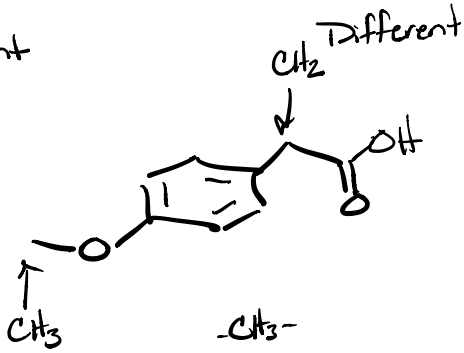
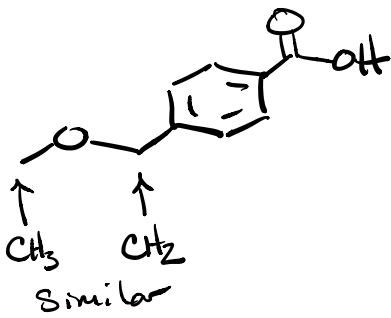
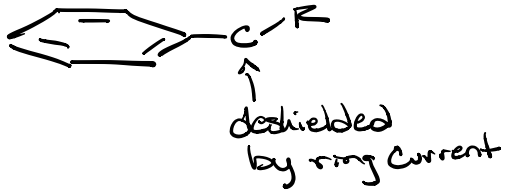
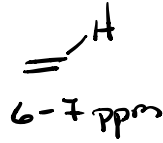
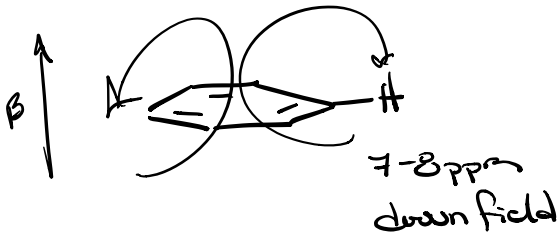
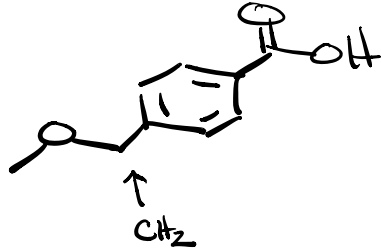
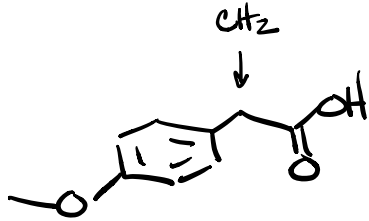


NMR Quiz



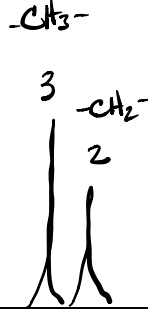
exchanges

1

12



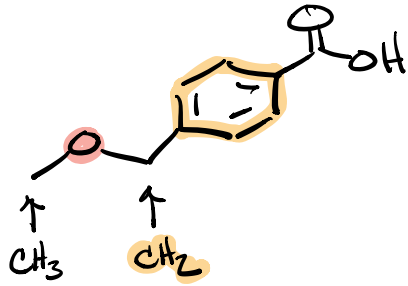
7



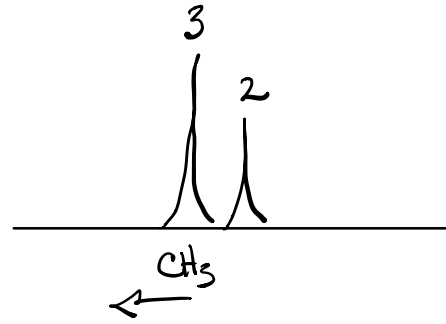
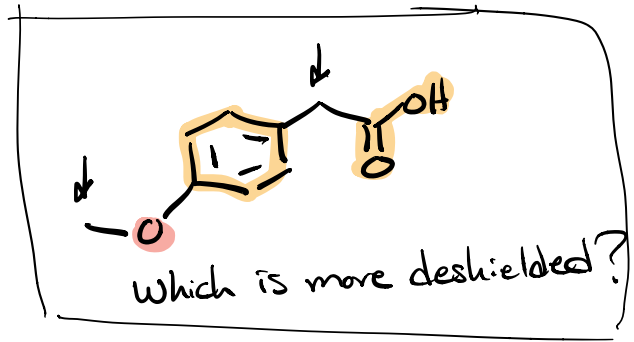
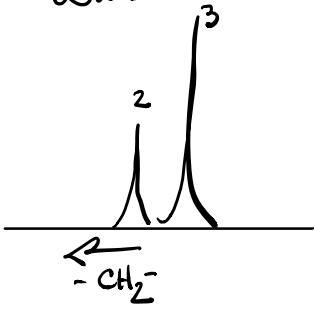
3.8 3.6

close ⇒ Similar
Chemical Environment

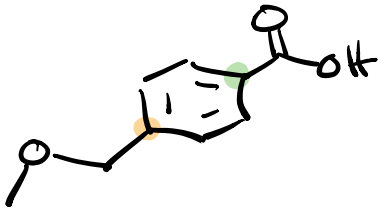
HNMR



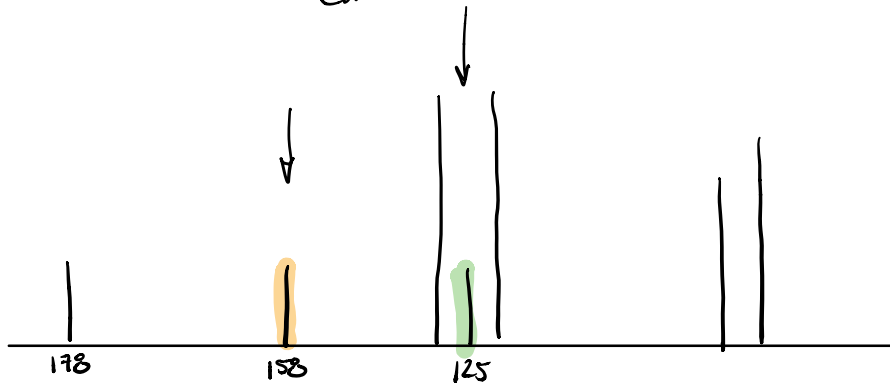
which is more deshielded?



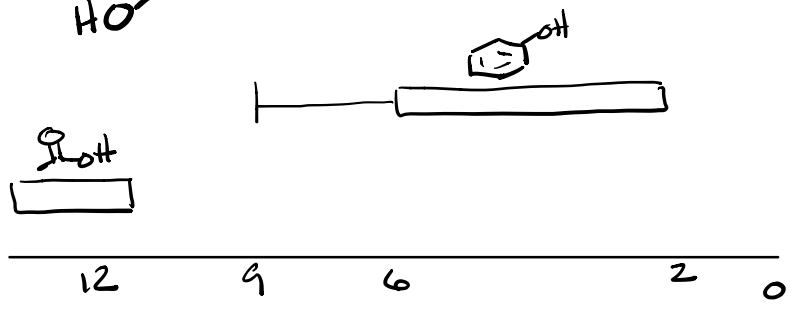
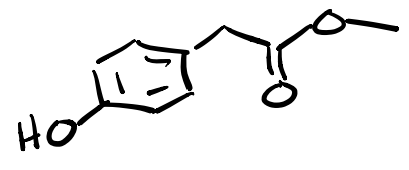
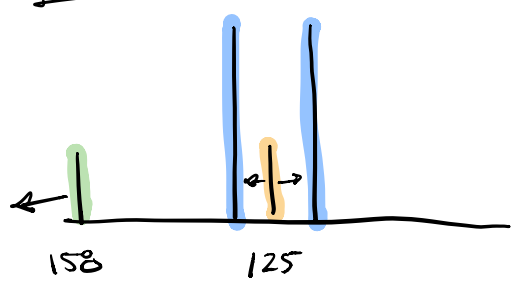
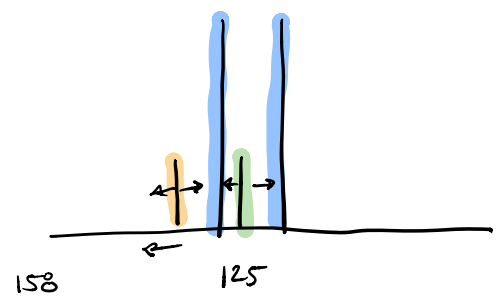
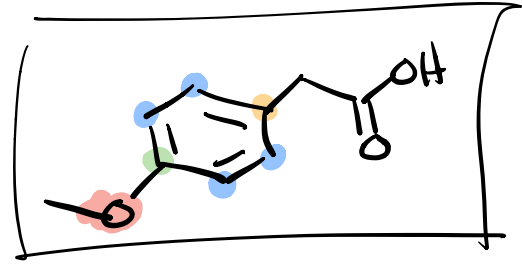
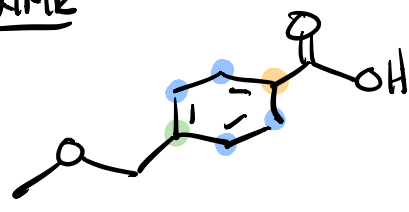
CNMR



