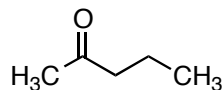
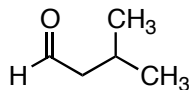


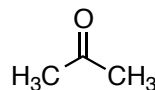
**Based on their  $^1\text{H}$  NMR spectra (links to online spectra provided), match Unknowns 1–6 to these structures:**



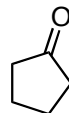
2-pentanone



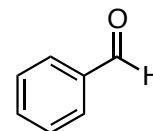
isovaleraldehyde  
(3-methylpentanal)



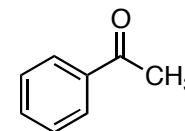
acetone



cyclopentanone



benzaldehyde



acetophenone

These are the possible unknowns from the Unknown Aldehyde or Ketone Laboratory Experiment.

### Unknown 1

$^1\text{H}$  NMR spectrum in  $\text{CDCl}_3$

<http://www.sigmaaldrich.com/spectra/fnmr/FNMR001621.PDF>

### Unknown 2

$^1\text{H}$  NMR spectrum in  $\text{CDCl}_3$

<http://www.sigmaaldrich.com/spectra/fnmr/FNMR009167.PDF>

### Unknown 3

$^1\text{H}$  NMR in  $\text{CDCl}_3$

<http://www.sigmaaldrich.com/spectra/fnmr/FNMR009397.PDF>

### Unknown 4

$^1\text{H}$  NMR in  $\text{CDCl}_3$

<http://www.sigmaaldrich.com/spectra/fnmr/FNMR009397.PDF>

### Unknown 5

$^1\text{H}$  NMR spectrum in  $\text{CDCl}_3$

<http://www.sigmaaldrich.com/spectra/fnmr/FNMR011339.PDF>

### Unknown 6

$^1\text{H}$  NMR spectrum in  $\text{CDCl}_3$

<http://www.sigmaaldrich.com/spectra/fnmr/FNMR001352.PDF>

**Answers:**

<b>Unknown</b>	<b>Compound</b>
1	Acetone
2	Acetophenone
3	Benzaldehyde
4	Cyclopentanone
5	2-pentanone
6	isovaleraldehyde