



Examiners' Report Principal Examiner Feedback

Summer 2025

Pearson Edexcel International GCSE
in Chemistry (4WCH1) Unit 1CR

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Publications Code 4WCH1_1CR_2506_ER

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Question 1

Q01ai – 89% of candidates were able to score the mark in this question. Errors were usually because of candidates not following the instruction to use the outline of the Periodic table in the question.

Q01aii – 80% of candidates scored the mark. Errors were usually because of candidates not following the instruction to use the outline of the Periodic table in the question.

Q01aiii – 88% of candidates were able to score the mark in this question. Errors were usually because of candidates not following the instruction to use the outline of the Periodic table in the question.

Q01bi – 78% of candidates were able to score the mark.

Q01bii – 73% of candidates scored both marks. Errors were usually due to candidates placing more than two electrons on the first electron shell.

Q01c – 76% of candidates scored both marks. Errors were usually due to calculating an average of the mass numbers or trying to complete an empirical formulae calculation.

Question 2

Q02ai – 96% of candidates scored the mark.

Q02aii – 95% of candidates scored the mark.

Q02aiii – 95% of candidates scored the mark.

Q02b – 48% of candidates scored all three marks with a further 34% scoring two marks. Most candidates were able to identify gas particles as having the highest amount of energy and that they were randomly arranged.

Question 3

Q03a – 47% of candidates were able to give the correct ion. This should be a recall question from the specification. Incorrect answers were very varied.

Q03b – 62% of candidates were able to provide a suitable pH value. Errors were usually for giving a pH linked to a strong alkali eg 12, or a weak acid.

Q03c – 64% of candidates were able to score the mark. The most common errors included potassium hydroxide or candidates trying to give a full word equation.

Q03d – 75% of candidates were able to score all three marks. The most common error was linked to candidates using a mixture of atomic numbers and mass numbers for the different elements in potassium carbonate.

Q03e – Just over half of candidates did not score on this question. 35% were able to score both marks. The most common incorrect answer was test tube D. Candidates described the darker colour in the tube and linked it to having had a greater reaction than the other options, rather than knowing that potassium carbonate is a soluble salt.

Question 4

Q04a – 40% of candidates scored both marks with a further 21% scoring one mark for selecting P. The most common error was to select Q. Candidates would then go on to explain that 100 °C was the boiling point for pure water rather than realising that P had the smallest range of temperatures.

Q04b – 26% of candidates scored the maximum of four marks with only 16% of candidates not scoring. M3 was the least scored mark with many candidates not being clear that the water **vapour** had to condense rather than just water condensing.

Question 5

Q05a – 85% of candidates scored both marks. Common errors included carbon dioxide or an acid.

Q05bi – 69% of candidates were able to identify galvanisation.

Q05bii – 45% of candidates scored both marks with 34% of candidates not scoring at all. Common misconceptions were linked to lower level responses of zinc being a barrier and preventing oxygen and water from reaching the iron.

Q05ci – 60% of candidates scored the mark. Neutralisation was a common incorrect answer.

Q05cii – 21% of candidates scored both marks while 70% of candidates did not score at all. This was usually due to an incorrect formula for iron. Many candidates started the equation correctly but then gave Fe₂ as one of the products. Another common error was not recognising the sulfate group as SO₄ and therefore using S incorrectly eg FeS.

This proved to be one of the more challenging questions for candidates.

Question 6

Q06a – 45% of candidates were able to correctly give the name of the homologous series. The most common incorrect answer was to state they were hydrocarbons.

Q06b – 24% of candidates were able to score all three marks but 47% of candidates did not score at all. Many candidates tried to link carbon dioxide as the cause for acid rain.

Q06ci – 60% of candidates scored both marks. Some candidates read the answer lines incorrectly and gave their responses the wrong way round.

Q06cii – 18% of candidates scored all three marks while 32% did not score at all. M1 was most likely to be scored.

Q06di – 66% of candidates scored both marks. Some candidates were confused between isomers and isotopes. Other candidates tried to state the same general formula instead of correctly stating the same molecular formula for M1.

Q06dii – 37% of candidates scored both marks while a further 35% of candidates scored one mark. Common errors were to include a double bond in at least one of the drawings or to draw 2-methyl-butane twice. Some also redrew pentane but with a 90° angle in the carbon chain with the misconception that this would show branching.

Question 7

Q07ai – 25% of candidates scored both marks but 64% of candidates did not score at all. Common misconceptions were linked to taking specific measurements eg measuring the volume of copper(II) sulfate. Very few candidates suggested M3.

This proved to be one of the more challenging questions for candidates.

Q07aii – 65% of candidates were able to score the mark for this question.

Q07aiii – 25% of candidates were able to score the mark for this question. There was a significant variation of suggested colour changes. Some errors were linked to the bromine water test for alkenes while others were linked to iodine.

This proved to be one of the more challenging questions for candidates.

Q07b – 52% of candidates were able to score either six or seven marks. The most common score was six. Common errors in part (i) were due to using an incorrect mass of solution. The most common error in part (ii) was to give an answer of +95.

Question 8

Q08a – 92% of candidates were able to give the correct answer.

Q08bi – 36% of candidates were able to give a suitable suggestion for a disadvantage often linked to cost or time. The most common error was to suggest the ore would be damaged during digging.

Q08bii – 72% of candidates scored both marks.

Q08biii-iv – 16% of candidates scored all four marks with 32% not scoring at all. Diagrams were often drawn with many different particle sizes rather than just two. Where labels were used, these were often incorrect i.e. copper particles drawn as being larger than tin particles. Candidates had access to a Periodic table which would show tin atoms as being larger than copper atoms. Candidates struggled to link less challenging content from the specification since there were often large gaps between particles that

should not be seen in a solid. Despite the information supplied in b(ii), candidates often drew far too many tin particles to give a reasonable representation of the alloy.

Candidates were generally better at the explanation in part (iv) than drawing the diagram for part (iii).

Question 9

Q09a – Only a third of candidates knew the correct answer. One of the more common errors was aqueous solution.

Q09bi – This was a question that candidates struggled with. Only 9% scored all six marks. Three marks or zero were the two most common scores. Suggested methods were varied although candidates usually knew that sodium chloride needed to be added to excess and that the volume of water needed to be a known volume. Descriptions of calculations were often confused.

Q09bii – 56% of candidates scored both marks but 41% of candidates did not score at all. A common error was to subtract the two masses stated in the question prior to dividing by 100.

Q09c – 65% of candidates scored this mark. A common error was to suggest the solute or the mass of the solute.

Q09d – 36% of candidates scored all three marks. A common error was to not rearrange the equation provided.

Question 10

Q10a – 15% of candidates scored both marks with a further 42% of candidates scoring one mark. M2 was least likely to be scored. Candidates often incorrectly stated that the oxidising agent was receiving oxygen.

Q10b – 26% of candidates scored all three marks but half of candidates did not score at all. Candidates found this a challenging question. Many did not know the correct formula for nitric acid or that water was formed during neutralisation.

Q10c – 52% of candidates scored all four marks, however 31% did not score at all. A common error was to try to complete a relative formula mass calculation.