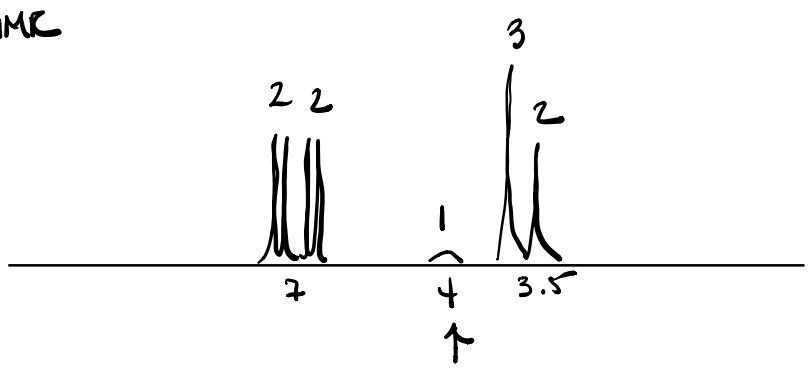
Short Quaternary Carbons



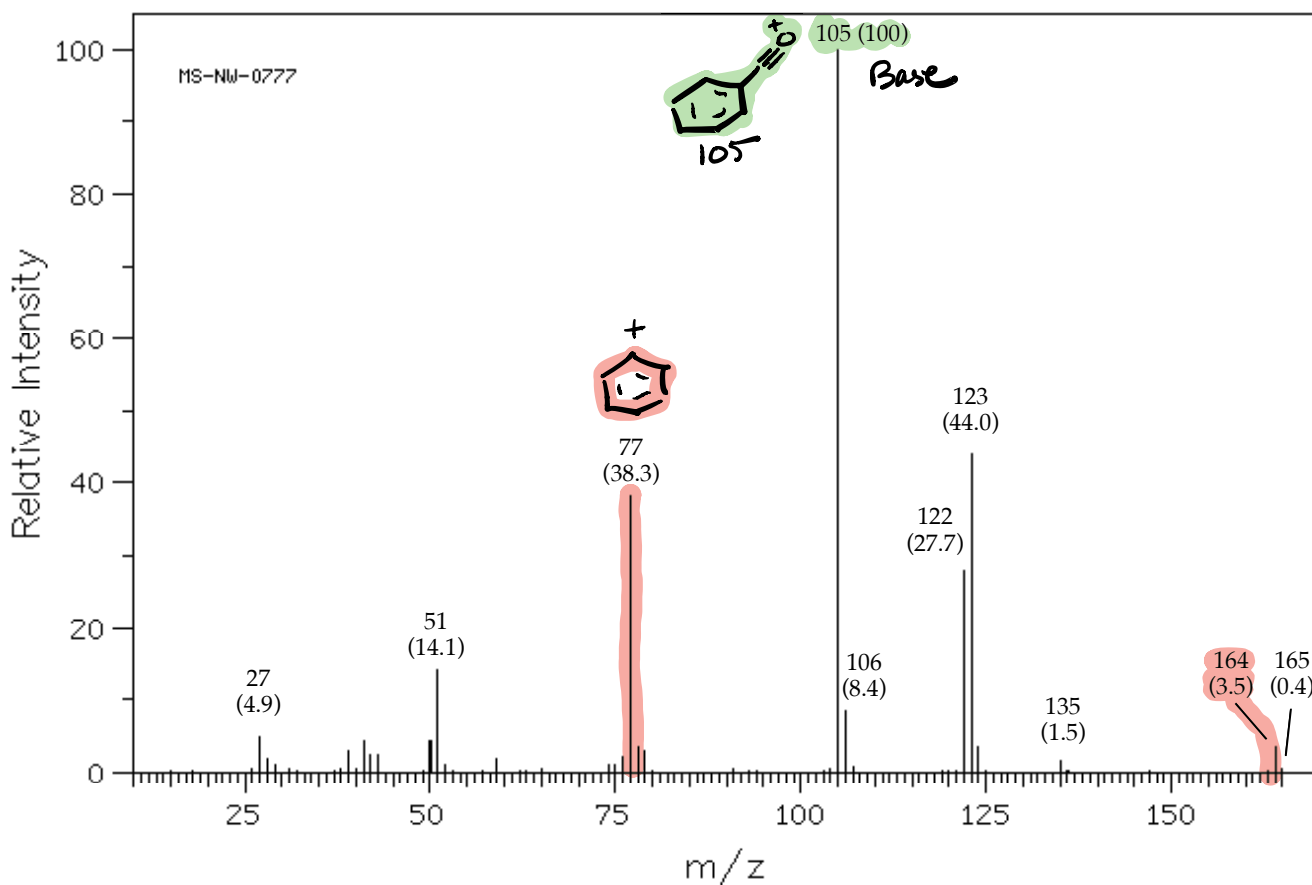
CNMR



1H NMR



Instructions- Read through all questions carefully. The points for each problem are in square brackets (e.g. [/4]).



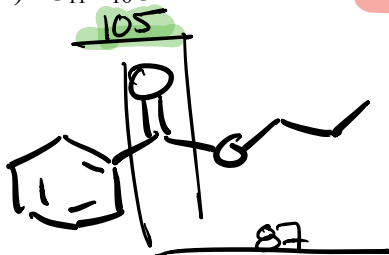
1. [/6] The mass spectrum shown above is from an unknown compound. Assuming that m/z 164 is the molecular ion peak, your computer gives you