

Student 4: High Achieved

NZQA Intended for teacher use only

Mass Spec:

m/z ratio	group
88	C ₂ H ₄ O is the empirical formula and has a mass of 44 so compound must have formula C ₄ H ₈ O ₂ . This is the molecular ion peak

IR:

Wavenumber(cm ⁻¹)	Characteristic group
2980 broad	
1710 sharp	C=O

NMR:

Chemical shift (ppm)	Characteristic group
13	C
19	C
38	C
180	C

There are 4 carbons in the compound

From the three graphs the unknown compound is methyl propanoate which would have 4 different carbon environments.

