Chemistry 333 Fall 2010
Organic Lab Lecture

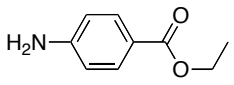
Name:_____

Exam #3

This is an open-book, open notes exam. Show your work, so you can receive credit for correct parts of the final molecule.

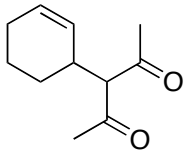
1. (20 points) $C_9H_{11}NO_2$

^{13}C NMR	**^{1}H NMR**
166.8, s	7.86, d, J =8.8 Hz, 2H
150.9, s	6.64, d, J = 8.8 Hz, 2H
131.5, d (2)	4.32, q, J = 7.2 Hz, 2H
120.0, s	4.08, bs, 2H, exchanges
113.7, d (2)	1.37, t, J =7.2 Hz, 3H
60.3, t	
14.4, q	

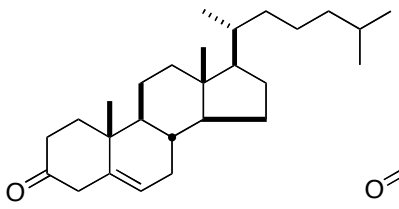


2. (40 points) $C_{11}H_{16}O_2$

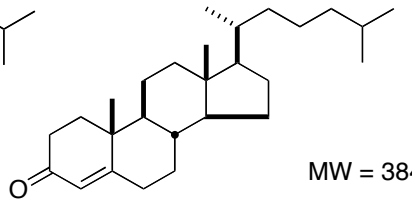
^{13}C NMR	**^{1}H NMR**
20.4, t	1.19-1.22, m, 1H
24.7, t	1.57-1.59, m, 1H
26.4, t	1.68-1.74, m, 2H
29.9, q (2)	1.98-2.00, m, 2H)
35.4, d	2.18, s, 6H
74.5, d	3.00-3.04, m,1H
126.9, d	3.61, d, J=10.6 Hz, 1H
129.7, d	5.38, dd, J=10.2 Hz, 2.4Hz,1H
203.5, s (2)	5.75-5.80, m, 1H



3. (40 points) You have isolated 5-cholestenone **1**. It is crystalline and gives a reasonable melting point, but you are concerned that it might contain a little bit of the more stable isomer **2**. For a 5.0 mg sample in 50 mL of ethanol, you measure A = 0.240 at 280 nm. What % **2** is in the sample?



1



2

MW = 384

[ ] = 2.6 x 10^{-4}

ε_{280}	800	11,200

[**1**] + [**2**] = 2.6 x 10^{-4}

800[**1**] + 11,200 [**2**] = 0.240

[**2**] = 3.1 x 10^{-6}

[**2**] = 1.2%