several possible molecular formulas that match. Use your knowledge of ¹³C isotope abundance to discern which is the correct formula from the list.

		163.0	
a)	C₃H₂BrNS	164.0	2-bromothiazole
b)	C ₉ H ₈ O ₃	164.2	phenylpyruvic acid
c)	C ₁₀ H ₁₂ O ₂	164.2	propyl benzoate
d)	C ₁₁ H ₁₆ O	164.2	benzyl butyl ether

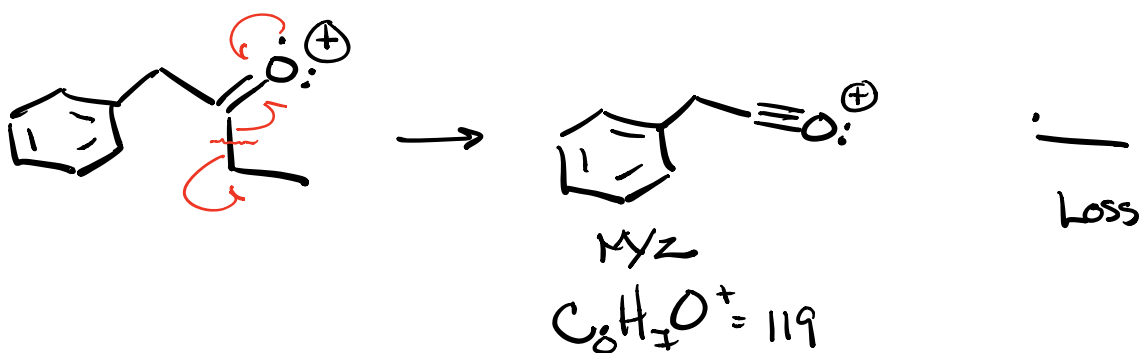
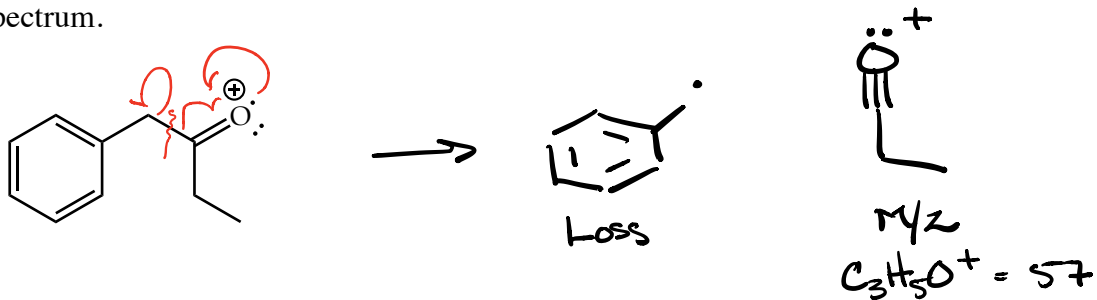
$$\frac{0.4}{3.5} \times 100 = 11.4$$

