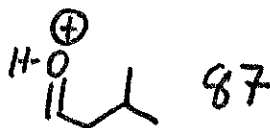
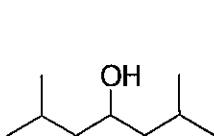


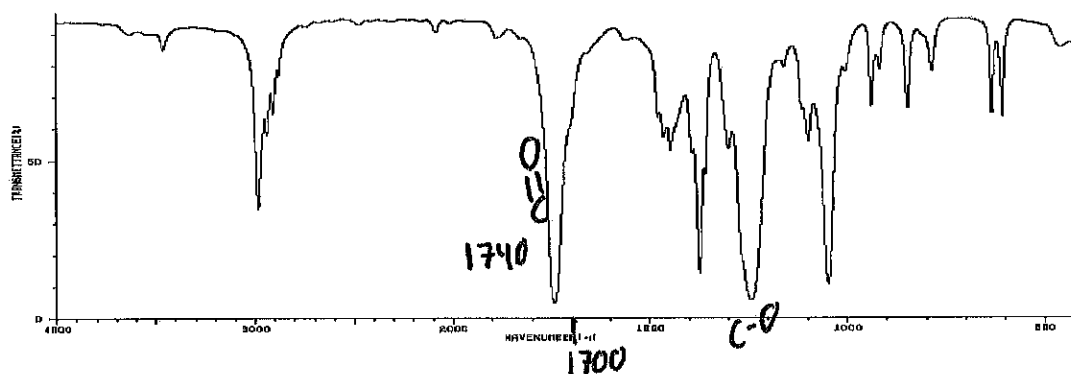
Name: Key

Organic II Lecture
Fall 2012
Quiz #1
(10 points)

1. The mass spectrum of 2,6-dimethylheptan-4-ol gave prominent peaks at m/z values of 111 and 87. Provide structures for these two fragments. (4 points, problem 12-11)

