Friday Worksheet Analytical chemistry revision 1

Name:

- An organic compound "C" is formed by the reaction of two organic compounds "A" and "B", using H₂SO₄ as a catalyst. It was analysed and found to contain the following percentage composition by mass, 62.1% carbon, 10.3% hydrogen and 27.6% oxygen. An 8.81 g sample of compound "A" was placed in a 250 mL volumetric flask and made up to the mark with distilled water. A 20.0 mL aliquot was taken and titrated against a 1.00 M NaOH solution. The average titre for this titration was 8.00 mL.
 - a) Calculate the empirical formula of compound "C".
 - b) Calculate the molecular formula of compound "C" given that its molar mass is 116 g/mol
 - c) Compound "A" is known to be a monoprotic acid. Calculate the molar mass of the acid and identify it.
 - d) The ¹H NMR, ¹³C NMR and the IR spectra of the compound "C" are shown below.
 - i. Draw the structural formula of compound "C"
 - ii. Name compound "C"

e) Name compound "B"