$$\frac{11.4}{1.1} = 10$$

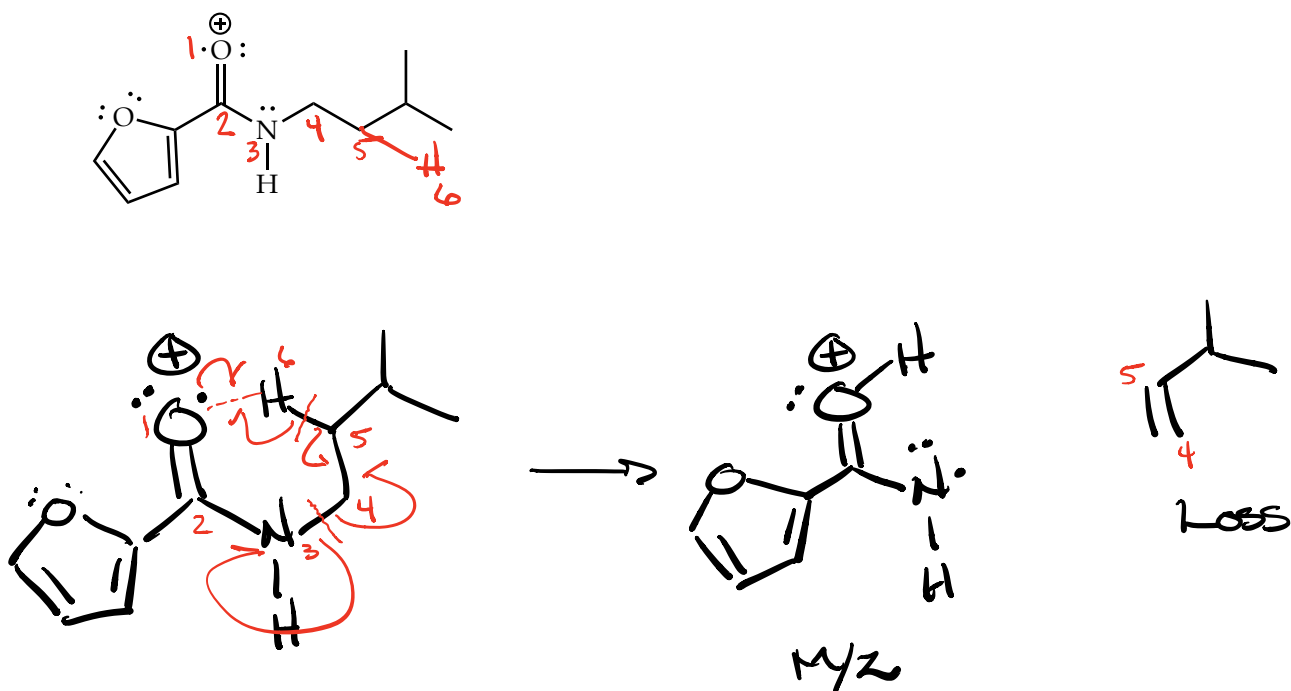
C₁₀

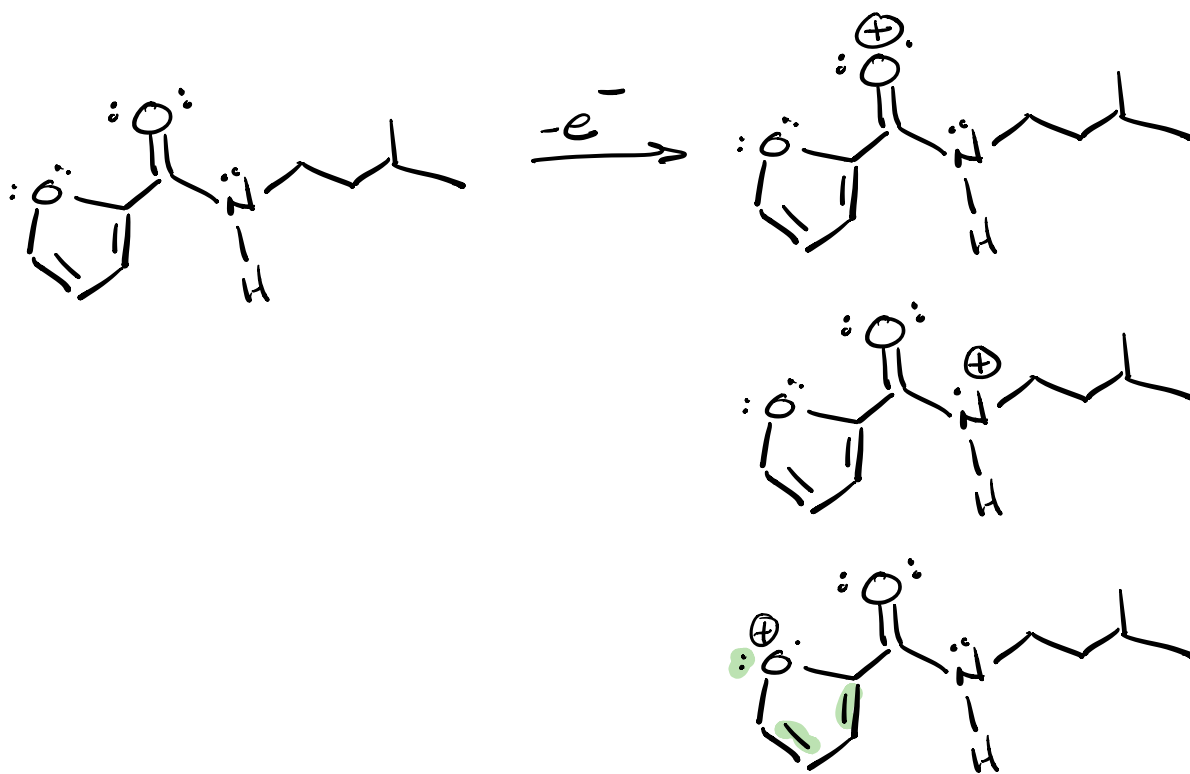


2. [/8] For the radical cation shown below there are two possible homolytic α -cleavage reactions. Show the arrow pushing that results in the two homolytic α -cleavage reactions and show the products from both homolytic α -cleavage reactions. For each of the products clearly indicate which product would be observed and which would represent the loss observed in the spectrum.

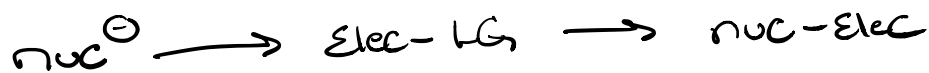
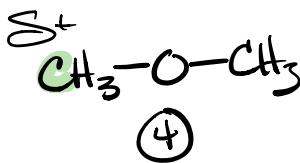
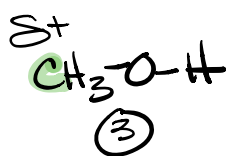
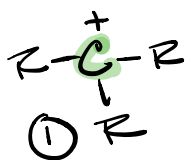


3. [/6] The radical cation shown below undergoes McLafferty rearrangement. Show the arrow pushing that results in the McLafferty rearrangement and show the products indicating which would be observed and which would represent the loss observed in the spectrum.





Rank Electrophilicity



Propose Synthesis of

