
Scoring

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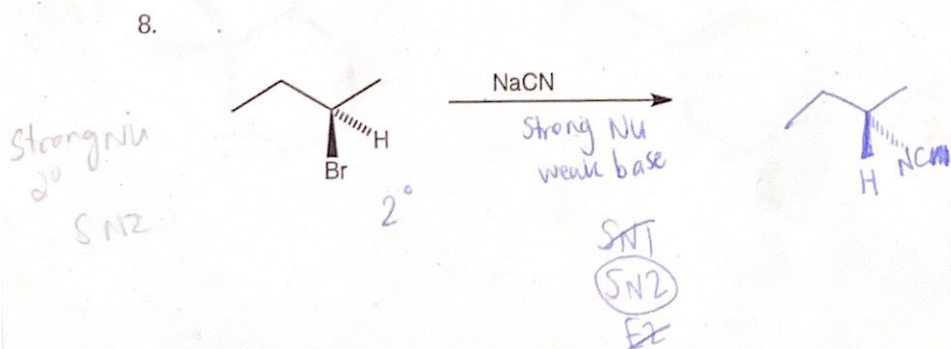
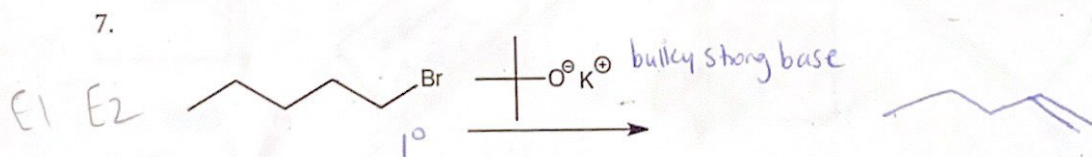
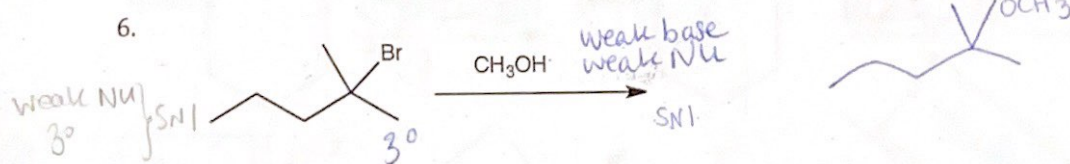
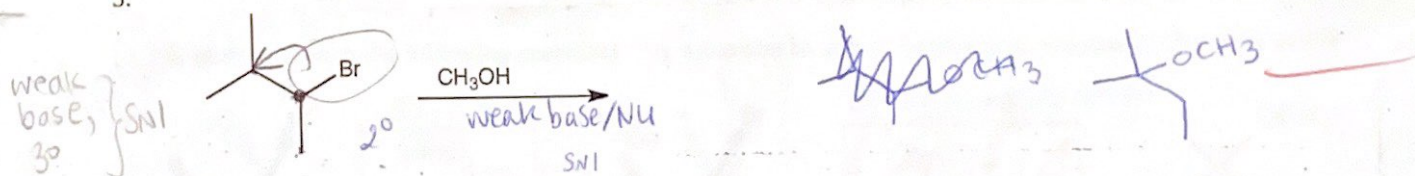
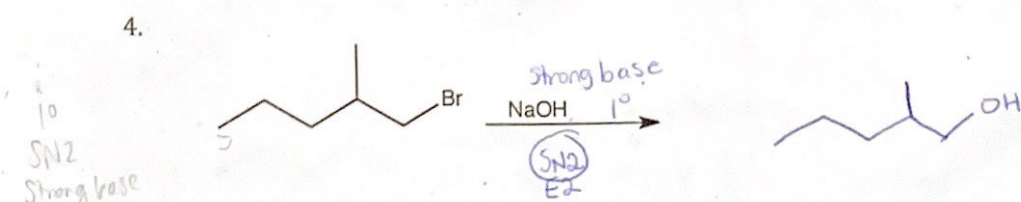
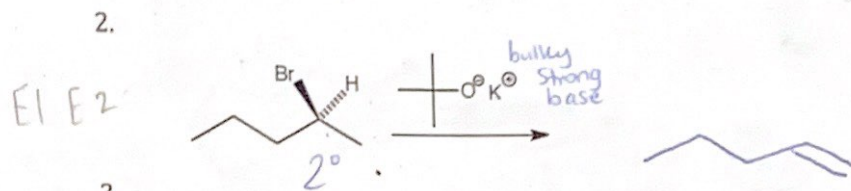
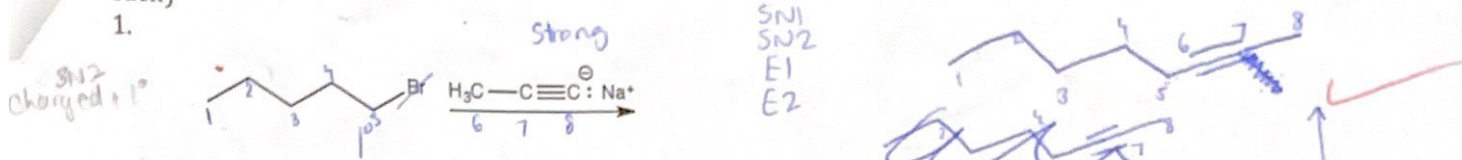
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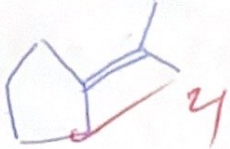
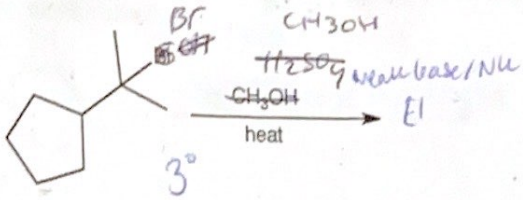
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Complete the following reactions by drawing the major product formed in each reaction. Be sure to include stereochemistry if necessary. Write NO REACTION if you expect no reaction to occur. (4 points each)

