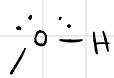
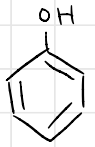
14.26 How do alcohols, ethers, and phenols differ structurally?



alcohol

ether



Phenols

14.28 Why do alcohols have higher boiling points than ethers of the same MW?

So like above, alcohol's structure contains -OH and ether does not.

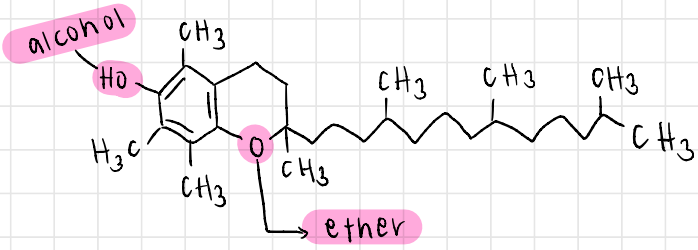
alcohol

vs.

ethers

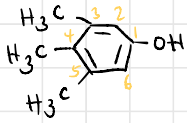
-OH group allows alcohol molecules to engage in hydrogen bonding

14.31 Vitamin E has the structure shown. Identify the functional group to which each oxygen belongs.

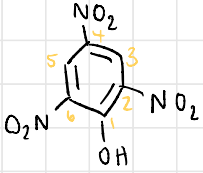


14.33 Give systematic names for the following compounds:

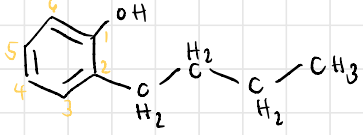
(a) 3,4,5-trimethylphenol



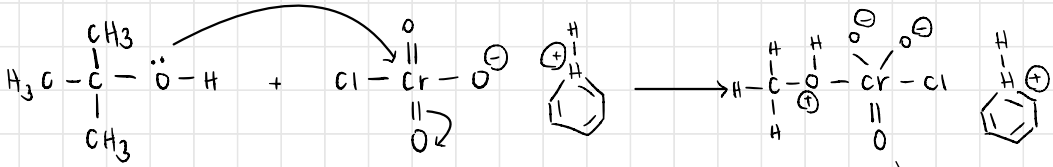
(c) 2,4,6-trinitrophenol



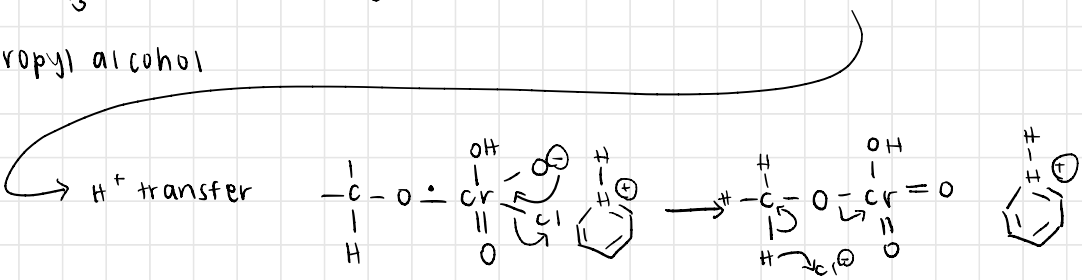
(e) 2-butylphenol

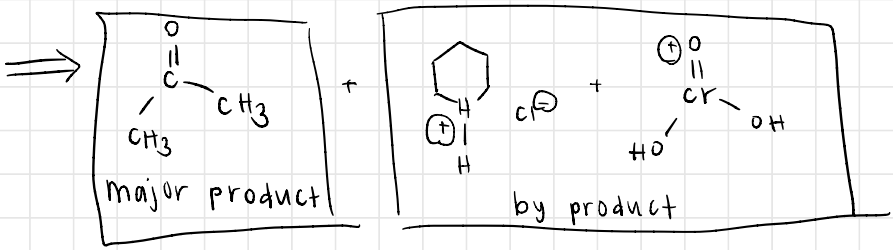


14.40 What functional group is formed on oxidation of a secondary alcohol? Demonstrate your answer using isopropyl alcohol



isopropyl alcohol





16.24 The structure of the amino acid lysine (in its uncharged form) is shown below.

(a) amine = $-\ddot{N}(H,R)_2$

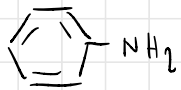
both amine groups would be able to participate

(b) Lysine = polar

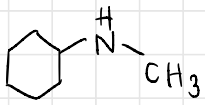
Lysine is likely to be water-soluble because the terminal amino + carboxyl groups are available to bond with H in water.

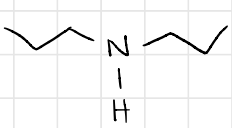
16.27 Which of these amines is the strongest base? The weakest?

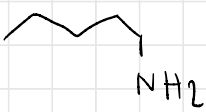
strongest base = $(CH_3)_2NH$

weakest base = 

16.29 draw the structures corresponding to the following names:

(a) 

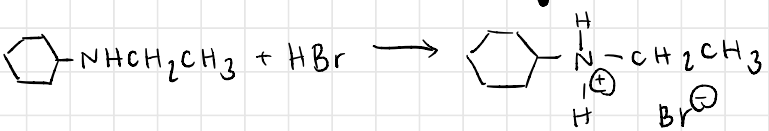
(b) 

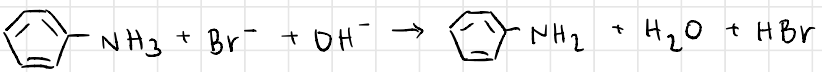
(c) 

16.34: which is stronger base, diethyl ether or diethylamine?

diethylamine is stronger because of the simpler amines.

16.41 complete the following equations:

(a) 

(b) 

(c)