

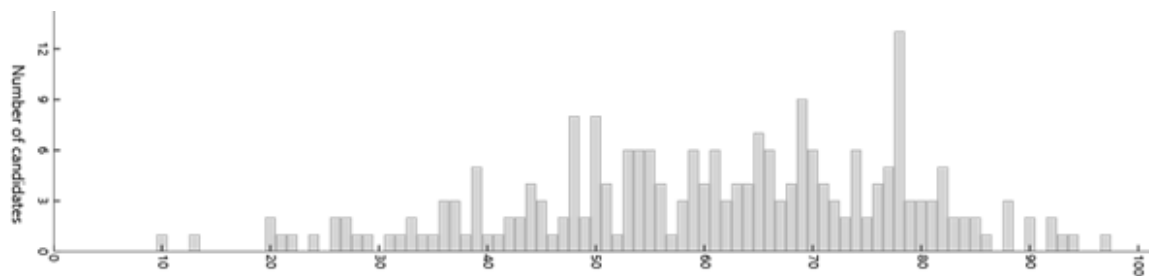


Summary report of the 2020 ATAR course examination: Engineering Studies

Year	Number who sat	Number of absentees
2020	228	5
2019	198	3
2018	240	2
2017	178	3

The number of candidates sitting and the number attempting each section of the examination can differ as a result of non-attempts across sections of the examination.

Examination score distribution—Written



Summary

The examination covered a large amount of the syllabus in both the core and specialist areas. Feedback received indicated that the questions were structured and set well. Some questions proved to be straightforward; however, there were ample discriminators to differentiate among candidate ability.

Attempted by 228 candidates Mean 57.48% Max 95.90% Min 9.46%

Section means were:

Section One: Core content Part A: Multiple-choice

Mean 70.66%

Attempted by 228 candidates

Mean 7.07(/10)

Max 10.00

Min 3.00

Section One: Core content Part B: Extended answer

Mean 66.28%

Attempted by 228 candidates

Mean 19.89(/30)

Max 29.40

Min 1.40

Section Two: Mechanical Part A: Multiple-choice

Mean 54.37%

Attempted by 126 candidates

Mean 5.44(/10)

Max 9.00

Min 1.00

Section Two: Mechanical Part B: Extended answer

Mean 49.27%

Attempted by 126 candidates

Mean 24.63(/50)

Max 45.21

Min 1.06

Section Two: Mechatronics Part A: Multiple-choice

Mean 55.98%

Attempted by 102 candidates

Mean 5.60(/10)

Max 10.00

Min 1.00

Section Two: Mechatronics Part B: Extended answer

Mean 51.00%

Attempted by 101 candidates

Mean 25.50(/50)

Max 48.50

Min 0.00

General comments

Able candidates provided written answers that were complete in their detail and produced working for calculations that were logical and well-structured. Less capable candidates either did not provide any answers or wrote incorrect or superficial responses to questions and calculations that were either incorrect, of the wrong magnitude or without correct units. There appeared to be an increase in frequency of candidates who made no attempt at questions compared to previous years.

Advice for candidates

- All questions need to be read carefully before an attempt is made to answer them.
- For multiple-choice questions, you need to relate each choice back to the initial statement and use space next to the question for working if necessary.
- For extended answers you need to carefully read all information provided before attempting each part of the question.
- In extended answer questions involving calculations make sure you include all relevant equations and set your working out neatly as this allows for part marks if the final numerical answer is incorrect.
- If you make an error in any answer, make sure you put a line through the working you do not want marked.
- Be familiar with the set-up of the Data book so that information can be found quickly.
- Be careful with units in both your working and your answer.

Advice for teachers

- Be sure students are familiar with the syllabus terminology.
- Advise students to read all questions carefully before attempting them.
- Encourage students to show all working in their answers to questions requiring calculations and to set this working out in a way that it can be easily followed.
- Encourage students to write neatly in all written response answers.

Comments on specific sections and questions

Properties of materials and how they can be changed was not well understood. Some candidates had difficulty with the difference and relationship between energy and power. Linear motion required the use of nothing more than the dynamics equations. Both gravity and solving problems using methods of sections was performed poorly by candidates.

Section One: Core content Part A: Multiple-choice (10 Marks)

The mean for this section was 70.66%. Question 3 had the lowest mean (41%) suggesting candidates had a poor understanding of the physical properties of materials. Question 8 was the next most difficult with a mean score of 43%. Questions 6 and 7 appeared to be straightforward with means of 99% and 96% respectively.

Section One: Core content Part B: Extended answer (75 Marks)

The mean for this section was 66.28% with an even distribution of scores across all four questions. Many candidates were unable to achieve full marks due to using incorrect unit conversions, poor application of Pythagoras' Theorem and/or an inability to define a polymer.

Section Two: Mechanical Part A: Multiple-choice (10 Marks)

The mean for this section was 54.37%. Questions 22 had the lowest mean of 42%, followed by Question 20 with 46% and Question 22 with 48%. Candidates performed well against Questions 18 and 19.

Section Two: Mechanical Part B: Extended answer (94 Marks)

Candidates performed best against Question 25 with a mean of 73%, but this progressively declined to less than 40% against Questions 28, 29 and 30. With respect to Question 28, some candidates made an attempt at drawing the required diagram without supporting calculations. A number of candidates did not attempt Questions 29 and 30.

Section Two: Mechatronics Part A: Multiple-choice (10 Marks)

The mean for this section was 55.98%. Questions 32, 36 and 40 had the lowest mean of the section. Candidates performed well against Questions 37 and 38.

Section Two: Mechatronics Part B: Extended answer (100 Marks)

The mean for this section was 51%. The mean of each question within this section had little variation from either side of 50%. Candidates performed the best against Question 46; however, many candidates did not attempt parts of Questions 41 and 44. There were a number of candidates who used incorrect unit conversions.