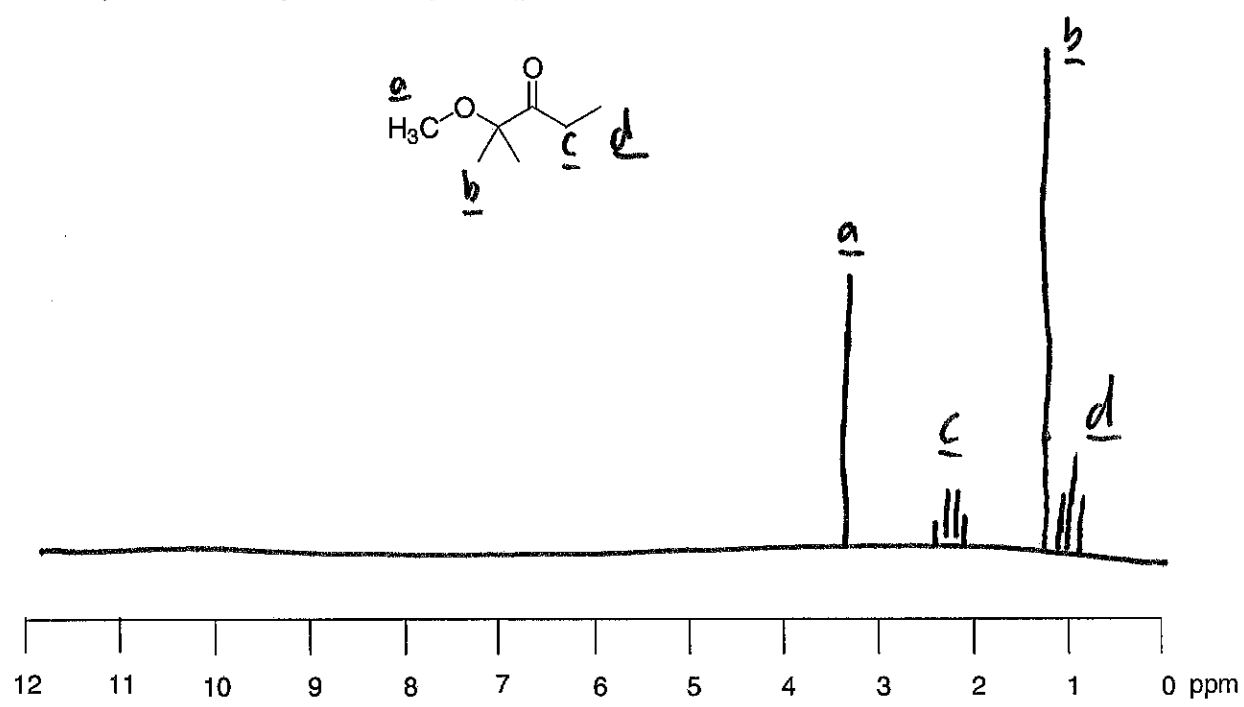


2. What functional group is contained in the following IR spectrum? (2 points)



ester

3. Using the scale below, provide a ^1H NMR spectrum for the following compound. Justify your answer by correlating each peak with each proton environment. (4 points)



	a	b	c	d
chem. shift	3.3	1.2	2.4	1.0
splitting	s	s	q	t
integ	3	6	2	3

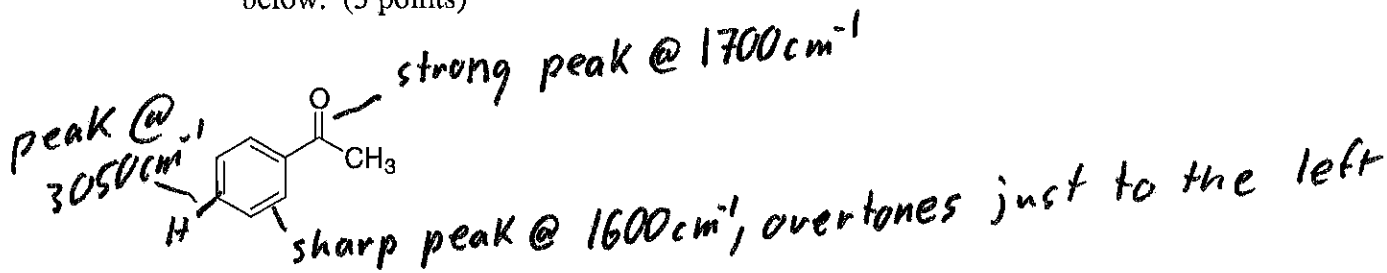
Name: Key

Organic II Lecture
Spring 2010
Quiz #1
(10 points)

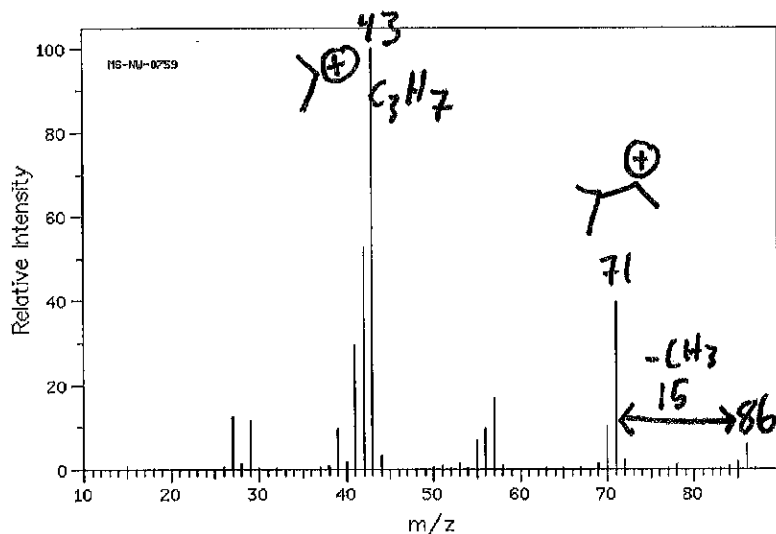
1. Given that $1 \text{ cm} = 10,000 \mu\text{m}$, convert the IR wavelength of $5.85 \mu\text{m}$ to wavenumbers. (1 point, problem 12-13c)

$$\frac{1}{5.85 \mu\text{m}} \left| \frac{10,000 \mu\text{m}}{1 \text{ cm}} \right| = 1,709 \text{ cm}^{-1}$$