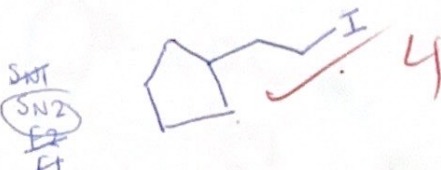
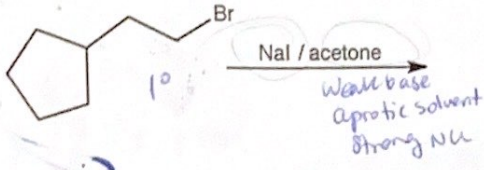


E1 E2



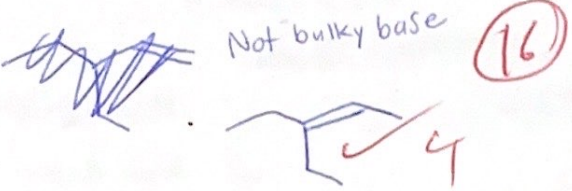
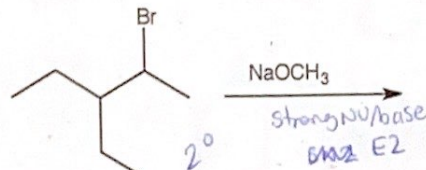
10.

Strong Nu 10 } S_N2



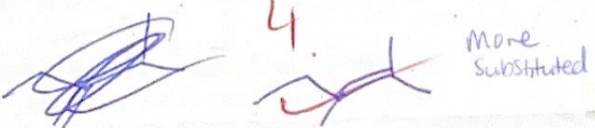
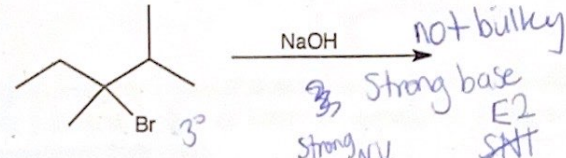
11.

