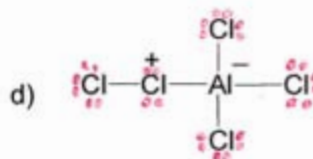
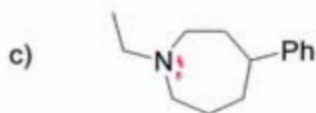
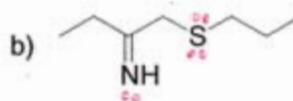
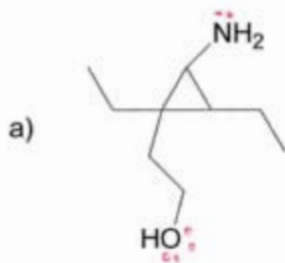


1-4) Draw in all the lone pairs for the following molecules:



5-8) What is the hybridization of:

the Nitrogen in (a)

 $sp^3$ 

the Nitrogen in (b)

 $sp^2$ 

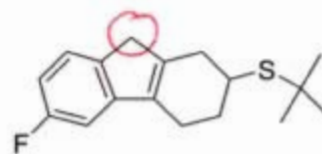
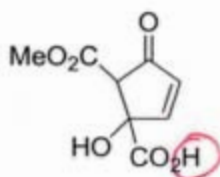
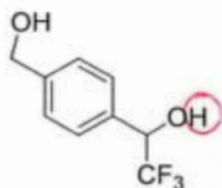
the Nitrogen in (c)

 $sp^3$ 

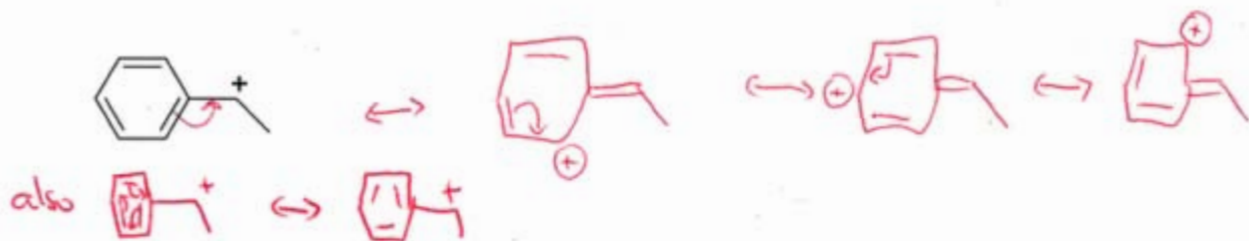
the left hand side Chlorine attached to the positive Chlorine in (d).

 $sp^3$ 

9-11) Circle the most acidic hydrogen in each of these molecules.



12-17) Draw all the resonance structures for the following species, and draw curly arrows to show the electron reorganization.



18-20) Indicate whether the pairs shown are **tautomers** or **resonance structures**.

