

**GCSE Chemistry B (Twenty First Century Science)**  
**J258/02** Depth in chemistry (Foundation Tier)

**Question Set 24**

1

Nina works for a company that makes pH meters.

She makes up four solutions **A**, **B**, **C** and **D**. Each solution has a different, known pH.

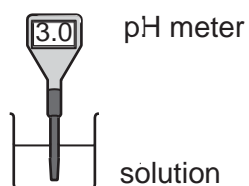
**Table 1.1** shows the pH of each solution.

Solution	pH
<b>A</b>	3.0
<b>B</b>	9.0
<b>C</b>	1.0
<b>D</b>	7.0

**Table 1.1**

**(a)** Nina tests three pH meters to find out if they measure pH accurately.

She uses the three pH meters to measure the pH of solutions **A**, **B**, **C** and **D**. She dips each pH meter into each solution and takes a reading.



**(i)** Nina washes each pH meter between readings.

Explain why it is important that she does this.

**[1]**

(ii) Table 1.2 shows Nina's results.

Solution	actual pH	pH meter 1 reading	pH meter 2 reading	pH meter 3 reading
A	3.0	3.1	3.0	3.3
B	9.0	9.1	9.0	9.1
C	1.0	0.9	1.0	1.1
D	7.0	6.8	7.0	6.7

Table 1.2

Nina decides that the pH meter gives accurate readings if all of its pH readings are within  $\pm 0.2$  of the actual pH.

Tick (✓) **one** box in each column to show whether each pH meter gives **accurate** or **inaccurate** readings.

	pH meter 1 (3)	pH meter 2 (3)	pH meter 3 (3)
Accurate			
Inaccurate			

[2]

(b) (i) Nina wants to use another method to measure pH.

What other method could she use to measure pH?

Tick (✓) **one** box.

Do a titration.

Test with litmus paper.

Test any gases given off with lime water.

Use Universal Indicator.

<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

[1]

(ii) Explain why scientists often use more than one method to collect results when they do experiments.

[2]

**Total Marks for Question Set 24: 6**

---

# OCR

Oxford Cambridge and RSA

## **Copyright Information**

OCR is committed to seeking permission to reproduce all third-party content that it uses in its assessment materials. OCR has attempted to identify and contact all copyright holders whose work is used in this paper. To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced in the OCR Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download from our public website ([www.ocr.org.uk](http://www.ocr.org.uk)) after the live examination series.

If OCR has unwittingly failed to correctly acknowledge or clear any third-party content in this assessment material, OCR will be happy to correct its mistake at the earliest possible opportunity.

For queries or further information please contact The OCR Copyright Team, The Triangle Building, Shaftesbury Road, Cambridge CB2 8EA.

OCR is part of the Cambridge Assessment Group; Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge