

Commentary on candidate evidence

Assessors awarded the candidate evidence contained in this pack the following marks for questions 1(b)(ii), 2(c)(ii), 3(c)(iii), 4(b), 5(a), (b) and (c), 7(c)(ii), 8(d), 9(a)(ii), 10(c)(ii), 11(b), c(ii)(A) and (c)(ii)(B) of the 2026 National 5 question paper, section 2.

Question 1(b)(ii)

Candidate 1

The candidate was awarded **0 marks** because they have not indicated that the relative atomic mass is an average.

Candidate 2

The candidate was awarded **1 mark** because they have correctly indicated that the relative atomic mass is an average.

Candidate 3

The candidate was awarded **0 marks** because they have not indicated that the relative atomic mass is an average.

Candidate 4

The candidate was awarded **0 marks** because they have not indicated that the relative atomic mass is an average.

Candidate 5

The candidate was awarded **0 marks** because they have not indicated that the relative atomic mass is an average.

Candidate 6

The candidate was awarded **1 mark** because they have given a correct response. Although they have not used the term 'average', they have given a correct description and so the mark is awarded.

Candidate 7

The candidate was awarded **1 mark** because they have correctly indicated that the relative atomic mass is an average.

Candidate 8

The candidate was awarded **1 mark** because they have correctly indicated that the relative atomic mass is an average.

Question 2(c)(ii)

Candidate 1

The candidate was awarded **0 marks** because they have incorrectly calculated the mass of the final product when a terpene reacts with hydrogen given the molar ratio and the mass of one mole of the terpene.

Candidate 2

The candidate was awarded **0 marks** because they have incorrectly calculated the mass of the final product when a terpene reacts with hydrogen given the molar ratio and the mass of one mole of the terpene.

Candidate 3

The candidate was awarded **0 marks** because they have incorrectly calculated the mass of the final product when a terpene reacts with hydrogen given the molar ratio and the mass of one mole of the terpene.

Candidate 4

The candidate was awarded **1 mark** because they have correctly calculated the mass of the final product when a terpene reacts with hydrogen given the molar ratio and the mass of one mole of the terpene.

Candidate 5

The candidate was awarded **1 mark** because they have correctly calculated the mass of the final product when a terpene reacts with hydrogen given the molar ratio and the mass of one mole of the terpene.

Candidate 6

The candidate was awarded **0 marks** because they have incorrectly calculated the mass of the final product when a terpene reacts with hydrogen given the molar ratio and the mass of one mole of the terpene.

Candidate 7

The candidate was awarded **0 marks** because they have incorrectly calculated the mass of the final product when a terpene reacts with hydrogen given the molar ratio and the mass of one mole of the terpene.

Candidate 8

The candidate was awarded **0 marks** because they have incorrectly calculated the mass of the final product when a terpene reacts with hydrogen given the molar ratio and the mass of one mole of the terpene.

Question 3(c)(iii)

Candidate 1

The candidate was awarded **0 marks** because they have identified a change in the experiment rather than a different measurement that could be taken to follow the progress of the reaction over time.

Candidate 2

The candidate was awarded **0 marks** because they have identified a different measurement that could be taken to follow the progress of the reaction over time, however the chosen measurement is not sufficiently accurate for a National 5 level response.

Candidate 3

The candidate was awarded **0 marks** because they have identified a change in mass as a different measurement that could be taken to follow the progress of the reaction over time however, they have specified that they would measure the mass of the limestone which is not possible and so the mark cannot be awarded.

Candidate 4

The candidate was awarded **0 marks** because they have identified a different measurement, however their chosen measurement would not allow the progress of the reaction over time to be followed.

Candidate 5

The candidate was awarded **1 mark** because they have identified a different measurement that would allow the progress of the reaction over time to be followed.

Candidate 6

The candidate was awarded **0 marks** because they have identified a different measurement, however their chosen measurement would not allow the progress of the reaction over time to be followed.

Candidate 7

The candidate was awarded **1 mark** because they have identified a different measurement that would allow the progress of the reaction over time to be followed.

Candidate 8

The candidate was awarded **0 marks** because they have given an incorrect response.

