# Self-test Questions

Topic 11 (SL)

1 How many significant figures are there in the number 0.0062940?
  A 8
  B 4
  C 6
  D 5

2 What is the result when 2.12 ± 0.02 is added to 4.35 ± 0.03?
  A 6.47 ± 0.01
  B 6.5 ± 0.05
  C 6.47 ± 0.05
  D 6.4700 ± 0.0006

3 How many moles of sodium carbonate (Na_2CO_3) are there in 12.00 cm^3 of a 0.1000 M solution?
  A 1.2×10^{-3} mol
  B 1.20×10^{-3} mol
  C 1.200×10^{-3} mol
  D 1.2000×10^{-3} mol

4 What value should be quoted when 4.65 ± 0.03 is multiplied by 3.33 ± 0.02?
  A 15.48 ± 0.05
  B 15.4845 ± 0.0006
  C 15.5 ± 0.2
  D 15.5 ± 0.05

5 What are the units of the gradient (slope) of a graph of concentration (mol dm^{-3}) on the y-axis against time (min) on the x-axis?
  A mol dm^{-3} min
  B min mol^{-1} dm^3
  C mol dm^{-3} min^{-1}
  D mol^{-1} dm^3 min^{-1}

6 Which of the following does **not** have an IHD of 1?
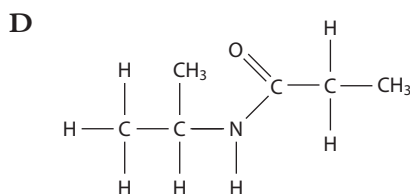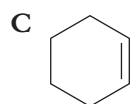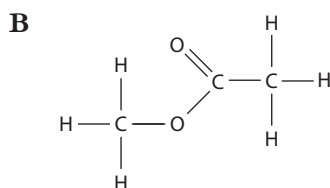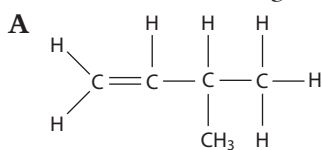
7 How many peaks are there in the low resolution NMR spectrum of this molecule?
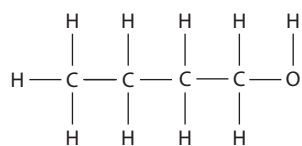
  A 10
  B 5
  C 4
  D 3

8 There is a peak in the mass spectrum of a compound containing carbon, hydrogen and oxygen at $m/z = 43$. Which species could be responsible for this peak?
  A $CH_3CH_2CH_2$
  B CH_3CO^+
  C $CH_3CH_2CH_2^-$
  D CH_3CO

9 Which of these does **not** have two absorption bands in the infrared spectrum in the region above 1500 cm⁻?

A

B

C

D
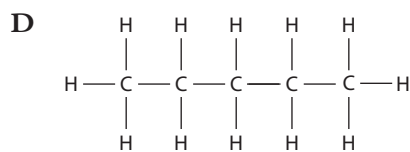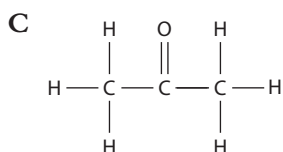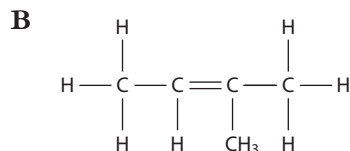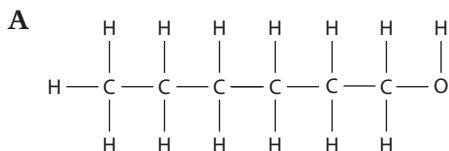
10 A molecule has two different chemical environments for H in the NMR spectrum. The ratio of the number of hydrogens in each environment is 3 : 2. Which of the following represents the structure of the molecule?

A

B

C

D