

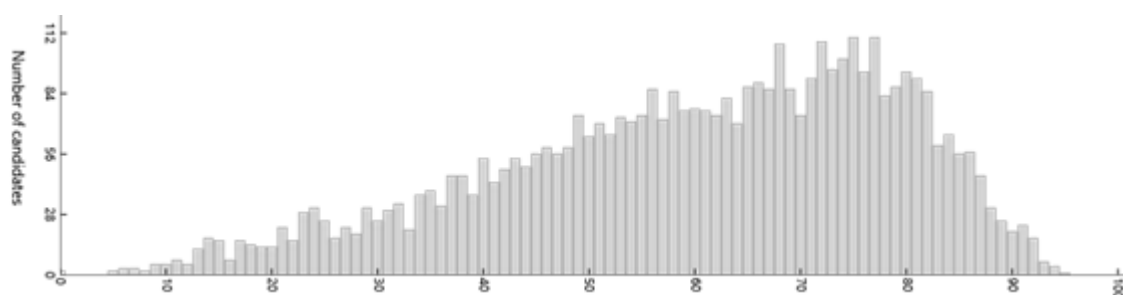


Summary report of the 2024 ATAR course examination report: Chemistry

Year	Number who sat	Number of absentees
2024	4457	41
2023	3997	30
2022	4063	75
2021	4451	76

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

The examination paper was a fair and valid assessment that allowed for discrimination among candidates' answers. The examination paper was an appropriate length as the majority of candidates answered most of the questions, resulting in few non-attempts in the later questions. The range of difficulty of the questions allowed candidates to access questions at their level of ability.

Attempted by 4457 candidates Mean 59.89% Max 95.00% Min 0.00%

Section means were:

Section One: Multiple-choice	Mean 72.87%		
Attempted by 4457 candidates	Mean 18.22(/25)	Max 25.00	Min 0.00
Section Two: Short answer	Mean 55.29%		
Attempted by 4449 candidates	Mean 19.35(/35)	Max 34.78	Min 0.00
Section Three: Extended answer	Mean 55.81%		
Attempted by 4445 candidates	Mean 22.32(/40)	Max 37.70	Min 0.00

General comments

The mean scores for all three sections were higher than 2023.

Advice for candidates

- Read questions carefully to ensure that you are addressing the requirements of the questions. Marks are not awarded for correct information that is not directly related to the question.
- Ensure that you are familiar with all syllabus dot points, including Science as Human Endeavour and that you are able to use the appropriate terminology in your answers.

- Use terminology specific to the question in your answers, rather than generic terms and statements. For example, use the specific intermolecular forces present, such as dipole-dipole forces. Ensure the answer is specific to the species involved.
- Lines between atoms in organic structures should clearly show the appropriate connectivity. Ensure that the structure of any functional groups present is explicit when writing condensed organic formulae.
- Convert masses to grams and include units in the final answer for calculations. Do not round during a calculation; leave the answer to the appropriate number of significant figures.
- Ensure that all numbers are transferred within a calculation correctly. Always write the numbers in your answer; do not use empty brackets and arrows to indicate the same number is used from a previous line in the calculation.
- When writing ionic equations, check for balancing of both atoms and charge.
- When writing observations for chemical reactions, ensure that you include all observations from before the chemicals react through to the final products.
- Observations should not include the names of chemicals; metals should be described as silver/grey solids. Take note of the use of the term 'excess' as this will guide you towards the appropriate observation. Solutions may be described as colourless, or have a colour, but cannot be described only as clear.
- Do not use the term 'colourless, odourless gas' as an observation. This is an inference.
- Ensure the correct use of arrows in chemical equations.
- Do not use arrows to represent increase or decrease.
- Do not use acronyms without stating the words of the acronym fully the first time you use it in an answer.
- Read questions carefully to determine whether collision theory or Le Châtelier's Principle is needed to answer the question.

Advice for teachers

- Provide students with opportunities to practise writing questions under timed conditions using contexts that cannot be answered through rote learned responses.
- Provide students with the opportunity to identify the intermolecular forces present in solutions as well as solvents and solutions.
- Encourage students to focus on the specificity of the use of chemical terms in their written answers, as well as addressing the context of the question. Consider having students use the WACE marking keys when checking their practice question answers.
- Provide students with the opportunity to identify methods of reducing corrosion that are context specific.
- Provide students with opportunities to practise ionic equations and observations. Students should also be encouraged to use the data sheet effectively.
- Discourage students from using terms such as 'sensitive' or other personifying terms, for example, enzymes sensitive to pH or temperature.
- Encourage students to set out their working in calculations clearly and with all numbers included. Discourage students from taking short cuts, such as using empty brackets and arrows from the line above. If students then make an arithmetic error, they will not be awarded marks for workings.
- Ensure that you are up to date with the latest IUPAC conventions.

Comments on specific sections and questions

Section One: Multiple-choice (25 Marks)

This section was answered well with a mean of 72.87. None of the questions had a mean below 0.5 indicating they were accessible by the majority of candidates. The most difficult questions were 6, 7 and 23. Question 6 was about the justification of indicator choice using the relative concentrations of hydronium ions and hydroxide ions. Question 7 required an

understanding of potential errors in titrations. Question 23 required candidates to evaluate possible uses for a polymer.

Section Two: Short answer (81 Marks)

Candidates performed best on Question 31, identifying similarities and differences between the structures of soaps and detergents and the structure of micelles. The most challenging questions were Questions 28, explaining solubility, Question 30, explaining ocean acidification using provided equations, and Question 32, an application of buffers.

Section Three: Extended answer (87 Marks)

Question 38 was the best answered in this section. Question 36 part (a), which required students to outline and justify optimal conditions for a reaction, was the most challenging.