E1 E2

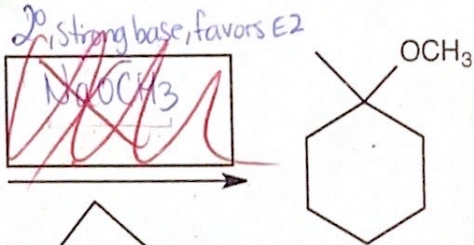
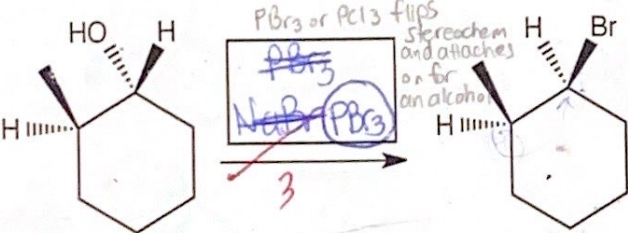


12.

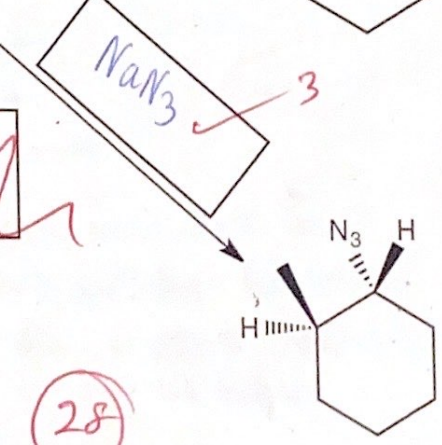
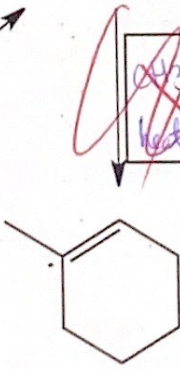
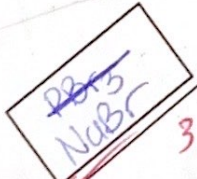
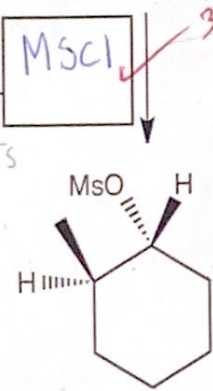
E1 E2