2. What characteristic features would be present in the IR spectrum of acetophenone, shown below. (3 points)



3. A saturated hydrocarbon gave the following mass spectrum. Provide a structure for the unknown hydrocarbon. (3 points)



$$12 \sqrt{86}$$

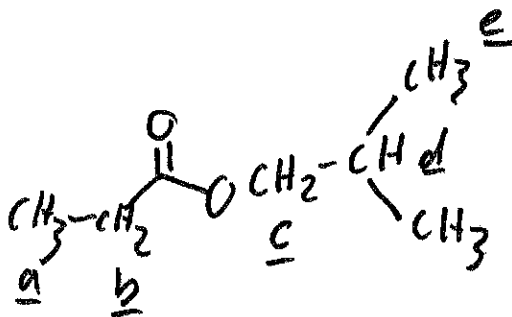
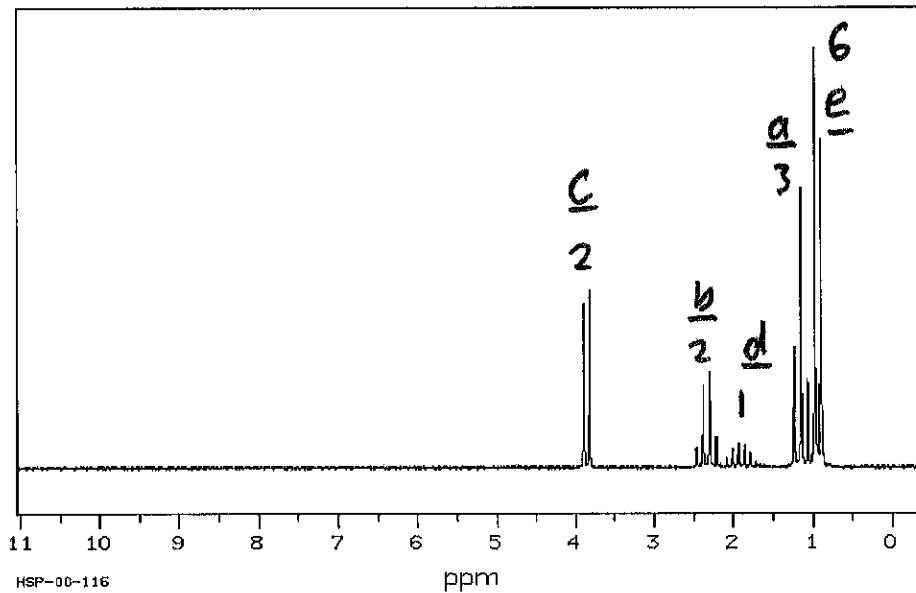
C_6H_{14} - saturated
 $72 + 14 = 86$



- Turn the page over -

¹° unsat.

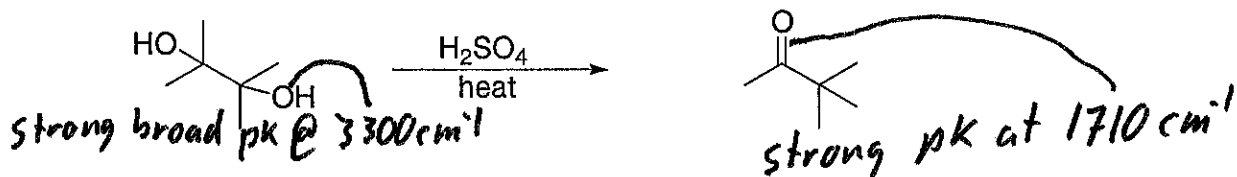
4. The following structure, having a molecular formula of $C_7H_{14}O_2$, gave the following 1H NMR spectrum. Provide a structure for the unknown compound. (3 points)



