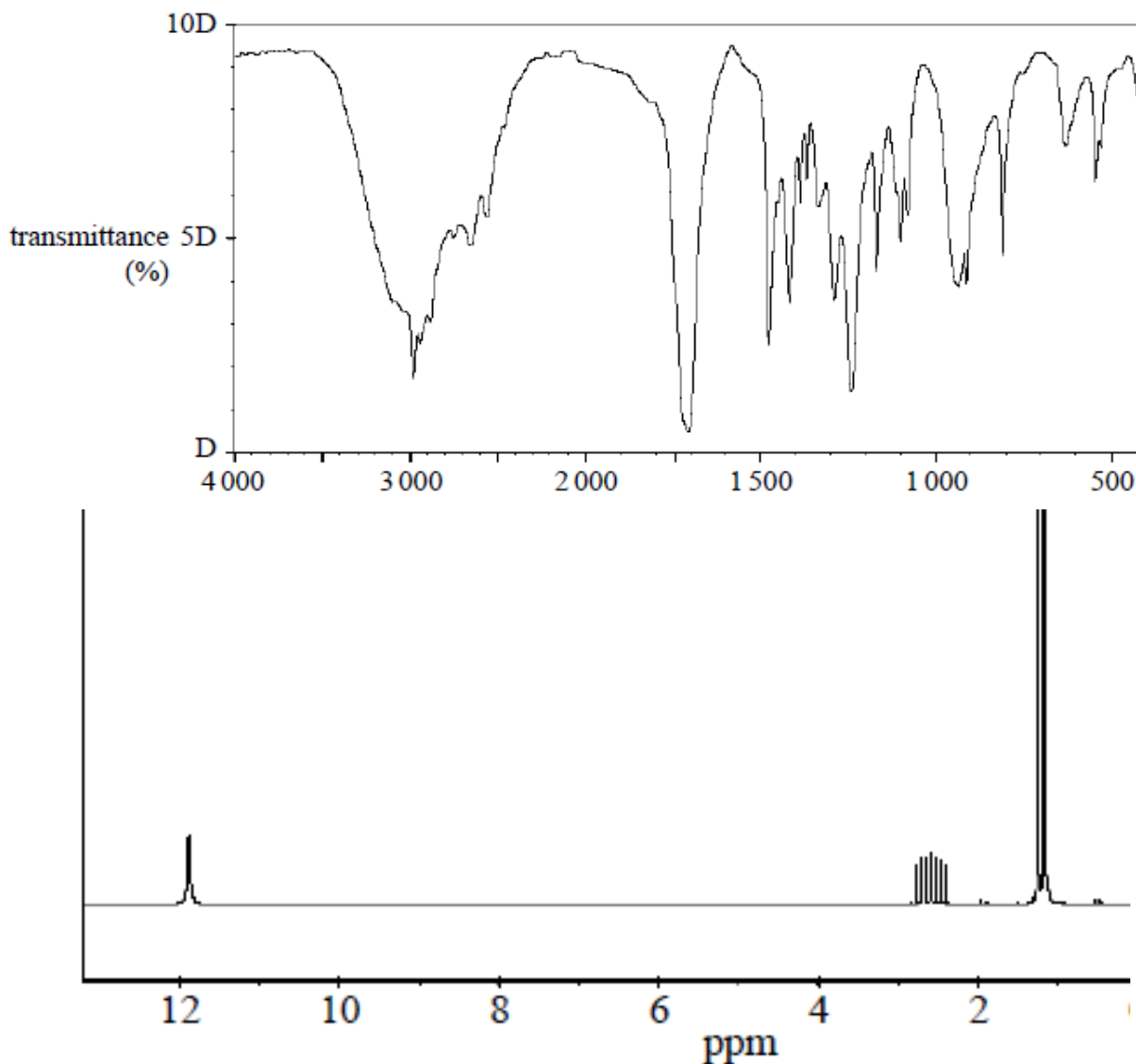


Friday Worksheet
IR spectroscopy 2

Name:

- 1) Consider the IR and the ^1H NMR spectrum below of a compound with molecular formula $\text{C}_4\text{H}_8\text{O}_2$.



The molecule reacts with a known base.

- a) What does the IR spectrum reveal about the bonds of this molecule?
Due to absorbance at 1300 cm^{-1} a C-O bond is present.
Due to absorbance at 1700 cm^{-1} a C=O bond is present.
Due to absorbance between 2500 cm^{-1} and 3000 cm^{-1} an acidic O-H bond is present.
- b) What two critical pieces of information would allow us to discount the possibility that this compound is a diol (a compound with two OH groups)?
Presence of a C=O bond
or
It reacts with a base, indicating it may well be an acid.
or
the presence of an acidic O-H at 3000 cm^{-1}
- c) Consider the ^1H NMR spectrum and give the structural formula of the compound?