13. Fill in the boxes in the following reactions. Pay attention to stereochemistry if necessary. (3 points each)



MSCl attaches OMS/OTS and gets rid of OH



28

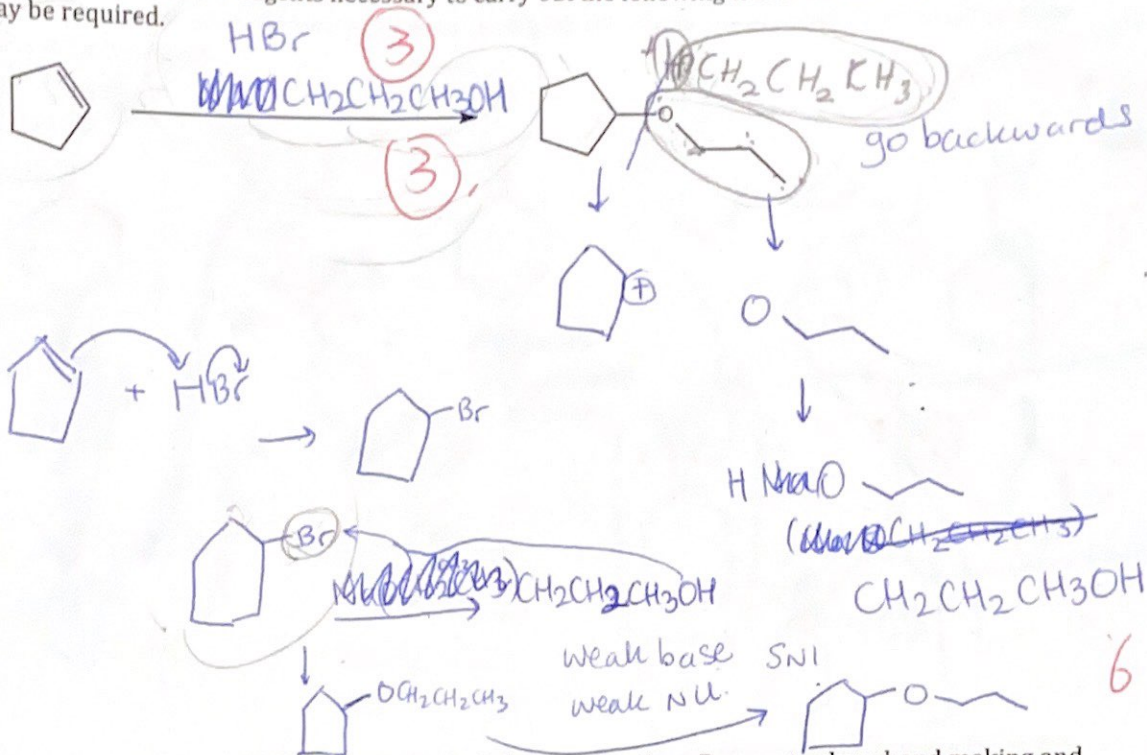
12