Question 4(b)

Candidate 1

The candidate was awarded **0 marks** because they have drawn a structure with all the correct atoms, however they have not included a double carbon to carbon bond and so the mark was not awarded.

Candidate 2

The candidate was awarded **0 marks** because they have drawn an incorrect structure.

Candidate 3

The candidate was awarded **0 marks** because they have attempted to draw a structure with the ester link shortened. Whilst they have all the correct atoms, the bond to the ester link must be to the oxygen atom and so the structure is incorrect.

Candidate 4

The candidate was awarded **1 mark** because they have drawn a correct structure for the other monomer used to make PEVA.

Candidate 5

The candidate was awarded **0 marks** because they have not drawn the monomer correctly; they have omitted the oxygen atom in the ester link.

Candidate 6

The candidate was awarded **0 marks** because they have not drawn the monomer correctly, the carbon in the ester link is not written as a capital 'C' and the number 3 on the methyl group is in the wrong position.

Candidate 7

The candidate was awarded **1 mark** because they have drawn a correct structure for the other monomer used to make PEVA.

Candidate 8

The candidate was awarded **1 mark** because they have drawn a correct structure for the other monomer used to make PEVA.

Question 5(a)

Candidate 1

The candidate was awarded **2 marks** because they have incorrectly calculated the energy absorbed by the water but can be awarded partial marks.

The candidate has used a correct concept of $cm\Delta T$ with a value of 4.18, so can be awarded this partial mark. They have stated an incorrect value for the mass of water used and an incorrect temperature change. As the candidate has used a correct concept and has correctly calculated from incorrect data, they can be awarded 1 mark for arithmetic follow through.

Candidate 2

The candidate was awarded **3 marks** because they have correctly calculated the energy absorbed by the water.

Candidate 3

The candidate was awarded **2 marks** because they have incorrectly calculated the energy absorbed by the water but can be awarded partial marks.

The candidate has used a correct concept of $cm\Delta T$ with a value of 4.18, so can be awarded this partial mark. They have stated an incorrect value for the mass of water used. As the candidate has used a correct concept and has correctly calculated from an incorrect mass of water, they can be awarded 1 mark for arithmetic follow through.

Candidate 4

The candidate was awarded **3 marks** because they have correctly calculated the energy absorbed by the water.

Candidate 5

The candidate was awarded **2 marks** because they have incorrectly calculated the energy absorbed by the water but can be awarded partial marks.

The candidate has used a correct concept of $cm\Delta T$ with a value of 4.18, so can be awarded this partial mark. They have stated an incorrect value for the mass of water used. As the candidate has used a correct concept and has correctly calculated from an incorrect mass of water, they can be awarded 1 mark for arithmetic follow through.

Candidate 6

The candidate was awarded **2 marks** because they have incorrectly calculated the energy absorbed by the water but can be awarded partial marks.

The candidate has used a correct concept of $cm\Delta T$ with a value of 4.18, so can be awarded this partial mark. They have stated an incorrect value for the mass of water used. As the candidate has used a correct concept and has correctly calculated from an incorrect mass of water, they can be awarded 1 mark for arithmetic follow through.

Candidate 7

The candidate was awarded **3 marks** because they have correctly calculated the energy absorbed by the water. The candidate's answer has been rounded correctly to have no decimal places.

Candidate 8

The candidate was awarded **2 marks** because they have incorrectly calculated the energy absorbed by the water but can be awarded partial marks.

The candidate has used a correct concept of $cm\Delta T$ with a value of 4.18, so can be awarded this partial mark. They have stated an incorrect value for the mass of water used. As the candidate has used a correct concept and has correctly calculated from an incorrect mass of water, they can be awarded 1 mark for arithmetic follow through.

Question 5(b)

Candidate 1

The candidate was awarded **0 marks** because they have given an incorrect response.

Candidate 2

The candidate was awarded **1 mark** because they have correctly identified that the polystyrene will prevent heat loss to the surroundings.

Candidate 3

The candidate was awarded **0 marks** because they have given an incorrect response. They have stated that energy is able to be lost to the surroundings rather than prevented.

Candidate 4

The candidate was awarded **1 mark** because they have correctly identified that the polystyrene will prevent heat loss to the surroundings. They have also identified that the reason for this is that it is a better insulator than glass. Either of these responses would have been sufficient to award the mark.

