Examiners' Report
Principal Examiner Feedback

Summer 2025

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

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Question 1

Q01a – 85% of candidates were able to score all 3 marks. Where the maximum mark wasn't scored, it was usually due to candidates confusing the labels for the protons and neutrons since they had not taken notice of the charge for each particle in the nucleus.

Q01b – 68% of candidates scored the maximum of 4 marks. The most common error was the electronic configuration.

Q01c – Almost 90% of candidates were able to correctly identify the element from the information given in the question.

Question 2

Q02ai – 77% of candidates were able to correctly identify the position in the periodic table from the information given.

Q02aii – 86% of candidates were able to correctly identify the position in the periodic table as A. All grade 4 candidates were able to access this mark.

Q02aiii – 73% of candidates were able to correctly identify the position in the periodic table as A. This lower percentage compared to the two previous questions could be because of candidates not expecting to have a repeat of the correct letter in the multiple-choice questions.

Q02b – 79% of candidates were able to answer this correctly. Common misconceptions included the idea that as a gas neon would not be very reactive rather than linking to the full outer electron shell.

Q02ci – 92% of candidates stated a correct answer, with sodium being the most popular response. Errors were often linked to Group 2 metals or repeating either lithium or potassium from the stem of the question.

Q02cii – Almost half of the candidates scored 2 marks rather than the maximum of 3 marks. They usually scored M1 and M2 but missed out M3. Some candidates incorrectly stated that all the Group 1 elements had the same electron configuration which is incorrect chemistry and was rejected for M1.

Question 3

Q03a – 73% of candidates scored 1 mark with less than 10% gaining maximum marks. Candidates frequently scored M1 but then didn't give sufficient information for M2. They would often suggest the results would be ruined but without explaining how this would happen.

Q03b – 74% of candidates scored the maximum two marks. The most common incorrect answer was stating Y and Z which then scored 0 marks. Candidates incorrectly thought that the most soluble dyes were the ones that produced the greatest number of spots.

Q03c – 33% of candidates scored 3 marks with a further 36% scoring 2 marks. A common error was to state that W had one dye which could not be credited since this was a repeat of the question stem. Candidates needed to be clear that W had one spot or one dot.

Q03d – 43% of candidates scored the maximum 4 marks. Errors varied from incorrect measurements on the chromatogram to not giving an answer to the appropriate number of significant figures.

Question 4

Q04a – Over a quarter of candidates did not score at all with only 8% of candidates scoring the maximum of 6 marks. Despite the diagram showing a thermometer, many did not discuss the need to take multiple temperature readings. A significant number of candidates did not know the order of reactivity of the three metals, often placing iron as being more reactive than zinc, despite this knowledge being required for a different aspect of the specification around preventing rusting.

Q04b – 66% of candidates did not score at all. Many candidates were not able to give the correct formula for magnesium chloride, using MgCl instead of $MgCl_2$.

Q04c – 99% of candidates were able to identify magnesium as the Group 2 metal. This was the best answered question on the paper.

Question 5

Q05a – 45% of candidates were able to score all 3 marks. Many candidates did not pick up on the full instructions of the question to explain why butane was both saturated **and** a hydrocarbon. They often just explained one of the two parts of the statement therefore limiting their score to 1 or 2 marks depending on which aspect they answered.

Q05bi – 37% of candidates scored both marks. Errors were often due to the incorrect case of element symbols or incorrect use of subscripts eg Co_2 instead of CO_2 or H2o instead of H_2O.

Q05bii – 60% of candidates scored the mark. Common errors included carbon monoxide which had already been stated in the question, carbon dioxide or sulfur dioxide.

Q05biii – 66% of candidates were able to score with many giving higher level responses linked to haemoglobin. Errors were usually due to responses that were too vague or linked to the misconception that carbon monoxide damages the lungs.

Q05ci – 74% of candidates scored 2 marks. Some candidates were confused between isomers and isotopes, therefore stating the wrong definition. Other common errors included the idea that the structural formula was the same for isomers with a different displayed formula.

Q05cii – 68% of candidates scored 2 marks. Errors were due to drawing butane twice with a 90 angle in the chain rather than 2-methyl-propane. Some errors were due to an incorrect number of bonds in the molecule.

Question 6

Q06a – 65% of candidates scored 3 marks. The most common error was to use a relative mass of 14 rather than 28 for N_2.

Q06b – 76% of candidates were able to score both marks. Errors were varied, with candidates often overcomplicating the required calculation.

Q06ci – This was a question that proved challenging for most candidates. The most common score was 1 mark, usually for M1 to complete the unit conversion. Only 13% of candidates scored the maximum 5 marks. Many did not know how to give an answer in standard form.

Q06cii – 66% of candidates scored the maximum 3 marks. Errors were usually due to additional calculations with the numbers given in the question e.g. subtracting 3.65 from 5.10 prior to converting into a percentage.

Question 7

Q07a – 44% were able to score the maximum of 4 marks for this question. Many were able to correctly plot the values on the graph but then struggled to correctly draw a suitable curve of best fit and identify the anomaly. Candidates often incorrectly included the anomaly in their curve. Most candidates were able to determine a suitable value from the graph to score M4.

Q07b – The most common score was 2 marks with 31% of candidates achieving this score. Less than 10% of candidates scored the maximum 4 marks. Some candidates did not read the question carefully and gave their response in terms of barium nitrate particles rather than focusing on the water particles. Not all candidates were giving comparative responses.

Q07ci – 77% of candidates scored the maximum of 2 marks. Errors were usually due to incorrect information on electrons.

Q07cii – 78% of candidates scored the maximum of 2 marks. Where errors existed, they were usually because of candidates calculating an average of the masses given in the question or trying to do an empirical formula calculation.

Question 8

Q08a – Only 35% of candidates scored on this question. Many candidates stated that the steel was used due to being a good electrical conductor.

Q08b – 63% of candidates were able to score 3 out of 4 marks for this question. M1, M2 and M5 were most frequently scored. Very few candidates picked up marks for M3 and M4.

Q08c – Only 44% of candidates scored the maximum of 4 marks. Some candidates ignored the instruction not to use electrical cables in their response and consequently could only access half the marks. Common misconceptions were more likely to be linked to aluminium. Candidates would state that it was used in foil or pans and then state this was because the aluminium was a good insulator.

Question 9

Q09a – Only 28% of candidates scored all 3 marks. Many candidates were not able to correctly calculate the correct values for M1 and M2. Many then did the final subtraction the wrong way round so lost M3.

Q09b – Only 16% of candidates scored both marks. This is a standard definition, and candidates struggled to answer this. It proved to be the most challenging question on the paper for candidates.

Q09c – 68% of candidates scored both marks. Errors were usually for incorrect labelling of the levels or for drawing an endothermic energy level diagram.

Q09d – 62% of candidates scored both marks. The most common error was due to candidates dividing by 24 rather than multiplying by 24.

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