Chemistry 328N Spring 2019
Homework #3

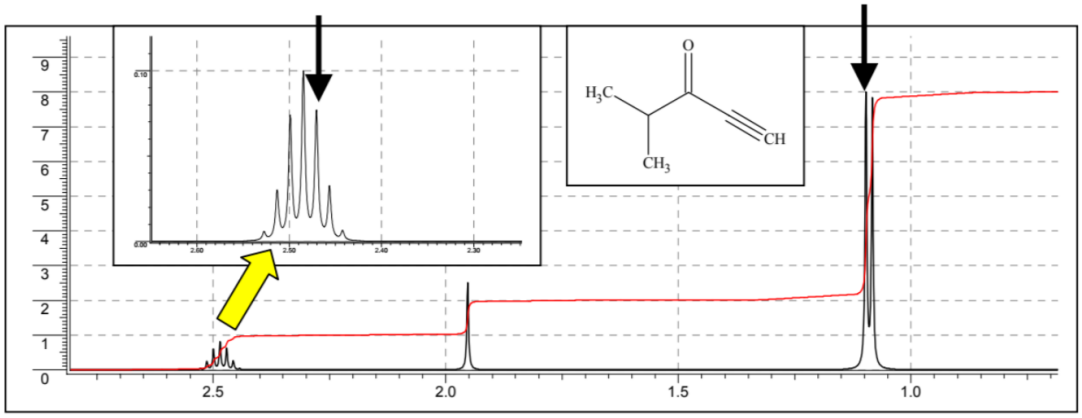
Due: Monday 2/11/19 by 5PM...in the "box"

Read: Pages 585- 597 (13.11, 13.12) and pages 537- 551 (Chapter 12)

Do problems: 12.1, 12.2, 13.8, 13.9 a, d and e; 13.12.

Supplemental problems:

1. The nmr spectrum of an ethynyl ketone is shown below...isn't it pretty? Please calculate the ratio of the integral area of the peak marked in the septet to the area of one of the peaks in the doublet. Show your work.



2. Calculate the degree of unsaturation for morphine.

3. An interesting substance was found that has a molecular ion at 70 Daltons. Combustion of the material produces only H_2O, CO_2 and NO_2. The ^{1}H nmr of the material is boring. It has only one sharp resonance at 2.6δ. The ^{13}C nmr is somewhat more interesting. It shows 2 well resolved resonances, one at 146δ, and one at 32δ In the DEPT experiment, the low field peak disappears, but the high field peak is unchanged. What is this stuff??? Please show your work.