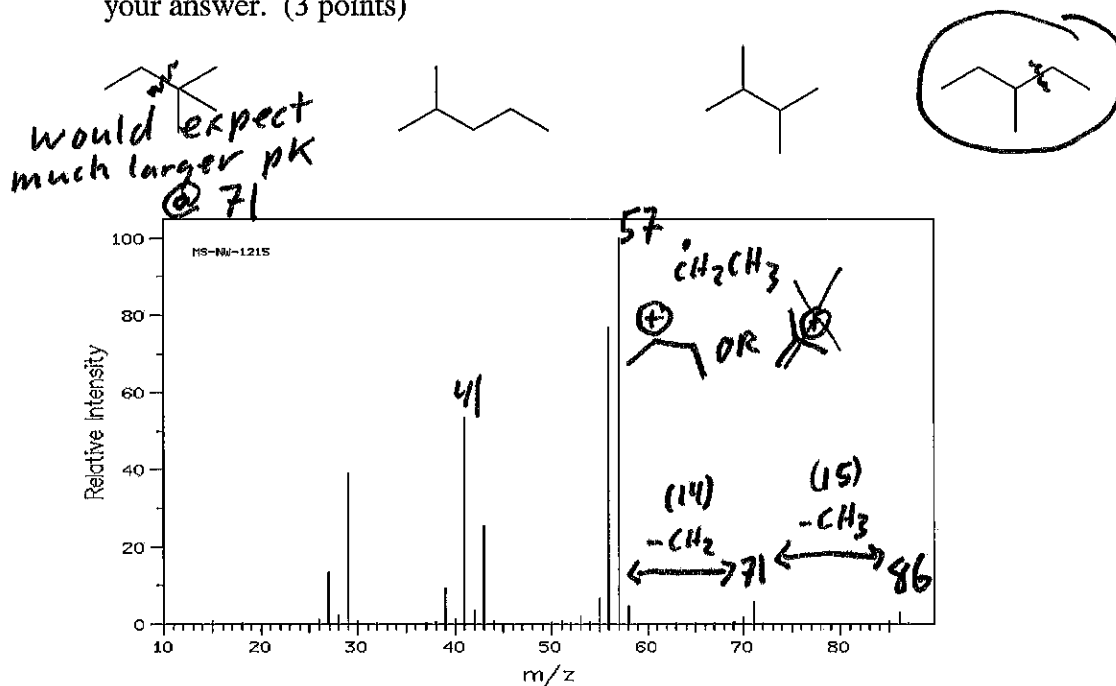
Name: Key

Organic II Lecture
Spring 2011
Quiz #1
(10 points)

1. Shown below is an example of the pinacol rearrangement. Tell how one could distinguish between the starting material and the product by specifying key IR absorptions expected for each compound. (2 point, problem 12-28)

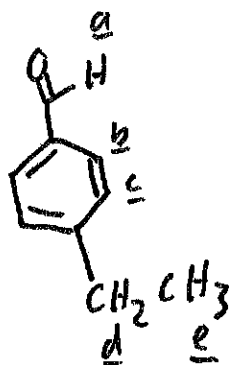
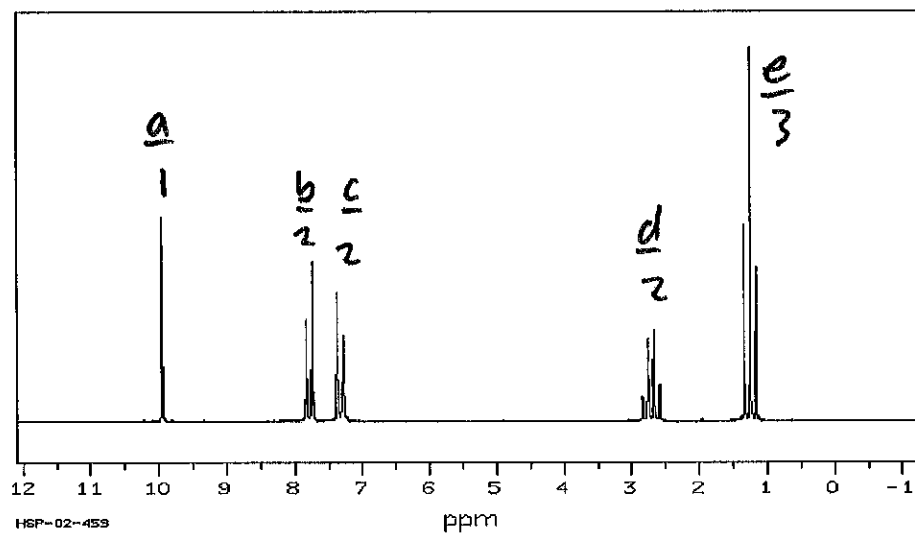


