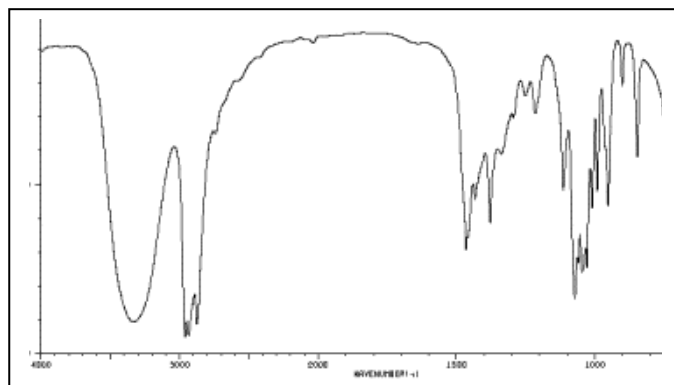


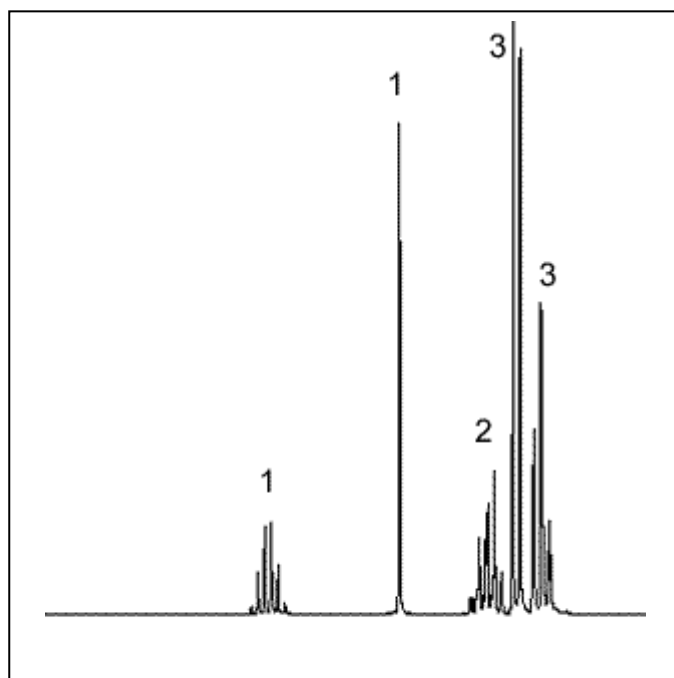
Friday Worksheet
Analytical enthalpy revision 4

Name:

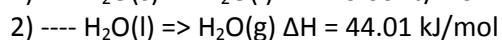
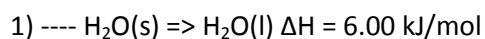
- 1) An organic compound "A" is known to contain only carbon, hydrogen and oxygen. . The compound contains, by mass, 13.5% of hydrogen and 64.8% of carbon. Below are the ¹HNMR and IR spectra of the compound.



- What is the empirical formula of the compound?
- What is the molecular formula of the compound if it's molar mass 74.12 g mol⁻¹
- Give the semi-structural formula of the compound.
- Write a combustion reaction for compound "A" in its liquid state.
- 7.412 grams of liquid compound "A" was burnt in excess oxygen in a bomb calorimeter containing 100.0 grams of water at 25.0 °C. If the temperature of the water reached a maximum of 88.9 °C calculate the molar heat of combustion, in kJ/mol, of compound "A".



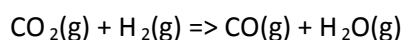
- 2) Consider the following equations



i. Find the ΔH for the reaction $\text{H}_2\text{O}(\text{g}) \Rightarrow \text{H}_2\text{O}(\text{l})$

ii. What is the amount of energy in kJ that must be supplied to evaporate 98.5 grams of water?

- 3) Find the ΔH of the reaction below



given the two equations below.

