

Commentary on candidate evidence

The candidate evidence has achieved the following marks for each question in this course component.

Question 4(d)

Candidate 1

The candidate was awarded **0 marks**.

The candidate has given a less than limited response. The candidate has not demonstrated, at the appropriate Advanced Higher level, an understanding of the chemistry involved.

Candidate 2

The candidate was awarded **0 marks**.

The candidate has given a less than limited response. The candidate has not demonstrated, at the appropriate Advanced Higher level, an understanding of the chemistry involved.

Candidate 3

The candidate was awarded **1 mark**.

The candidate has given a limited response. The candidate has demonstrated, at the appropriate Advanced Higher level, a limited understanding of the chemistry involved. They have made some statements that are relevant to the situation, showing that they have understood at least a little of the chemistry within the context. They have made general comments such as 'a strong acid and weak base would make an acidic salt' and they have described the effect on urine if these acidic salts were present. They have also given similar statements for the presence of alkaline salts.

Candidate 4

The candidate was awarded **1 mark**.

The candidate has given a limited response. The candidate has demonstrated, at the appropriate Advanced Higher level, a limited understanding of the chemistry involved. They have made some statements that are relevant to the situation, showing that they have understood at least a little of the chemistry within the context. They have made some comments about weak bases, given a definition of a weak base and some general examples.

Candidate 5

The candidate was awarded **1 mark**.

The candidate has given a limited response. The candidate has demonstrated, at the appropriate Advanced Higher level, a limited understanding of the chemistry involved. They have made some statements that are relevant to the situation, showing that they have understood at least a little of the chemistry within the context, however, there are misconceptions such as confusing acid strength and concentration. They have made a comment linking the K_a value for ammonia, correctly retrieved from the data book, with basicity.

Candidate 6

The candidate was awarded **1 mark**.

The candidate has given a limited response. The candidate has demonstrated, at the appropriate Advanced Higher level, a limited understanding of the chemistry involved. They have made some statements that are relevant to the situation, showing that they have understood at least a little of the chemistry within the context. They have made a comment describing bases as accepting protons and they have stated that carboxylic acids will lower pH due to partial dissociation.

Candidate 7

The candidate was awarded **2 marks**.

The candidate has given a reasonable response. The candidate has demonstrated, at the appropriate Advanced Higher level, a reasonable understanding of the chemistry involved. They have made some statements that are relevant to the situation, showing that they understand the context. They have described weak acids and bases as partially dissociating in solution. They have attempted to explain the pH of salts and have made a brief comment about buffers.

Candidate 8

The candidate was awarded **3 marks**.

The candidate has given a good response. The candidate has demonstrated, at the appropriate Advanced Higher level, a good comprehension of the chemistry of the situation. They have described weak acids and bases as partially dissociating in solution and provided examples of each and they have given a brief mention of the pH of salts. They have discussed the water equilibrium and given the expression for K_w along with its value at 25 °C, explaining that the value would be affected by temperature. They have attempted to expand on this with body temperature.

Candidate 9

The candidate was awarded **3 marks**.

The candidate has given a good response. The candidate has demonstrated, at the appropriate Advanced Higher level, a good comprehension of the chemistry of the situation. They have described weak acids but have confused dissolving with dissociation, however, they have given an equation for its dissociation. They have given an explanation as to why amine groups are basic, giving an equation to demonstrate this. They have given a brief mention of the dissociation of water with its value at 25 °C and discussed the pH of salts.

Question 9

Candidate 1

The candidate was awarded **0 marks**.

The candidate has given a less than limited response. The candidate has not demonstrated, at the appropriate Advanced Higher level, an understanding of the chemistry involved. While atomic emission spectroscopy is at Advanced Higher level it does not demonstrate that the candidate has recognised the area of chemistry involved.

Candidate 2

The candidate was awarded **0 marks**.

The candidate has given a less than limited response. The candidate has not demonstrated, at the appropriate Advanced Higher level, an understanding of the chemistry involved. Although the candidate has recognised that the area of chemistry is within the synthesis topic, they have given no correct statements to support this.

Candidate 3

The candidate was awarded **1 mark**.

The candidate has given a limited response. The candidate has demonstrated, at the appropriate Advanced Higher level, a limited understanding of the chemistry involved. They have made a statement suggesting identification of the products by infrared spectroscopy, showing that they have understood at least a little of the chemistry within the context.

Candidate 4

The candidate was awarded **1 mark**.

The candidate has given a limited response. The candidate has demonstrated, at the appropriate Advanced Higher level, a limited understanding of the chemistry involved. They have made some statements that are relevant to the situation, showing that they have understood at least a little of the chemistry within the context. They have given a reaction scheme with named structures and suggested the type of reaction taking place.

Candidate 5

The candidate was awarded **1 mark**.

The candidate has given a limited response. The candidate has demonstrated, at the appropriate Advanced Higher level, a limited understanding of the chemistry involved. They have made some statements that are relevant to the situation, showing that they have understood at least a little of the chemistry within the context. The candidate has given a comprehensive list of general reactions, however, the majority are not relevant to the context of the question. Of those given, they have identified alcohol or alkene as possible products. They have named one of these reactions as elimination.

Candidate 6

The candidate was awarded **2 marks**.

The candidate has given a reasonable response. The candidate has demonstrated, at the appropriate Advanced Higher level, a reasonable understanding of the chemistry involved. They have made some statements that are relevant to the situation, showing that they understand the context. The candidate has given a selection of reactions involving haloalkanes, two of which are relevant to the context. They have named both and given a product for one. They have also given a brief overview of three different types of instrumental analysis suitable for identifying organic compounds.

Candidate 7

The candidate was awarded **2 marks**.

The candidate has given a reasonable response. The candidate has demonstrated, at the appropriate Advanced Higher level, a reasonable understanding of the chemistry involved. They have made some statements that are relevant to the situation, showing that they understand the context. The candidate has given a response that focusses on the analysis and identification of the mixture of products formed. They have listed four different types and have given an overview of how useful three of these could be in identification.

Candidate 8

The candidate was awarded **3 marks**.

The candidate has given a good response. The candidate has demonstrated, at the appropriate Advanced Higher level, a good comprehension of the chemistry of the situation.

The candidate has given a structural equation, named as base induced elimination with reaction conditions and named the elimination products. They have discussed how these two products could be identified by combination of NMR, elemental microanalysis, boiling point and TLC.