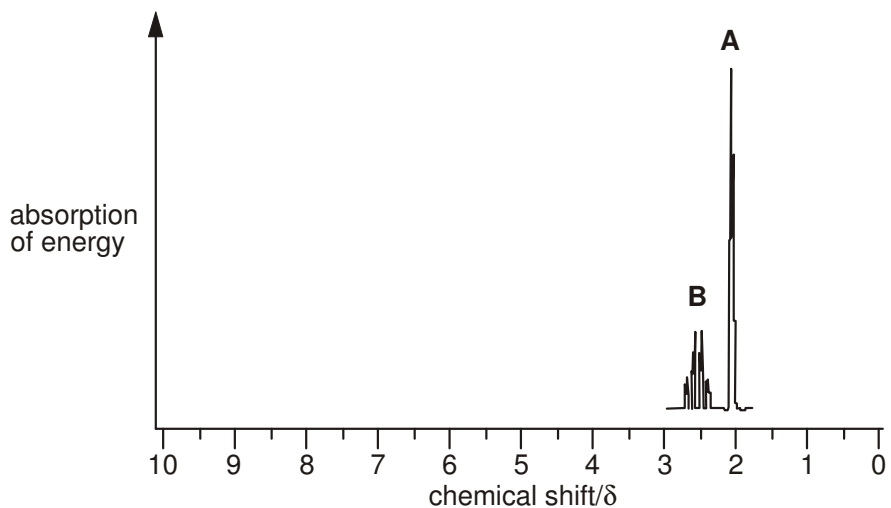


F324 Module 3: HW9

1. Unknown compounds are often identified by n.m.r. spectroscopy.

Part of the n.m.r. spectrum of **butanone** is shown on the axes below.



(i) State which part of the butanone molecule is responsible for peak **A** at $\delta = 2.1$.

Explain your reasoning.

.....
.....
.....
.....

[2]

(ii) Explain why peak **B** is split into a quartet.

.....
.....

[1]

(iii) Predict the remainder of the n.m.r. spectrum of butanone by sketching it on the axes above.

[2]

- (iv) Write the relative peak area above each of the peaks on the completed spectrum of butanone.

[1]

[Total 6 marks]

- 2. In this question, one mark is available for the quality of the use and organisation of scientific terms.

Describe and explain the different ways that a high resolution n.m.r. spectrum can give information about a molecule.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

[7]

Quality of Written Communication [1]

[Total 8 marks]