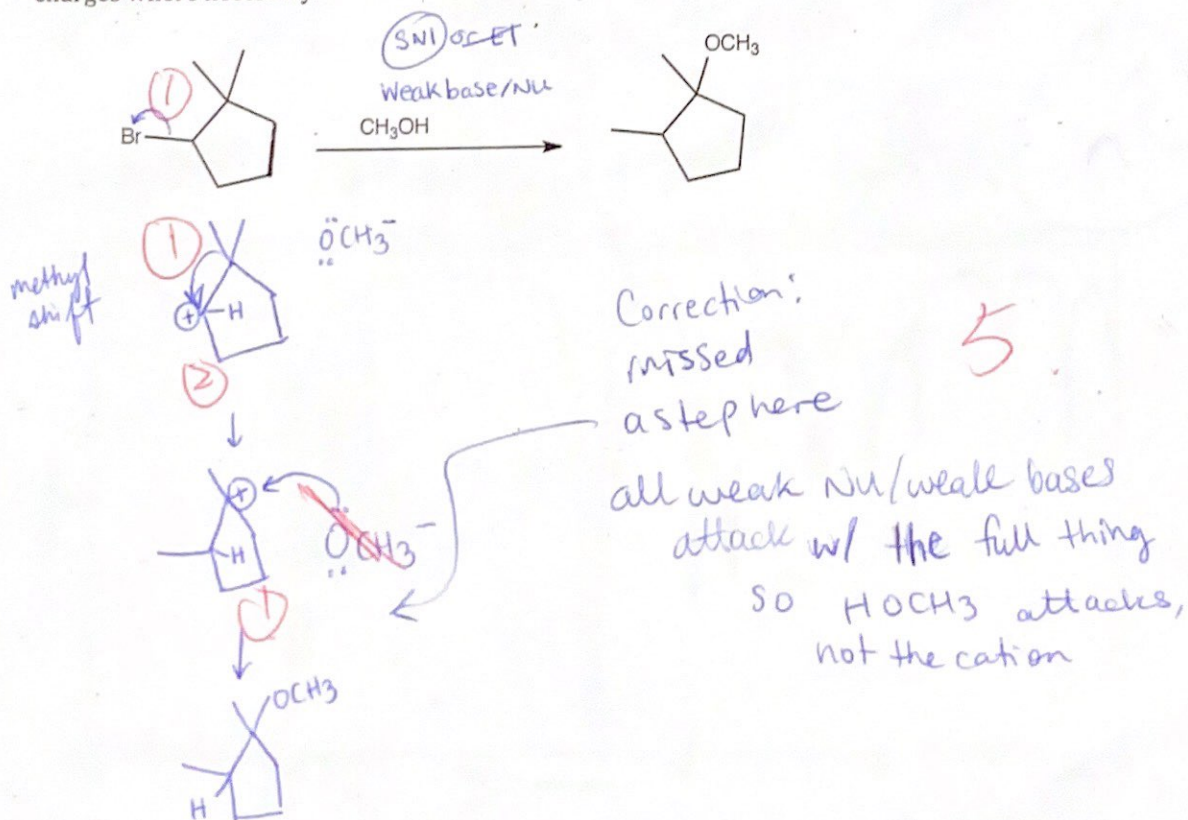
Weak base

E2 or E1

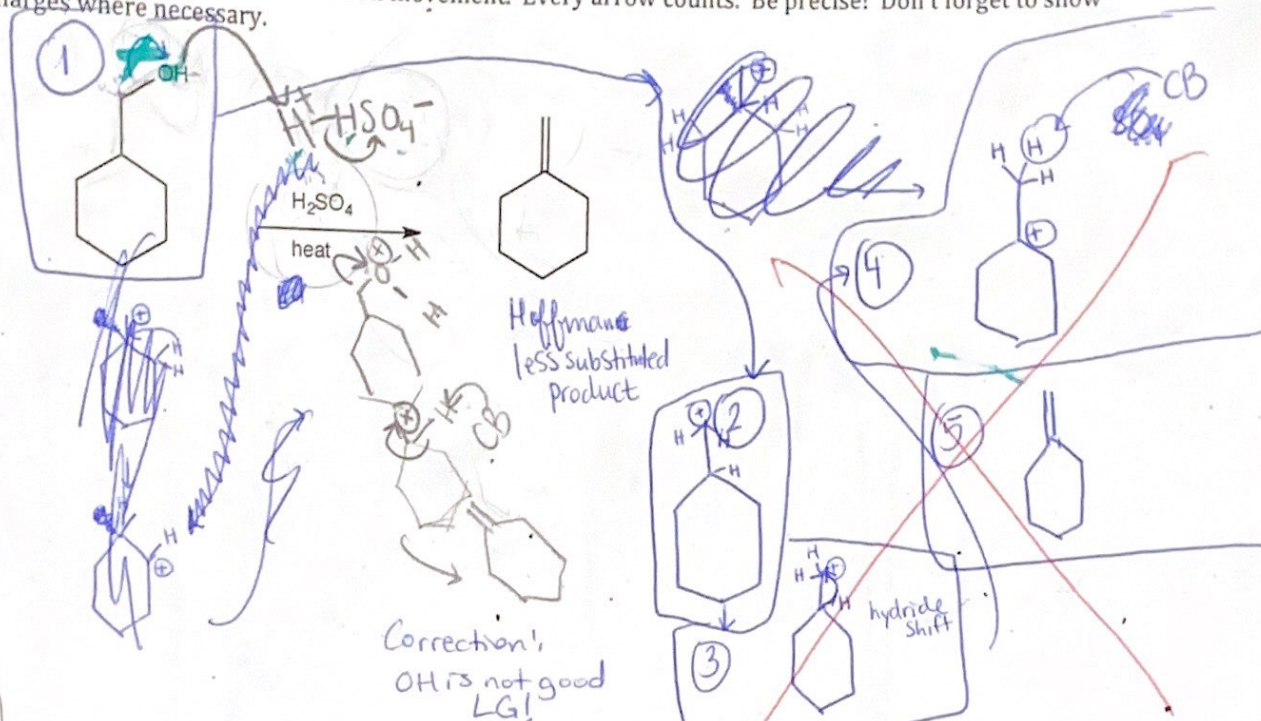
14. (6 points each) Provide reagents necessary to carry out the following transformation. More than one step may be required.