2. Which of the following compounds is represented in the mass spectrum below? Justify your answer. (3 points)



- Turn the page over -

3. Compound A, $C_9H_{10}O$, gave the following 1H NMR spectrum. Provide a structure for compound A. Justify your answer. (5 points)



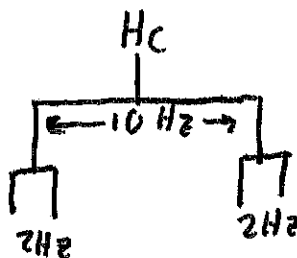
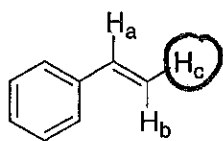
Name: Key

Organic II Lecture
Spring 2012
Quiz #1
(10 points)

1. Why does a carbonyl (C=O) bond absorb at a higher wavenumber than an alkene (C=C) bond in IR spectroscopy? (1 points)

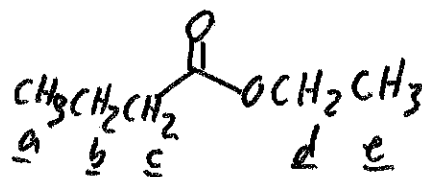
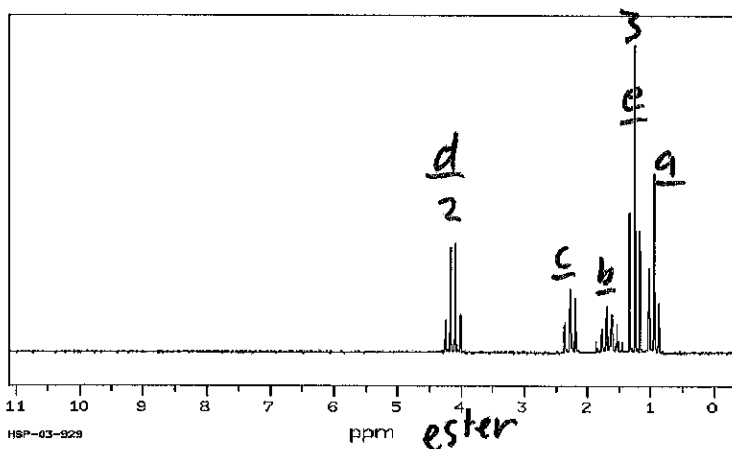
c=O bond is much stronger than c=C bond.

2. Draw a splitting tree for H_c in styrene. Indicate the correct coupling constants within 2 Hz. (Problem 13-12, 3 points)



