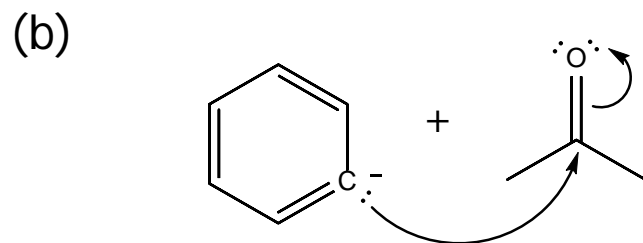
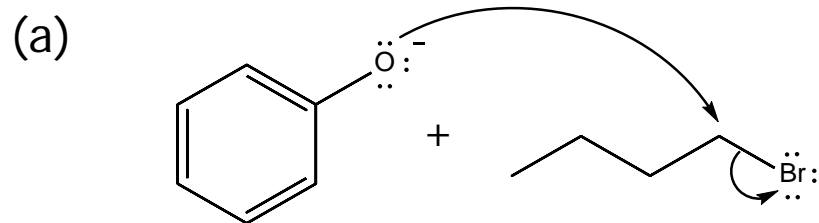
(g) an ester

(h) an ether

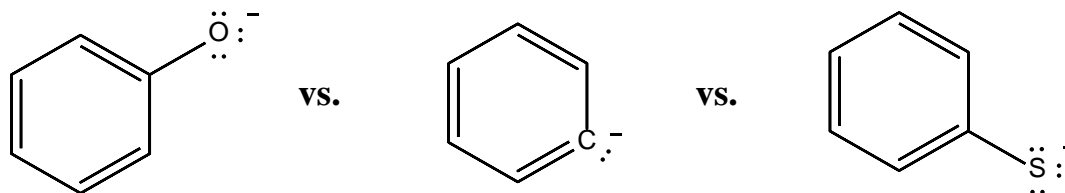
(i) a thiol

Follow the Arrows...

Draw the product(s) of each of the following reactions.



Rank the Nucleophiles...



Which of the nucleophiles on the previous page would you expect to be the most reactive? Why?

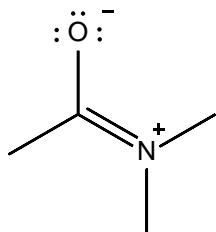
Which of the nucleophiles on the previous page would you expect to be the least reactive? Why?

Resonance...

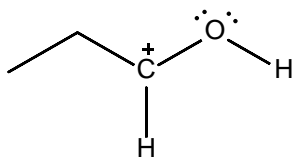
Draw all better resonance structures for each of the following species.
Use curly arrows to show how to get from the provided resonance structure to your better one(s).

Note that the resonance structures provided are significant enough to contribute to the species' structure and reactivity.

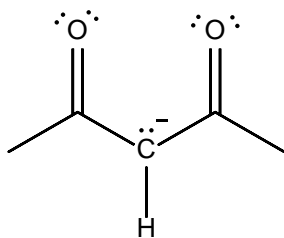
(a)



(b)



(c)



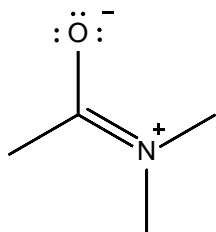
More Resonance!

Do your best to draw an averaged structure for each of the species on the previous page (in other words, how each species actually exists).

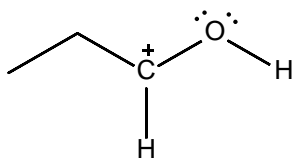
Use $\delta+$ and $\delta-$ to show partial charges. Use dashed lines to show partial bonds.

This exercise should show why resonance structures are such useful tools. ☺

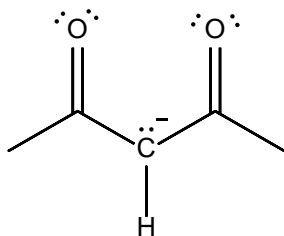
(a)



(b)



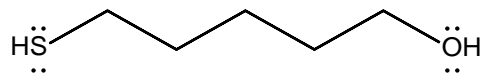
(c)



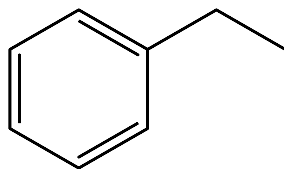
Acidity...

Identify the most acidic hydrogen atom(s) on each of the molecules below. Justify your choice(s).

(a)



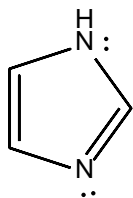
(b)



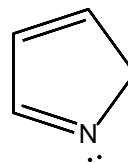
Aromaticity...

Which of the following molecules are aromatic? Explain.

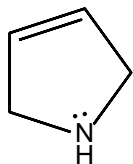
(a)



(b)



(c)



(d)