Candidate 5

The candidate was awarded **1 mark** because they have correctly identified that the polystyrene 'holds heat better'.

Candidate 6

The candidate was awarded **1 mark** because they have correctly identified that the polystyrene will let less heat escape than a glass beaker will.

Candidate 7

The candidate was awarded **1 mark** because they have correctly identified that the polystyrene will prevent heat loss to the surroundings.

Candidate 8

The candidate was awarded **0 marks** because they have given an incorrect response.

Question 5(c)

Candidate 1

The candidate was awarded **1 mark** because they have correctly completed the scales on both axes, so the first mark has been awarded. They have not plotted the point for 0 g and have not completed a line of best fit, so cannot be awarded the second mark.

Candidate 2

The candidate was awarded **1 mark** because they have correctly completed the scales on both axes, so the first mark has been awarded. They have not plotted the point for 0 g and their line of best fit is incorrect, so cannot be awarded the second mark.

Candidate 3

The candidate was awarded **1 mark** because they have correctly completed the scales on both axes, so the first mark has been awarded. They have correctly plotted all points and have drawn a line of best fit however the line of best fit does not cover the entire data set as it starts out with a half box of the first point at 0 g, so cannot be awarded the second mark.

Candidate 4

The candidate was awarded **1 mark** because they have correctly completed the scales on both axes, so the first mark has been awarded. They have correctly plotted all points however they have not drawn a line of best fit, so cannot be awarded the second mark.

Candidate 5

The candidate was awarded **1 mark** because they have correctly completed the scales on both axes, so the first mark has been awarded. They have not plotted the point for 0 g and their line of best fit is incorrect, so cannot be awarded the second mark.

Candidate 6

The candidate was awarded **1 mark** because they have correctly completed the scales on both axes, so the first mark has been awarded. They have plotted all points correctly but have feathering in their line of best fit, so cannot be awarded the second mark.

Candidate 7

The candidate was awarded **1 mark** because they have only given a correctly completed scale on the x-axis, so the first mark was not awarded. No scale present on the y-axis would ordinarily mean that the accuracy of plotting cannot be awarded but, in this question, the candidate has been given two points already plotted and so it is possible to check the accuracy of their points against the two given points. They have plotted all points correctly and have a line of best fit and so the second mark has been awarded.

Candidate 8

The candidate was awarded **1 mark** because they have correctly completed the scales on both axes, so the first mark has been awarded. They have plotted all points correctly but have feathering in their line of best fit, so the second mark was not awarded.

Question 7(c)(ii)

Candidate 1

The candidate was awarded **1 mark** because they have correctly drawn the structure of the expected product.

Candidate 2

The candidate was awarded **0 marks** because they have incorrectly drawn the structure of the expected product. The bond connectivity to the lower left ethyl group is incorrect as it should go to the carbon atom.

Candidate 3

The candidate was awarded **0 marks** because they have incorrectly drawn the structure of the expected product. The bond connectivity to the lower left ethyl group and to both methyl groups are incorrect as the bonds should go to the carbon atoms.

Candidate 4

The candidate was awarded **0 marks** because they have incorrectly drawn the structure of the expected product. The bond connectivity to the lower left ethyl group, as well as the first methyl group, are incorrect as the bonds should go to the carbon atoms.

Candidate 5

The candidate was awarded **0 marks** because they have incorrectly drawn the structure of the expected product. The bond connectivity to the lower left ethyl group is incorrect as it should go to the carbon atom.

Candidate 6

The candidate was awarded **1 mark** because they have correctly drawn the structure of the expected product. The bond to the lower left ethyl group is very close to being incorrect but is taken to just be in line with the carbon.

Candidate 7

The candidate was awarded **0 marks** because they have incorrectly drawn the structure of the expected product. The bond connectivity to the lower left ethyl group as well as the methyl groups are incorrect as the bonds should go to the carbon atoms.

Candidate 8

The candidate was awarded **0 marks** because they have incorrectly drawn the structure of the expected product. The bond connectivity to the first methyl group is incorrect as the bond should go to the carbon atoms.

Question 8(d)

Candidate 1

The candidate was awarded **0 marks** because they have given an incorrect response.

