A LEVEL *CHEMISTRY A*

OCR
Oxford Cambridge and RSA

Examiner comment summary – Chemistry A (H432)

Ca_2CO_3 ✗
$CaNO_3$ ✗

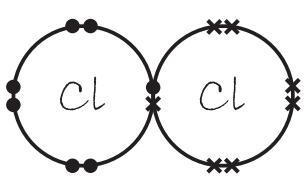
Some candidates were unable to write correct formulae or balance straightforward equations.

$I_2(s) \rightarrow 2I(g)$ ✗
$^1/_2I_2(s) \rightarrow I(g)$ ✓

Most candidates were unable to write a correct equation for the standard enthalpy change of atomisation of iodine.

van der Waals' forces ✗
induced dipole-dipole interactions ✓

Note that uses of the term 'van der Waals forces' are not now acceptable and are ignored.



✓

Draw large 'dot-and-cross' diagrams so that dots and crosses can be clearly distinguished.

$K_p = \dfrac{p(CO)^4}{p(C)^4\, p(Fe_3O_4)^4}$ ✗

Candidates should include only gaseous and aqueous species in the expression for a heterogenous equilibrium.

potassium (VII) chlorate ✗
potassium chlorate(VIII) ✓

Most candidates need more practice at writing systematic names using oxidation numbers.

$4KClO_3 \rightarrow KCl + 3KClO_4$
Chlorine disproportionates ✓

Emphasise disproportionation in terms of an element rather than vague terms such as 'species'.

$\ln k = -\dfrac{E_a}{RT} + \ln A$

Candidates need more practice in relating chemical equations to the equation for a straight line, y = mx + c.


✓ ✗

Additional answer pages fragment the response. Concise responses are usually the best responses.


0.34564524 ✓
0.346 ✗

Use calculator unrounded values during calculations to obtain the most accurate final value.

1. ~~~~~~~ ✓
2. ~~~~~~~~~~~ ✓
Ans: ~~ ✗

Show every step in calculations clearly. This allows method marks to be awarded in the absence of a correct final answer.

CH_3COOH	1.75×10^{-5}
FCH_2COOH	2.19×10^{-3}

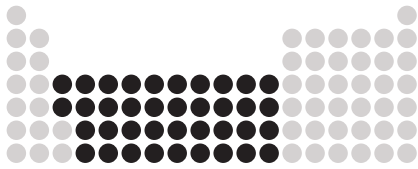
Candidates should be reminded that the stronger acid is the one with the larger K_a value.

gas syringe ✗
700 cm^3 gas syringe ✓

Use of the phrase 'scale of working' indicates that a quantity is required.

0.0540 (3 sig. fig.) → Answer
3.045×10^4 (4 sig. fig.) → 3 sig. fig.

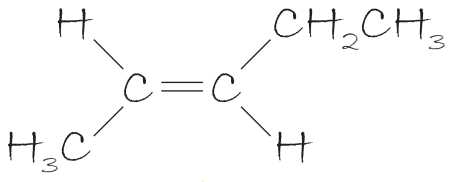
The 'appropriate number of significant figures' is the same as the least accurate data provided in the question.



Learn reactions and reagents in the transition elements section of the specification.

1. ~~~~~~~~~~~~~~~~~~
(iii) ~~~~~~ ?

Data may be presented at the start of the question and not repeated in each subsequent part.



Draw displayed or structural formulae for cis/trans isomers. This helps when showing the arrangement of groups around the C=C group.

a. ~~~~~~~~~~~~~~~~~~ ✗
b. ~~~~~~~~~~~~~~~~~~ ✓
c. ~~~~~~~~~~~~~~~~~~ ✗

For multiple choice questions, eliminating options by annotating is good practice.

