

Advice for teachers

- The breadth and depth of content expected has been defined by previous examinations. Teachers could carefully consider the past examinations to offer guidance as to the extent to which each item should be taught.
- It should be remembered that it is the intention of the examining panel that new contexts be presented to encourage application and understanding rather than rote-learning of facts.
- Details of the mathematical skills expected of candidates are listed in the syllabus and opportunities should be presented to enable these skills to develop.

Comments on specific sections and questions

Section One: Multiple-choice (20 Marks)

The multiple-choice questions were intended to cover a broad range of syllabus. Unlike previous years no question achieved a 100% result. The highest scoring questions, were those that aligned most closely with the syllabus requiring little interpretation: Questions 6, 14, 15 and 16 all achieved over 85%. Questions 3, 4, 5, 12 and 20 all achieved less than 40% correct answers. These were generally questions requiring interpretation and application.

Question 3 was a Science Inquiry Skills section question. Most candidates chose distractor (a) suggesting that 'An experiment is valid if it produces data that is accurate and reliable' and demonstrating they were unaware of the meaning of the term 'valid'. In Question 4 many candidates seemed not to understand the effects of the polarity of water molecules. Many wrongly chose (b) or (d). In Question 5 many candidates incorrectly chose (c) or (d). The development of new technologies should have been apparent with the uptake of solar panels and electric cars on the horizon. Question 12 involved understanding the low pH is high acidity and it involved reading information from a graph. Incorrect answers (a), (b) and (d) were equally chosen. In Question 20 the role of a hydrogen fuel cell was not understood and few realised that it would replace a battery in a vehicle. Many suggested it would replace the engine.

Question 19 scored 42%. This was a difficult question as candidates knew radioactive materials must be stored for a long time but how long? Items (c) and (d) were the most often chosen.

Section Two: Short response (50 Marks)

It was pleasing to note that the most successful parts of Section Two involved data presentation and graphical interpretation. Questions involving more critical understanding of fact in context was less successful. The syllabus identifies the role of mathematics in science and this was explored in this section. Candidates often found difficulty in processing multiple pieces of numerical data.

Section Three: Extended response (30 Marks)

Section Three offered two questions, one on a geographical context and the other on experiment design. The former was successful for most candidates with some exceptional results. As would be expected, the questions based on higher order thinking from Bloom's taxonomy were the least successful. Candidates had difficulty with the experimental design question which incorporated ideas such as hypothesis, data manipulation, safety issues and random error. It would appear that some candidates were unfamiliar with safety considerations and had ethics been raised it might also have been seen as foreign. It would appear that the limited mathematical offerings in the syllabus are causing difficulty.