Candidate 2

The candidate was awarded **1 mark** because they have correctly identified why the formation of radium and polonium from uranium must include alpha decay.

Candidate 3

The candidate was awarded **0 marks** because they have given an incorrect response.

Candidate 4

The candidate was awarded **0 marks** because they have given an incorrect response. Whilst they have initially identified that alpha radiation consists of protons and neutrons, they go on to describe the loss of helium nuclei with an incorrect nuclide notation. They also describe how a decrease in the 'atomic mass number' rather than the atomic number results in the atom changing to polonium or radium, so the mark cannot be awarded.

Candidate 5

The candidate was awarded **0 marks** because they have given an incorrect response.

Candidate 6

The candidate was awarded **0 marks** because they have given an incorrect response. Both nuclear decay equations are incorrect, so the mark cannot be awarded.

Candidate 7

The candidate was awarded **1 mark** because they have correctly identified why the formation of radium and polonium from uranium must include alpha decay.

Candidate 8

The candidate was awarded **0 marks** because they have given an incorrect response.

Question 9(a)(ii)

Candidate 1

The candidate was awarded **1 mark** because they have correctly identified that the ions are free to move.

Candidate 2

The candidate was awarded **0 marks** because they have given an incorrect response. There is no indication that the ions are free to move.

Candidate 3

The candidate was awarded **0 marks** because they have given an incorrect response. There is no indication that the charged particles that are free to move are ions.

Candidate 4

The candidate was awarded **0 marks** because they have given an incorrect response.

Candidate 5

The candidate was awarded **0 marks** because they have given an incorrect response.

Candidate 6

The candidate was awarded **1 mark** because they have correctly identified that the ions are free to move.

Candidate 7

The candidate was awarded **0 marks** because they have given an incorrect response.

Candidate 8

The candidate was awarded **0 marks** because they have given an incorrect response.

Question 10(c)(ii)

Candidate 1

The candidate was awarded **1 mark** because they have correctly identified a more appropriate way to heat the reaction mixture.

Candidate 2

The candidate was awarded **0 marks** because they have given an incorrect response. A heat lamp is not an appropriate piece of laboratory equipment for National 5 Chemistry.

Candidate 3

The candidate was awarded **1 mark** because they have correctly identified a more appropriate way to heat the reaction mixture.

Candidate 4

The candidate was awarded **0 marks** because they have given an incorrect response. An electric stove is not an appropriate piece of laboratory equipment for National 5 Chemistry.

Candidate 5

The candidate was awarded **0 marks** because they have given an incorrect response. A heated spatula is not an appropriate piece of laboratory equipment for National 5 Chemistry.

Candidate 6

The candidate was awarded **1 mark** because they have correctly identified a more appropriate way to heat the reaction mixture.

Candidate 7

The candidate was awarded **0 marks** because they have given an incorrect response.

Candidate 8

The candidate was awarded **0 marks** because they have given an incorrect response.

Question 11(b)

Candidate 1

The candidate was awarded **0 marks** because they have given an incorrect response. The candidate has not identified the presence of hydrogen ions.

Candidate 2

The candidate was awarded **0 marks** because they have given an incorrect response. The candidate has not identified the presence of hydrogen ions.

Candidate 3

The candidate was awarded **0 marks** because they have given an incorrect response. The candidate has not identified the presence of hydrogen ions.

Candidate 4

The candidate was awarded **0 marks** because they have given an incorrect response. The candidate has not identified the presence of hydrogen ions.

Candidate 5

The candidate was awarded **1 mark** because they have given a correct response. The candidate has identified the presence of hydrogen ions.

Candidate 6

The candidate was awarded **1 mark** because they have given a correct response. The candidate has identified the presence of hydrogen ions.

Candidate 7

The candidate was awarded **0 marks** because they have given an incorrect response. The candidate has not identified the presence of hydrogen ions.

Candidate 8

The candidate was awarded **0 marks** because they have given an incorrect response. The candidate has given a good description of an acid but has not identified the presence of hydrogen ions in the equations.

Question 11(c)(ii)(A)

Candidate 1

The candidate was awarded **0 marks** because they have given an incorrect response, so partial marks should be considered. The candidate has carried out the calculation as laid out in the marking instructions as method B although, the two sides have been multiplied rather than made equal.

