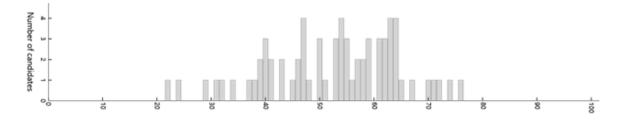




Summary report of the 2019 ATAR course examination: Integrated Science

Year	Number who sat	Number of absentees
2019	68	3
2018	79	0
2017	86	7
2016	98	2

Examination score distribution–Written



Summary

Attempted by 68 candidates

Mean 52.36% Max 75.92% Min 22.17%

The examination provided both a wide coverage of the syllabus and the opportunity for candidates to demonstrate a range of levels of competency. The examination appeared to have been of appropriate length and difficulty with almost all candidates attempting every question.

Section means were:			
Section One: Multiple-choice	Mean 65.96%		
Attempted by 68 candidates	Mean 13.19(/20)	Max 19.00	Min 7.00
Section Two: Short response	Mean 48.77%		
Attempted by 68 candidates	Mean 24.39(/50)	Max 37.20	Min 6.40
Section Three: Extended response	Mean 49.28%		
Attempted by 68 candidates	Mean 14.78(/30)	Max 22.09	Min 2.73

General comments

Santian maana wara

The examination showed that candidates had studied the core 'Science understandings' and demonstrated excellent knowledge in areas such as food webs, drawing a graph, reproducing the water cycle, and explaining how photovoltaic (PV) units operate. However, many candidates experienced difficulty in the content area 'Science inquiry skills' of the syllabus. Some of the sections understood poorly included ethics, systematic and random errors, experimental design, validity, and, discrete versus continuous data. These items are largely part of 'Science inquiry skills' and questions related to this area achieved results between 12% and 24%. Few calculation questions were offered, and candidates achieved results close to 70%.

Advice for candidates

- Realise that the syllabus incorporates 'Science understanding', 'Science inquiry skills' and 'Science as a human endeavour'.
- Statements and words in the syllabus are examinable. For example 'design investigations, including the procedure(s) to be followed, the materials required, and the

type and amount of primary and/or secondary data to be collected; conduct risk assessments; and consider research ethics, including animal ethics'. Candidates must understand the meaning of the sentence as well as knowing the meaning of terms such as 'primary data',' risk assessment', and the difference between 'research ethics' and 'animal ethics'.

Advice for teachers

- The breadth and depth of content expected has been defined by previous examinations. Teachers should carefully consider past examinations to guide the extent to which each item should be taught.
- Teachers might find it helpful to prepare a summary of essential terms from the syllabus to act as a checklist for students.
- The syllabus provides a useful glossary that will assist with a common understanding of terms.

Comments on specific sections and questions Section One: Multiple-choice (20 Marks)

The Multiple-choice section of the examination was the most successful. All candidates completed every question in this section. Questions 1, 2, 5, 11 and 17 were the most successfully completed with over 85% identifying the correct answer. Question 13 dealt with mechanisms of heat transfer and was answered correctly by only 28% of candidates. Questions 3, 8, 12, 14 and 15 were answered correctly by fewer than 50% of candidates.

Section Two: Short response (82 Marks)

Candidates were able to process data scientifically and represent it for a range of audiences. Terminology presented difficulties for some candidates and more attention should be paid to terms such as reliability, validity, primary and/or secondary data, risk assessments, continuous/discrete data and research ethics and animal ethics. Candidates often produced answers with little structure that never quite answered the question and/or were often repetitious. The more capable candidates showed a logical sequence in their responses that clearly linked to the question. Some candidates rewrote the question as the introduction to their response; a practice that earns no marks. Similarly, calculations often lacked detail. Calculations should be clear in showing how an answer was developed.

Section Three: Extended response (55 Marks)

Nearly every candidate completed all the questions in this section. Section Three offered candidates the opportunity to demonstrate skills in interpretation of novel situations. The nature of science, its methodologies, investigations and hypotheses were examined and generally, the responses were not strong. An understanding of terminology and concepts was required and the ability to identify weaknesses and strengths in experimental technique. Data provided was required in higher order interpretations. This proved difficult for some candidates. Most candidates preferred direct recall questions.