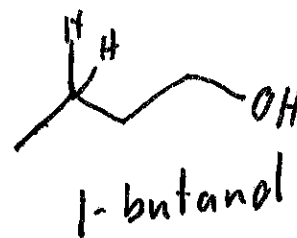
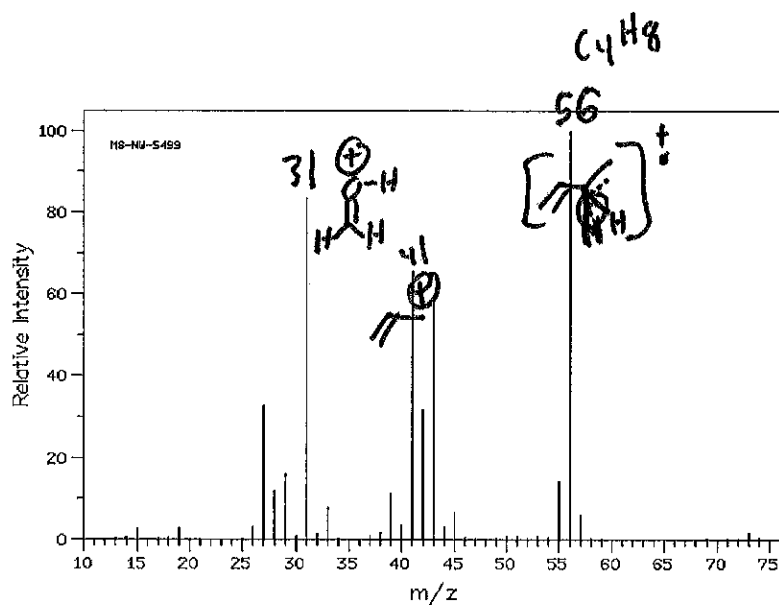
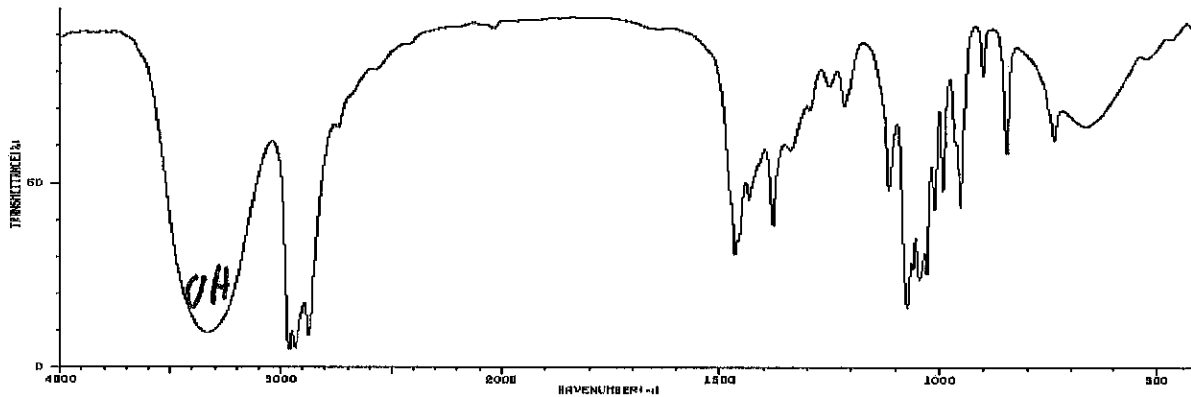
$$J_{ac} = 10 \text{ Hz}$$
$$J_{bc} = 2 \text{ Hz}$$

3. Compound A, C₆H₁₂O₂, gave the following ¹H NMR spectrum. Provide a structure for compound A. Justify your answer through correlating your structure with the spectrum. (3 points)



- Turn the page over -

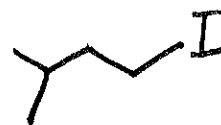
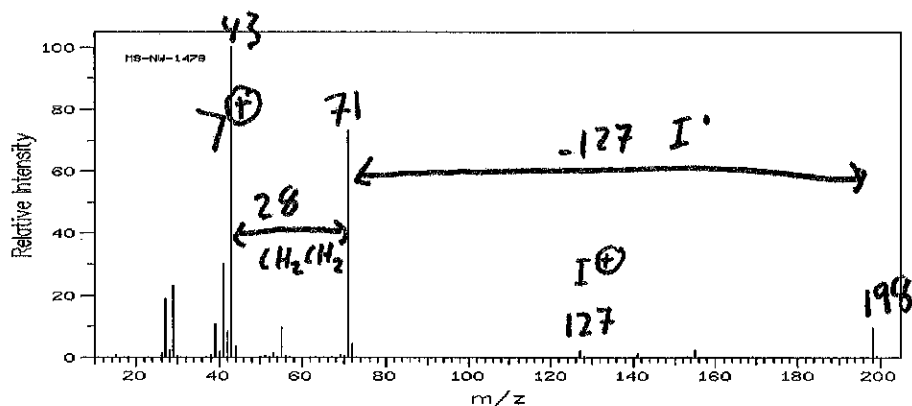
4. Using the following IR and mass spectra, propose a possible structure for the unknown compound. (3 points)