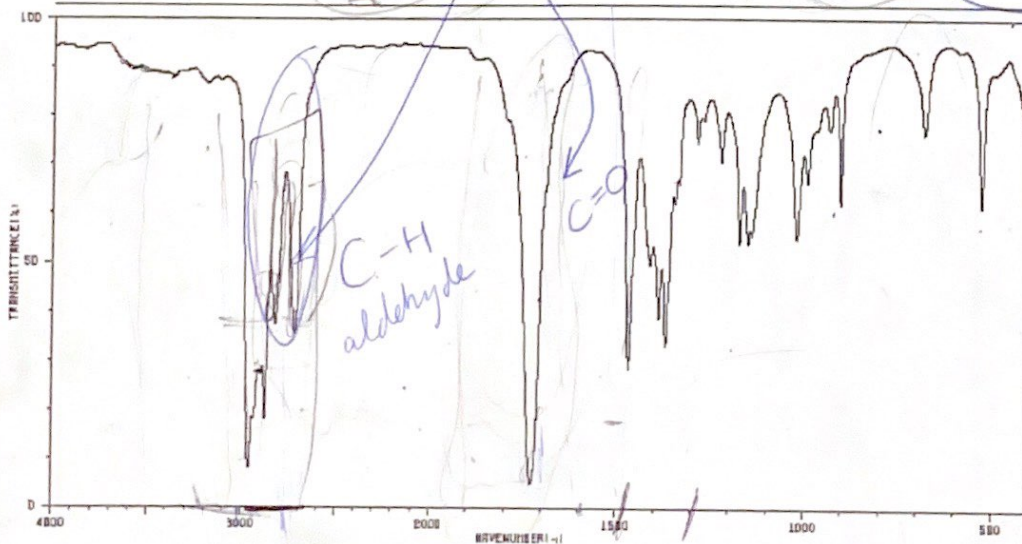
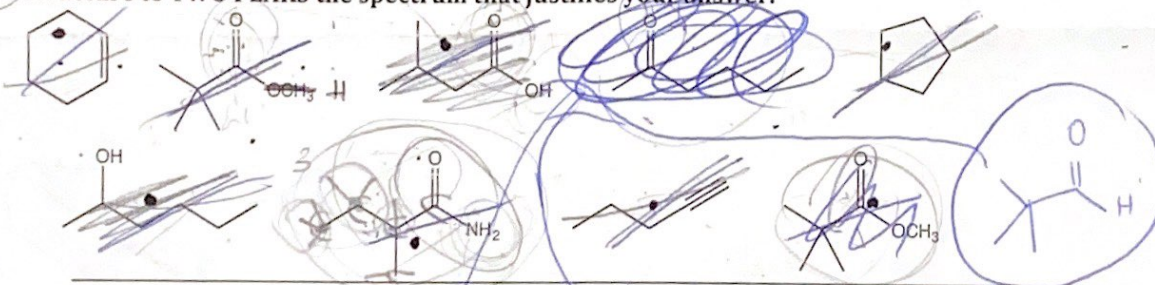
15. (8 pts) Indicate a plausible mechanism for the following reaction. Be sure to show bond making and bond breaking as well as all electron movement. Every arrow counts. Be precise! Don't forget to show charges where necessary.



16. (8 pts) Indicate a plausible mechanism for the following reaction. Be sure to show bond making and bond breaking as well as all electron movement. Every arrow counts. Be precise! Don't forget to show charges where necessary.



17. (4 pts) Circle the structure that corresponds to the following IR spectrum. Draw arrows from the structure to TWO PEAKS the spectrum that justifies your answer.