The top line of the calculation is incorrect as the concentration of potassium permanganate has been paired with the volume of iron tablet solution, whilst C_2 has not been included in the calculation. The molar ratio is incorrect as a '5' has been used on both sides. Since neither of the concept marks have been awarded, it is not possible to award any marks for arithmetical follow through.

Candidate 2

The candidate was awarded **0 marks** because they have given an incorrect response, so partial marks should be considered. The candidate has carried out the calculation as laid out in the marking instructions as method A.

The candidate has incorrectly used the concentration of the potassium permanganate as the number of moles. As the number of moles used in the calculation is not a calculated number, it is not possible to award any marks.

Candidate 3

The candidate was awarded **1 mark** because they have given an incorrect response, so partial marks should be considered. The candidate has carried out the calculation as laid out in the marking instructions as method A.

The candidate has correctly calculated the number of moles of potassium permanganate and so 1 mark can be awarded. The molar ratio is applied incorrectly as 5:1 rather than 1:5. The final calculated concentration is correct for the number of moles that were calculated in the second step however, the candidate has presented their final answer with an incorrect unit and so the partial mark for the final step cannot be awarded. This penalty is only applied once per paper.

Candidate 4

The candidate was awarded **0 marks** because they have given an incorrect response, so partial marks should be considered. The candidate has carried out the calculation as laid out in the marking instructions as method A.

The candidate has incorrectly used the stoichiometric coefficient for the iron ions as the number of moles. As the number of moles used in the calculation is not a calculated number, it is not possible to award any marks.

Candidate 5

The candidate was awarded **3 marks** because they have correctly calculated the concentration of the iron ions in the solution.

Candidate 6

The candidate was awarded **2 marks** because they have carried out the calculation correctly, however they have presented their final answer with an incorrect unit so partial marking should be considered. The candidate has carried out the calculation as laid out in the marking instructions as method A.

They have correctly calculated the number of moles of potassium permanganate and so the first partial mark was awarded. They have then correctly applied the molar ratio and so the second partial mark is awarded. The final answer includes the incorrect unit and so the partial mark for the final step cannot be awarded. This penalty is only applied once per paper.

Candidate 7

The candidate was awarded **1 mark** because they appear to have the correct answer, but their answer is not supported by their working, so partial marking should be considered. The candidate has carried out the calculation as laid out in the marking instructions as method A.

The candidate has incorrectly calculated the number of moles of potassium permanganate as they have used the incorrect volume and so the first partial mark is not awarded. They have then correctly applied the molar ratio and so the second partial mark was awarded. The final step in their calculation does not carry through the value calculated in the previous step and is not correct for the calculation shown so the final mark cannot be awarded.

Candidate 8

The candidate was awarded **2 marks** because they have given an incorrect response, so partial marks should be considered. The candidate has carried out the calculation as laid out in the marking instructions as method A.

The candidate has incorrectly calculated the number of moles of potassium permanganate as they have used the incorrect volume and so the first partial mark is not awarded. They have then correctly applied the molar ratio and so the second partial mark was awarded. The final step in their calculation has been correctly calculated for the number of moles of iron ions calculated in the previous step and so the final partial mark was awarded.

Question 11(c)(ii)(B)

Candidate 1

The candidate was awarded **0 marks** because they have given an incorrect response. The candidate has not identified that there is a colour change during the reaction.

Candidate 2

The candidate was awarded **0 marks** because they have given an incorrect response. The candidate has not identified that there is a colour change during the reaction.

Candidate 3

The candidate was awarded **0 marks** because they have given an incorrect response. The candidate has not identified that there is a colour change during the reaction.

Candidate 4

The candidate was awarded **1 mark** because they have correctly identified that there is a colour change during the reaction.

Candidate 5

The candidate was awarded **1 mark** because they have correctly identified that there is a colour change during the reaction.

Candidate 6

The candidate was awarded **1 mark** because they have correctly identified that there is a colour change during the reaction.

Candidate 7

The candidate was awarded **0 marks** because they have given an incorrect response. The candidate has not identified that there is a colour change during the reaction.

Candidate 8

The candidate was awarded **1 mark** because they have correctly identified that there is a colour change during the reaction.