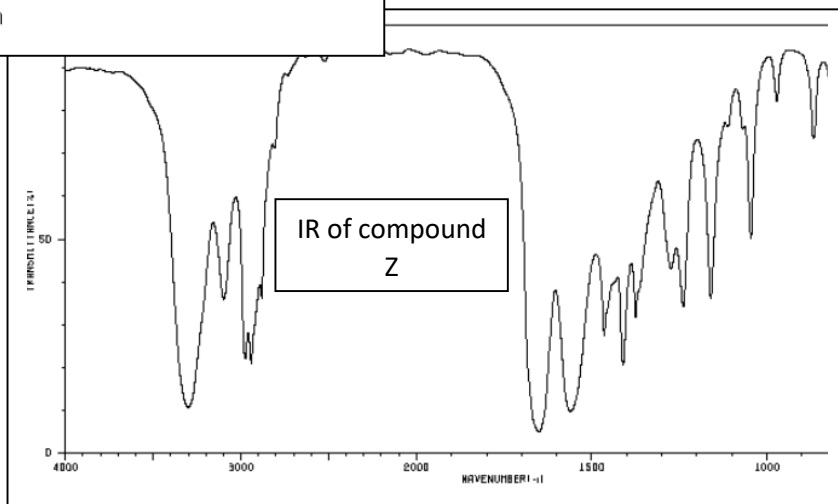
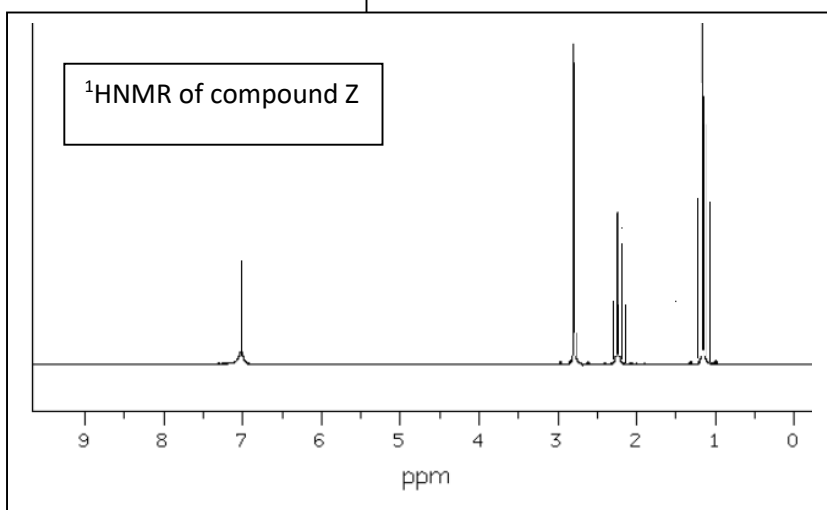
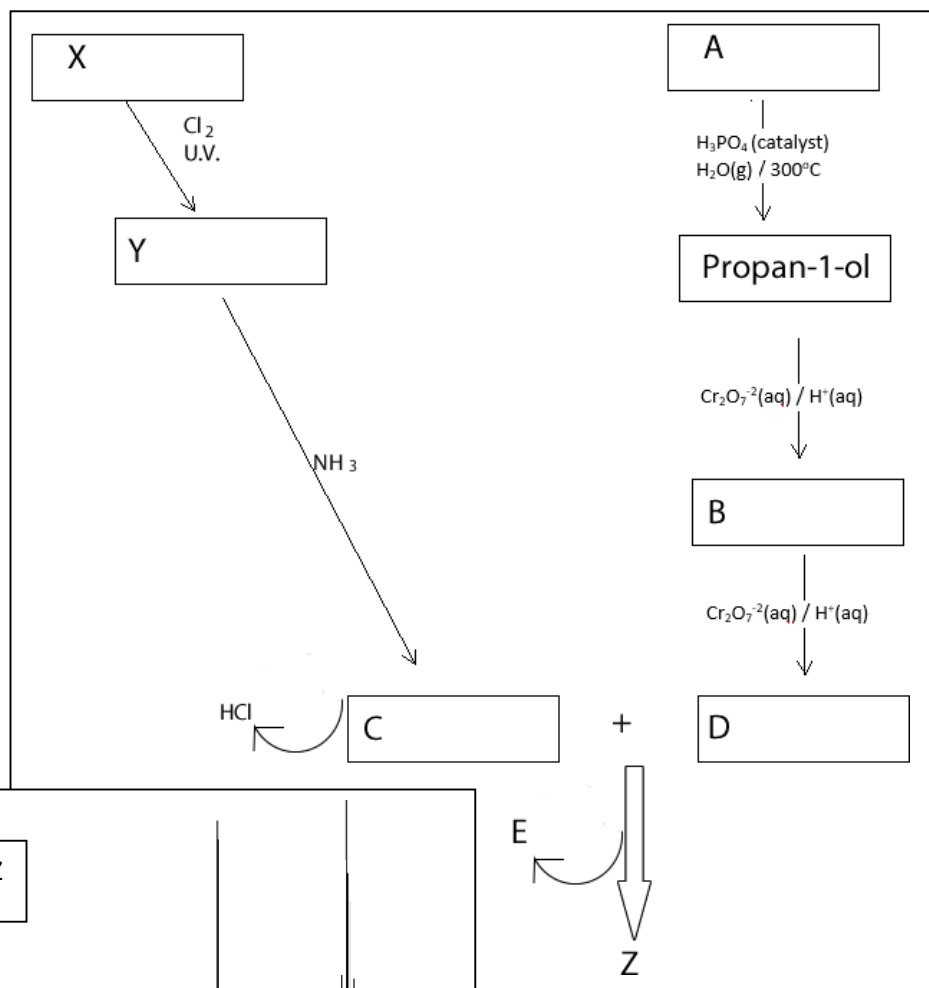


Friday worksheet 6 – ¹HNMR + IR + organic pathways.



1) The reaction pathway for the formation of compound Z is shown on the previous page as well as the ^1H NMR and IR spectra of compound Z. The molecular formula of compound Z is $\text{C}_4\text{H}_9\text{NO}$.

i. What relevant information can be obtained from the IR spectrum around the wavelength:
- 3300 cm^{-1}

- 1630 cm^{-1}

You may need to consult the data sheet.

ii. Using the ^1H NMR spectrum identify the number of hydrogen environments present in the molecule of compound Z and draw a structure of compound Z in the space provided on the right.



2) Give the name and the structure of each compound in the spaces on the right.

C -

3) Identify what type of reaction takes place between compounds C and D and name molecule E.

D -

4) What type of reaction takes place to form propan-1-ol from compound A?

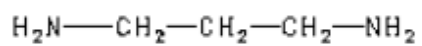
X -

A -

Y

5) Consider the compound shown on the right.

i. How many signals will be present in the ^1H NMR spectrum of this molecule?



ii. How many signals will be present in the ^{13}C NMR spectrum of this molecule?

iii. Describe the splitting patterns that are observed in the ^1H NMR spectrum and give the simplest ratio of the area under each signal.



iv. Name the molecule shown.