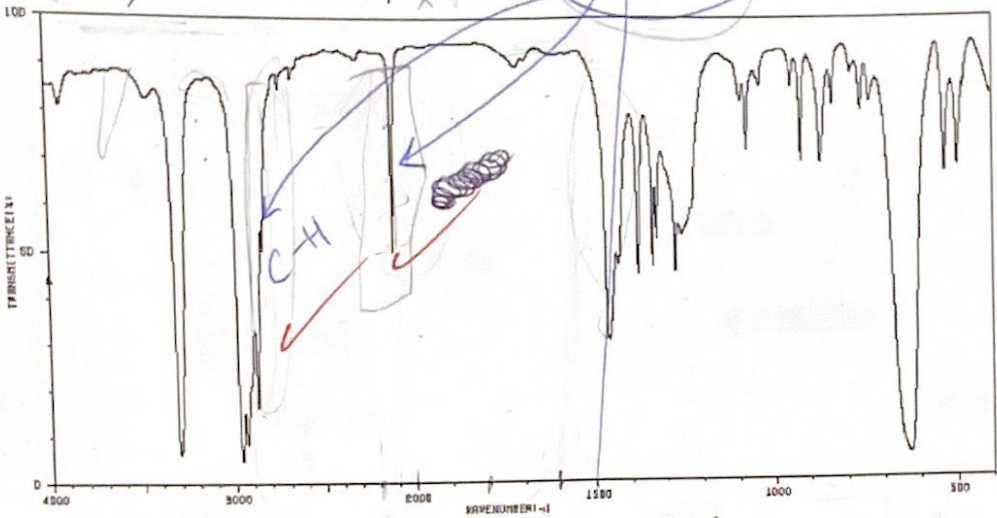
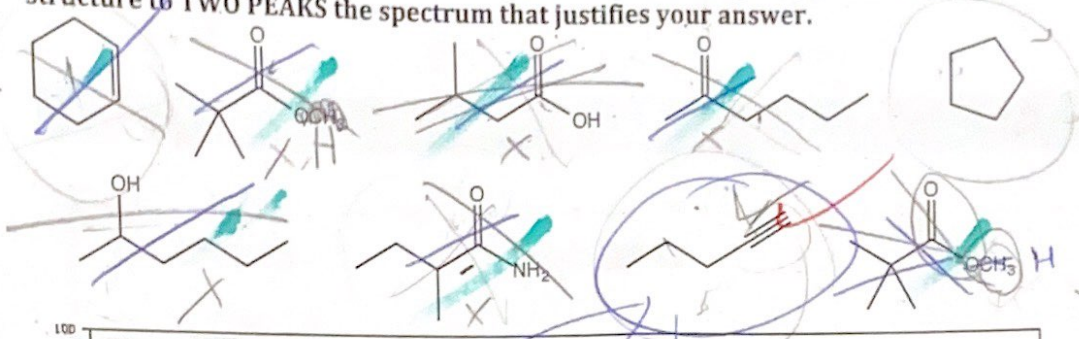


4

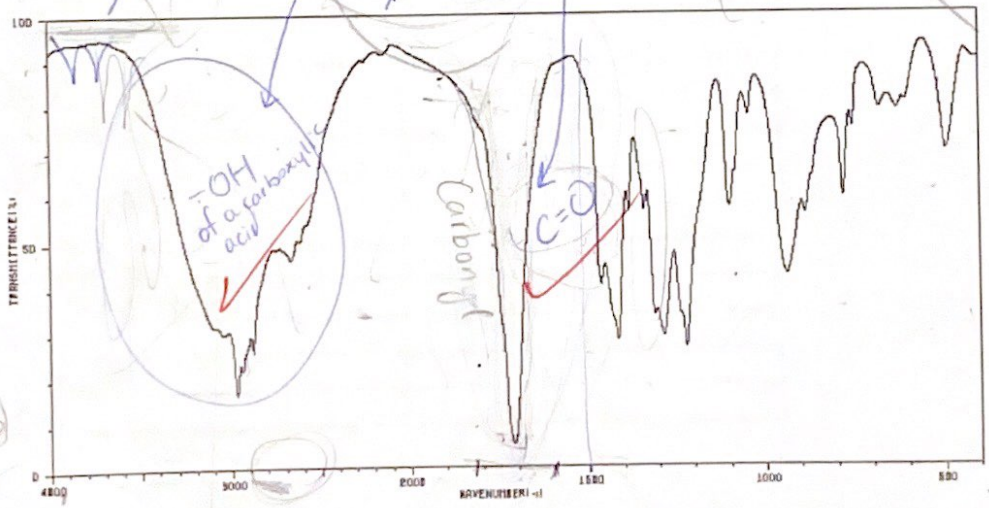
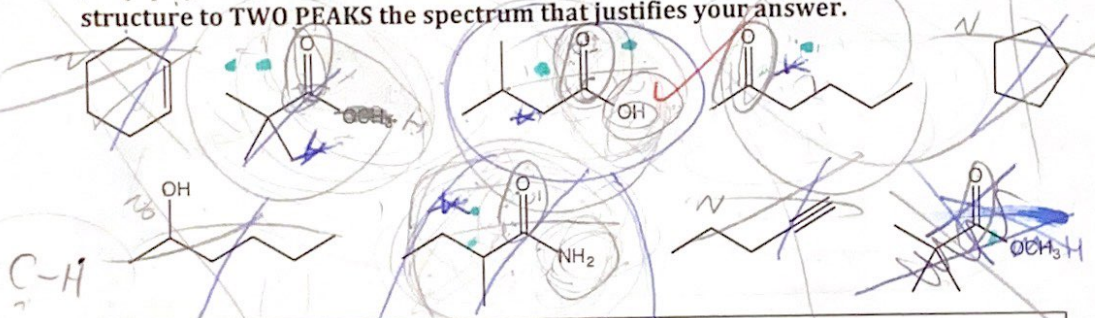
C-H