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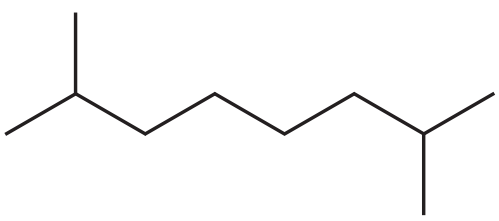
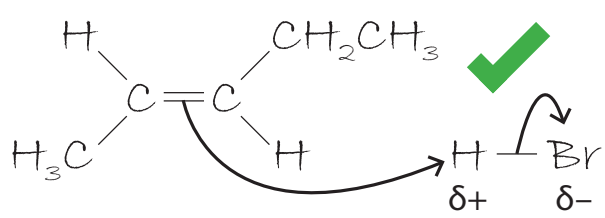
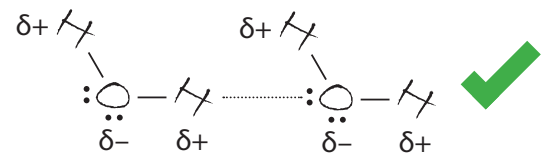


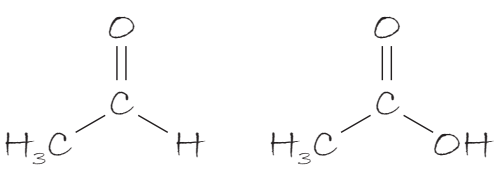
Skeletal formulae prevent issues with missing H atoms seen with displayed or structural formulae.



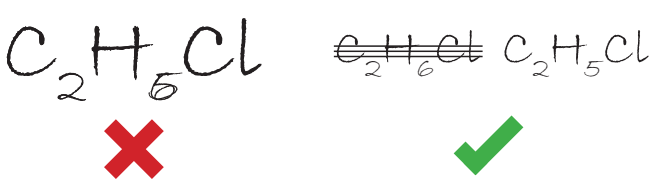
Candidates need to learn the key mechanisms in the specification. Precisely positioned curly arrows are extremely important.



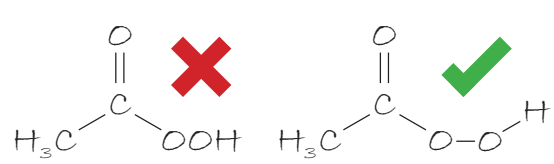
Responses often omitted dipoles and lone pairs when depicting hydrogen bonding.



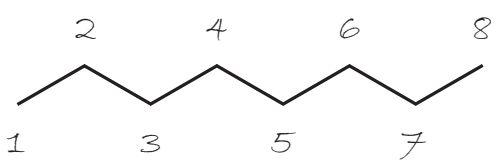
Candidates need to ensure they know all of the qualitative organic tests in the specification.



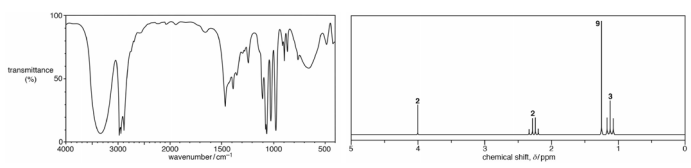
Cross out incorrect formulae and replace them afresh. Changed numbers can be difficult to decipher and may not be credited.



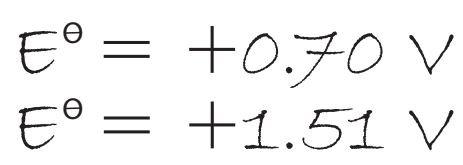
Candidates should ensure that functional groups are clearly displayed when this is specified.



Check organic formulae, as mistakes are easily made. Check the number of C atoms in skeletal formulae.



When analysing spectra organise answers by discussing each spectrum in turn. Analysis is made easier if candidates label the spectrum.



Many candidates found the prediction of reactions from electrode potentials challenging.

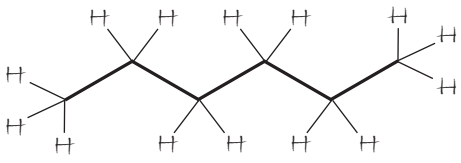
Many candidates seemed to treat global warming and ozone depletion as the same thing.

Titration	1	2	3
Initial reading (cm^3)			
Final reading (cm^3)			
Titre (cm^3)			

Communicate results clearly: show headings and units, and show numerical values to the accuracy of apparatus used.

$$\frac{22.55 + 22.45}{2} = 22.50$$

It is good practice to show working for how a mean titre has been calculated.



To work out organic formulae adding H atoms to skeletal formulae is a good strategy.

$$\frac{0.005\ g}{1.74} \times \qquad \frac{0.005\ g \times 2}{1.74} \checkmark$$

When calculating percentage uncertainties consider if a value is from a single reading or from the difference between two readings.

The best plans to distinguish between compounds are brief, adopting an elimination approach.

The full candidate exemplar materials for the Chemistry A (H432) papers can be found on Interchange.

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