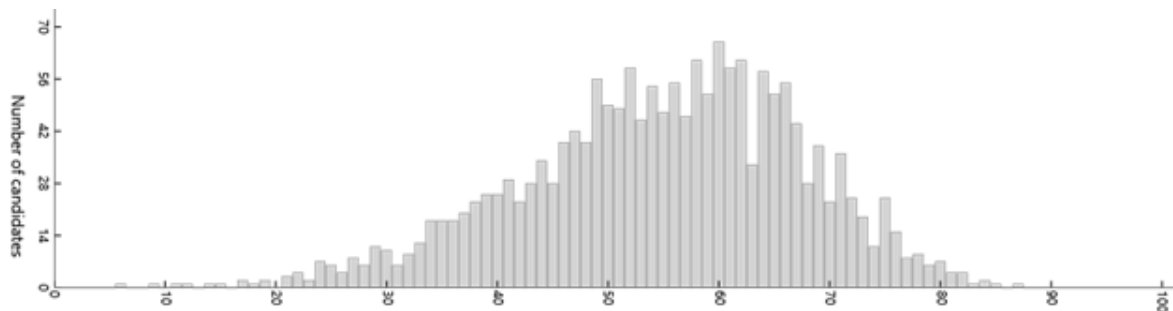




## Summary report of the 2019 ATAR course examination: Biology

Year	Number who sat	Number of absentees
2019	1769	21
2018	1835	29
2017	1810	20
2016	1822	30

### Examination distribution–Written



### Summary

Attempted by 1769 candidates                      Mean 54.64%                      Max 86.50%                      Min 6.00%

The examination paper had three sections. Section One comprised 30 multiple-choice questions, Section Two comprised five short answer questions and Section Three comprised two extended answer questions from Unit 3 and two from Unit 4. Candidates were required to answer all questions in Sections One and Two, and one question from each of Units 3 and 4 in Section Three. The examination was attempted by 1769 candidates and had a mean of 54.64%. Scores ranged from a minimum of 6.00% to a maximum of 86.50%.

Section means were:

Section One: Multiple-choice	Mean 69.29%		
Attempted by 1769 candidates	Mean 20.79(/30)	Max 30.00	Min 6.00
Section Two: Short answer	Mean 51.34%		
Attempted by 1768 candidates	Mean 25.67(/50)	Max 42.25	Min 0.50
Section Three: Extended answer Unit 3	Mean 40.75%		
Attempted by 1745 candidates	Mean 4.08(/10)	Max 8.75	Min 0.00
Section Three: Extended answer Unit 4	Mean 42.32%		
Attempted by 1745 candidates	Mean 4.23(/10)	Max 8.75	Min 0.00

### General comments

Generally, candidates were well prepared and most attempted all questions. The overall mean was lower than in the 2018 and 2017 examinations. Means were lower across all sections of the 2019 examination compared with previous examinations. An increase in the difficulty of the multiple-choice questions (given the relatively high means in past examinations) and a more prescriptive marking key (with the aim of improving discrimination) may have contributed towards the lower mean. More questions in Sections Two and Three were open-ended or required an application of knowledge.

### Advice for candidates

- Develop an in-depth understanding of important concepts.

- Read the question carefully and make sure that you answer the question asked. Take particular care with the extended answer questions in Section Three which often have subtle components that require attention.
- Communicate clearly in your written answers.
- Use formal and precise language and scientific terminology.
- Include units with quantitative data (e.g. when reporting data from a graph or table).

#### *Advice for teachers*

- Prepare students to provide in-depth answers about the life cycle, impact, mode of transmission, spread and management for all of the pathogens/diseases in the syllabus.
- Instruct students how to answer questions according to the instructional verb in the question (e.g. state, define, discuss, explain).
- Give students practise at decoding questions.
- Prepare students to provide coherent answers to extended answer questions in Section Three (e.g. where information is logically organised, connects different points and demonstrates an understanding of key concepts).
- Prepare students to apply their understanding of key concepts in a range of contexts.

#### **Comments on specific sections and questions**

Candidates answered the multiple-choice questions well. Candidates also did reasonably well with the short answer questions but had more difficulty with the extended answer questions in both units.

#### **Section One: Multiple-choice (30 Marks)**

Candidates performed well in this section. All candidates attempted every question. All candidates answered no question correctly. Questions 2, 16, 19, and 29 had means of 90% or above. There was no common theme to these questions. Question 2 tested factual recall from Unit 3, Question 16 required an application of knowledge from Unit 4, Question 19 required a calculation and Question 29 required interpretation of data in a graph.

Questions 4, 9 and 22 had means of 50% or less. Question 4 required candidates to understand that a virus relies on the host cell to synthesise viral proteins and nucleic acids. The majority of incorrect answers indicated that a virus could synthesise both proteins and nucleic acids. Question 9 required candidates to identify that mammals excrete their nitrogenous waste in the form of urea. The majority of incorrect answers suggested that desert mammals excrete uric acid and other mammals excrete urea. Question 22 required candidates to realise that a mutation in a DNA sequence that results in the substitution of one amino acid for another in a protein product produces a new allele. The majority of incorrect answers suggested that the mutation/substitution would result in a new gene.

#### **Section Two: Short answer (100 Marks)**

The maximum for this section was 84.50%; however, the maximum for Question 31 was 100.00% and Question 34 was 90%. The means for each of the other questions ranged from 65.69% for Question 32 to 37.66% in Question 35.

#### **Section Three: Extended answer Unit 3 (20 Marks)**

The extended answer questions in Unit 3 had a mean of 40.75%. Question 36 (41.89%) had a slightly higher mean than Question 37 (38.19%) and was the most popular question.

#### **Section Three: Extended answer Unit 4 (20 Marks)**

Overall, candidate performance was similar in the extended answer questions in Unit 4 (42.32%) and Unit 3 (40.75%). Question 38 was more popular than Question 39 and had a higher mean (44.76% and 37.52% respectively).