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18. (4 pts) Circle the structure that corresponds to the following IR spectrum. Draw arrows from the structure to TWO PEAKS the spectrum that justifies your answer.

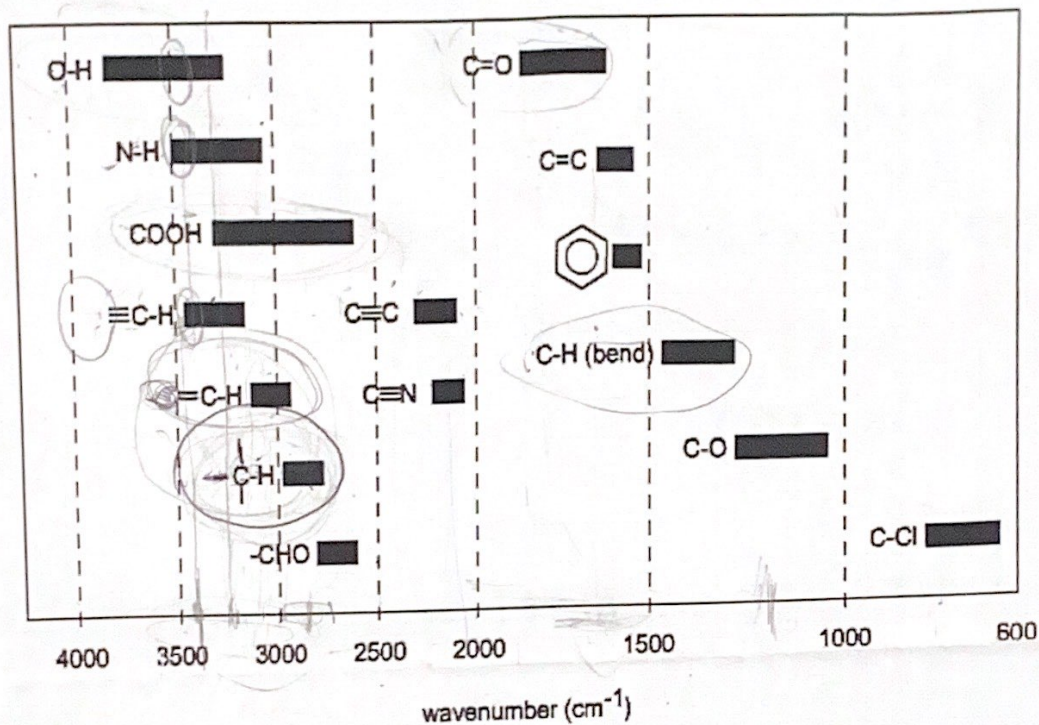


19. (4 pts) Circle the structure that corresponds to the following IR spectrum. Draw arrows from the structure to TWO PEAKS the spectrum that justifies your answer.



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IR Absorption Chart



Compound	pKa
HBr	-9
H ₃ O ⁺	-1.7
HNO ₃	-1.4
HF	3.1
CH ₃ COOH	4.7
HCN	9.1
NH ₄ ⁺	9.4
(CH ₃) ₃ NH ⁺	9.8
H ₂ O	15.7
CH ₃ CH ₂ OH	16
CH ₃ CN	25
CH ₃ C≡CH	26
CH ₃ CON(CH ₃) ₂	30
NH ₃	36
(CH ₃) ₂ NH	36
CH ₄	60