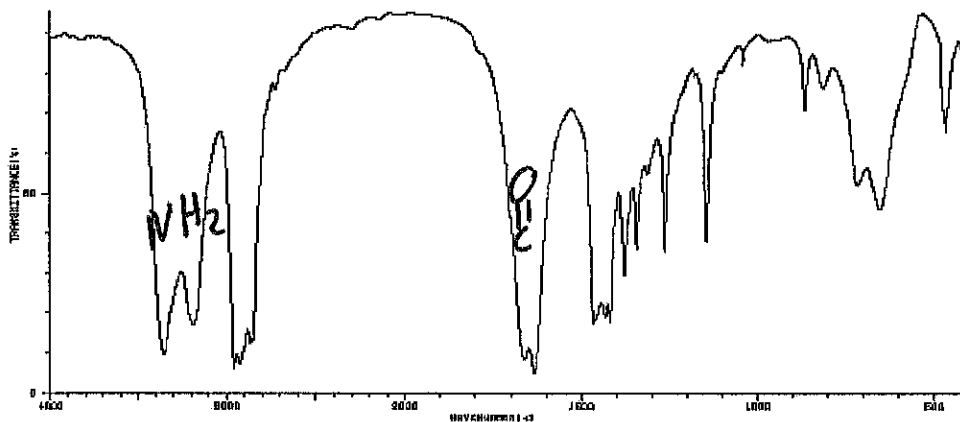
Name: Key

Organic II Lecture
Spring 2013
Quiz #1
(10 points)

1. Provide a possible structure for the compound represented in the following mass spectrum. (3 points, problem 12-27)



2. What functional group is contained in the compound represented by the following IR spectrum? Justify your answer by labeling key peaks. (2 points)

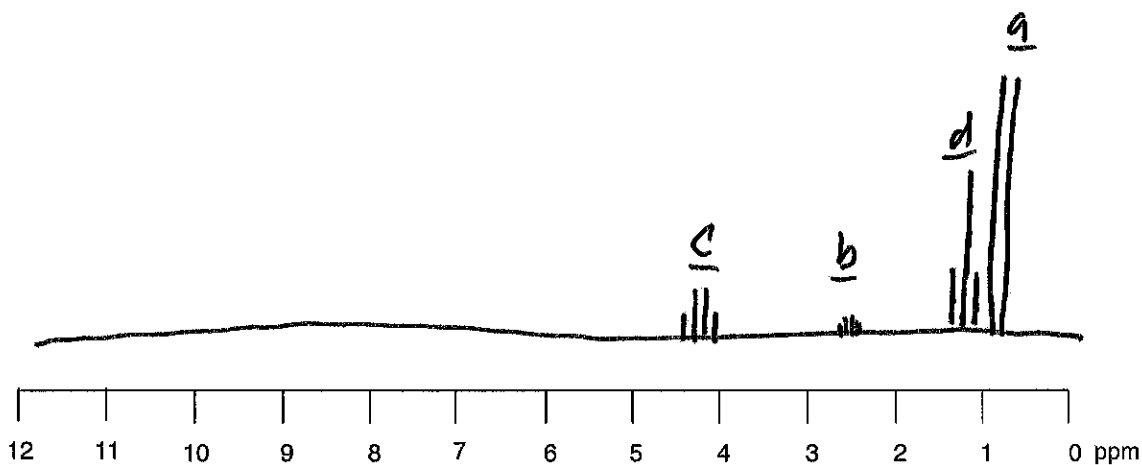
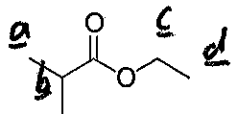


1° amide



- Turn the page over -

3. Use the scale below to predict the ^1H NMR spectrum for the following compound. Correlate each peak with each proton environment. (5 points)



	a	b	c	d
Chemical Shift	0.9	2.6	4.2	1.2
splitting	d	m	q	t
integration	6	1	2	3