

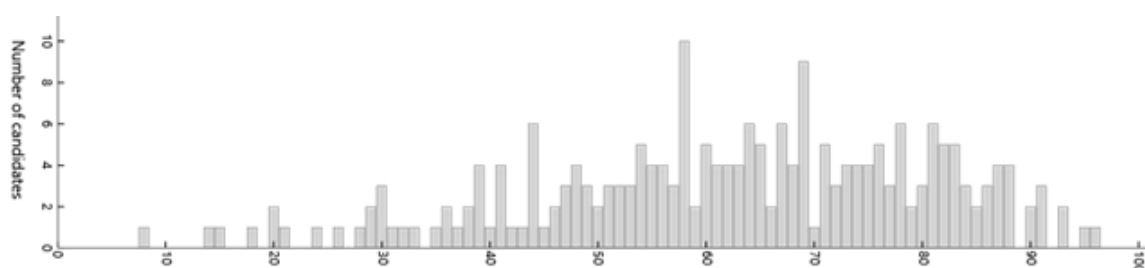


Summary report of the 2023 ATAR course examination report: Engineering Studies

Year	Number who sat	Number of absentees
2023	223	4
2022	233	4
2021	254	2
2020	228	5

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



Summary

Overall, the examination sampled large sections of the syllabus content, was of appropriate difficulty, and able to discriminate between candidates. Questions examining Core content were generally straightforward whilst those on the two specialist fields proved more challenging for candidates. The mean score of the examination (61.11%) was similar to the mean score in 2022 (59.83%).

Attempted by 223 candidates Mean 61.11% Max 96.14% Min 8.50%

Section means were:

Section One: Core content Part A: Multiple-choice

Mean 66.59%

Attempted by 223 candidates Mean 6.66(/10) Max 10.00 Min 2.00

Section One: Core content Part B: Extended answer

Mean 68.60%

Attempted by 223 candidates Mean 20.58(/30) Max 29.14 Min 0.86

Section Two: Mechanical Part A: Multiple-choice

Mean 63.04%

Attempted by 69 candidates Mean 6.30(/10) Max 10.00 Min 2.00

Section Two: Mechanical Part B: Extended answer

Mean 59.29%

Attempted by 69 candidates Mean 29.64(/50) Max 49.25 Min 0.00

Section Two: Mechatronics Part A: Multiple-choice

Mean 57.73%

Attempted by 154 candidates Mean 5.77(/10) Max 10.00 Min 1.00

Section Two: Mechatronics Part B: Extended answer

Mean 54.33%

Attempted by 154 candidates Mean 27.17(/50) Max 49.25 Min 1.50

General comments

The length of the examination as a whole, and of each section, seemed appropriate as most candidates appeared to have sufficient time to answer all the questions. Some candidates did not attempt all parts of the examination questions. The final marks demonstrated a good spread, indicating that the examination suitably discriminated between candidates.

Advice for candidates

- Read all questions carefully before you attempt to answer them.
- For multiple-choice questions, ensure you relate each option back to the initial statement. When choosing between alternative options that appear to be viable, think carefully and select the best option. When a numerical answer is required, use the space next to the question for working if necessary.
- For extended answer questions, carefully read all information provided before attempting each part of the question.
- For extended answer questions, when a written explanation or justification is required, be sure to write an answer that fully responds to the question. Do not simply provide a superficial statement.
- For extended answer questions involving calculations, ensure you include all relevant equations in your working. Whenever possible, include the relevant formula.
- For calculations, ensure you set out all working neatly, as this may allow for the awarding of part marks if the final numerical answer is incorrect. If your working is not able to be followed, or is unclear, you may not be awarded part marks.
- If you make an error in any answer, ensure you put a line through the working you do not want considered for marking.
- Become familiar with the Data Book so that you can find relevant information quickly.
- Ensure you use the correct units in both your working and answers.
- When required to complete a 3rd angle orthographic drawing, ensure you are familiar with finer details such as precedence of lines and conventions for dimensioning.

Advice for teachers

- Ensure students are familiar with all terminology and formulae used in the syllabus.
- Ensure students are familiar with all drawing symbols specific to Engineering Studies.
- Ensure that students are familiar with the contents of the Data Book.
- Advise students to read all questions carefully before attempting them.
- Stress to students the importance of showing all working in their answers to questions requiring calculations and setting their working out in a way that it can be easily followed.
- Encourage students to write legibly in all written response answers.

Comments on specific sections and questions

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

The mean for this section was 66.59%. Candidates performed well in most questions, particularly Questions 1 and 5. Questions 2, 9 and 10 had the lowest means. Candidates particularly struggled with Question 2.

Section One: Core content Part B: Extended answer (70 Marks)

Overall, most candidates performed well in this section of the examination, with a mean of 68.60%. Question 12 had the lowest mean of 61.78%, where most candidates had sound knowledge of properties of materials, although they did not apply this correctly to a specific context. Question 13 had the highest mean of 76.02%.

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

The mean for this section was 63.04%. Questions 15, 19 and 20 were correctly answered by the vast majority of candidates, while questions 14, 22 and 23 were found to be more challenging. Question 17 proved to be the most difficult.

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

The overall mean for this section was 59.29%. Question 24 had the highest mean of 64.75%. Question 27 had the lowest mean of 47.95%, where many candidates did not understand the concept of bending moments or shear forces. There were responses to all questions that received maximum marks, demonstrating a sound understanding of the topics by these candidates.

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

The mean for this section was 57.73%. Candidates performed well in most questions, particularly Questions 32, 34 and 36. Questions 30, 31 and 37 had the lowest means, proving to be the most difficult.

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

The overall mean for this section was 54.33%. Question 40 had the highest mean of 67.26%. Question 43 had the lowest mean of 31.11% and was a challenging question for candidates. Except for the most able candidates, many candidates showed a lack of understanding of how to apply electrical laws and perform calculations to show how a circuit behaves.