

Assessment Specifications

Level 3 Chemistry 2024

Published in December 2023

General information

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|---------------------------|---------------------|
| Domain: | Chemistry |
| Assessment method: | Examination |
| Assessment medium: | Printed paper |
| Standards: | 91390, 91391, 91392 |

[Chemistry subject page](#)

[National secondary examinations timetable](#)

Information relating to all achievement standards

The format will be the same for each achievement standard.

Equipment required

Calculators are permitted.

Resources or information supplied

The resource booklet for Level 3 Chemistry can be found at the following link to the [Chemistry resources](#) for externally assessed standards.

It will contain:

- relevant chemical formulae needed for Level 3 Chemistry, e.g. $n = cV$
- a copy of the periodic table – giving element symbols, atomic numbers, and molar masses
- a list of nine complex ions, with their formulae.

Special notes

Symbols, nomenclature, spelling and formatting will follow IUPAC conventions. These are shown in the reference sheet [Quantities, Units, Symbols, and Nomenclature used in Chemistry \(PDF, 234KB\)](#). This will not be provided in the examination.

In calculations, candidates will be expected to use the molar mass values given with the question, or on the periodic table provided.

All working should be shown in calculations. Numerical answers should be rounded to an appropriate number of significant figures (usually three significant figures). Correct units must be included.

The content is specified in the Explanatory Notes to each achievement standard.

Questions may be asked within a variety of appropriate contexts, some of which may be unfamiliar to the candidates. Any context-specific formulae will be provided in the examination.

Candidates should be familiar with relevant practical work.

Specific information for individual achievement standards

| | |
|---------------------------|---|
| Standard: | 91390 |
| Domain: | Chemistry |
| Title: | Demonstrate understanding of thermochemical principles and the properties of particles and substances |
| Version: | 2 |
| Number of credits: | 5 |

The concept of resonance, Hund's rule, and the stability of half-filled sublevels will not be assessed.

The value of the specific heat capacity of water ($4.18 \text{ J g}^{-1} \text{ }^\circ\text{C}^{-1}$) will be provided when required.

| | |
|---------------------------|--|
| Standard: | 91391 |
| Domain: | Chemistry |
| Title: | Demonstrate understanding of the properties of organic compounds |
| Version: | 2 |
| Number of credits: | 4 |

Constitutional isomers are those that have the same molecular formula, but a different structural formula.

Systematic naming of amines is restricted to primary amines. Candidates will not be expected to recall the common names of amino acids.

Knowledge of principles of organic chemistry covered in [Chemistry Level 2 AS 91165](#) will be assumed.

| | |
|---------------------------|--|
| Standard: | 91392 |
| Title: | Demonstrate understanding of equilibrium principles in aqueous systems |
| Version: | 2 |
| Number of credits: | 5 |

Candidates are expected to recognise common strong acids (HCl, HBr, HNO₃, H₂SO₄); strong bases (KOH, NaOH); weak acids (HF, CH₃COOH, and NH₄⁺); weak bases (NH₃, CH₃NH₂, and CH₃COO⁻). Less familiar weak acids and bases may be included in the context of appropriate resource information. Values of K_b or pK_b will not be provided, but may be derived and used in calculations.

Knowledge of the following complex ions will be assumed: [Ag(CN)₂]⁻, [Ag(NH₃)₂]⁺, [Al(OH)₄]⁻, [Cu(NH₃)₄]²⁺, [Pb(OH)₄]²⁻, [Zn(OH)₄]²⁻, [Zn(NH₃)₄]²⁺, [Ni(NH₃)₆]²⁺, and [Ni(CN)₄]²⁻. This list of complex ions (with formulae) will be given in the Resource Booklet. Less familiar complex ions may be included in the context of appropriate resource information.