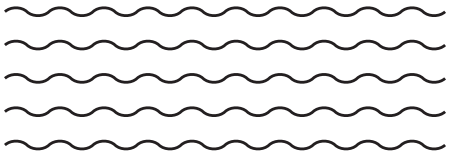
A LEVEL *CHEMISTRY A & B*

OCR
Oxford Cambridge and RSA

Chemistry A Level 2018 examiner comment summary



CON

Longer answers don't always lead to more marks. If correct responses are contradicted, marks can be lost.

$2Fe^{3+} + H_2O_2 \rightarrow 2Fe^{3+} + 2H_2O$ ✗

$2Fe^{3+} + H_2O_2 + 2H^+ \rightarrow 2Fe^{3+} + 2H_2O$ ✓

Check equations for balancing errors after writing them. Remember that any charges should also be balanced.

$\frac{4.10}{202} = 0.0203$ mol $\frac{4.91}{94} = 0.0522$ mol

percentage yield = 38.89 % ✓ ECF

Show clear working for calculations. Error carried forward may mean a response still gains marks if a mistake is made.

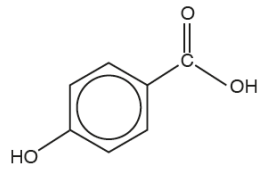
Mass = 82.7 g
Titre = 24.35 cm^3
3 s.f.

The 'appropriate number of significant figures' is the lowest number of significant figures provided in the data.

oxidation state = 2 ✗

oxidation state = +2 ✓

When providing oxidation numbers for elements, it is important to make sure the sign is also included.

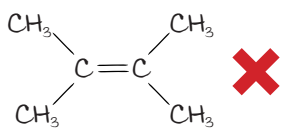


carboxylic acid
alcohol ✗
phenol

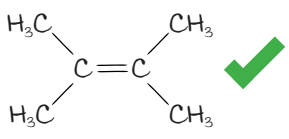
When naming the functional groups in a molecule, don't just list various groups, as incorrect groups are marked first.

* see additional answer page

If use of additional answer pages are necessary, it's a good idea to write a note to the marker to this effect.



✗



✓

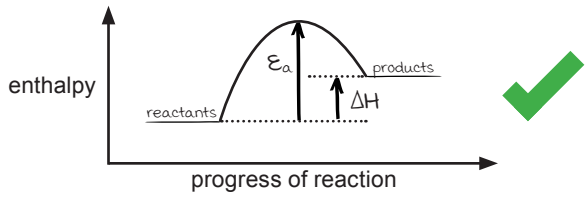
Organic structures should show correct connectivity (the correct bonds to the correct atoms in the structure).

Answer: ~~1008~~ −504

Cross out answers if you need to change them. Trying to correct an answer by writing over it can make it unclear.

The enthalpy change is bigger ✗
The enthalpy change is more exothermic ✓
The enthalpy change is more negative ✓

When comparing the magnitude of negative values, 'more negative' or 'less negative' should be used.

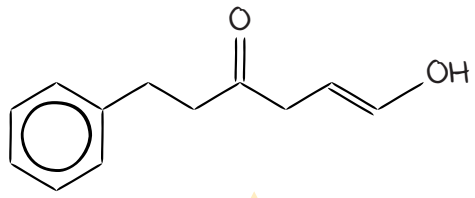


✓

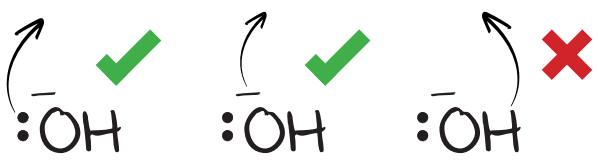
Arrows in enthalpy profile diagrams should be single headed to show the direction of the enthalpy change.

	trial	1	2	3
Initial reading (cm^3)	0.00	22.65	0.00	20.35
Final reading (cm^3)	22.65	43.55	20.35	41.35
Titre (cm^3)	22.65	20.90	20.35	21.00

Titration readings must be to 2 decimal places, with the final digit a 5 or a 0. Only use concordant titres to calculate means.

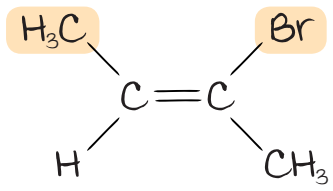


Unless a question asks for a particular type of formula to be drawn, skeletal formulae are clearer and easier to draw.



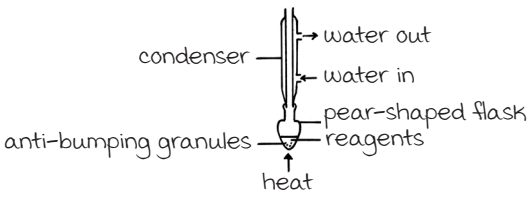
✓ ✓ ✗

Curly arrows show movement of an electron pair and need to start from a bond, lone pair, or negative charge.



Z isomer

CIP rules for naming alkenes are based on atomic numbers of substituents, not their molecular or atomic masses.



The overall standard of diagrams could be improved – they should be neatly drawn and clearly labelled.

tap or flick the tube to allow the solid to reach the bottom

When preparing a solid for melting point analysis, note the need to tap the tube so the solid reaches the bottom.

2-methyl-butan-3-ol ✗
3-methyl-butan-2-ol ✓

When naming organic compounds, functional groups take priority for numbering over alkyl chains.

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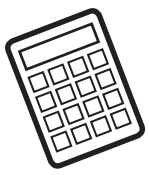
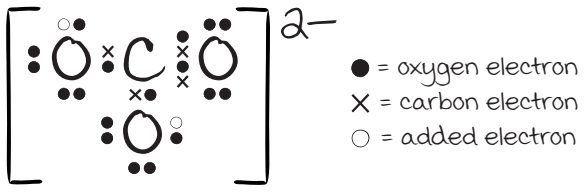


0.34564524 ✓

0.346 ✗

It's always more accurate to round once, for the final answer, and work with unrounded values on the calculator.



Make sure all electrons are accounted for in dot-and-cross diagrams. Added electrons should use a different symbol.

How would you improve the accuracy of the results obtained?

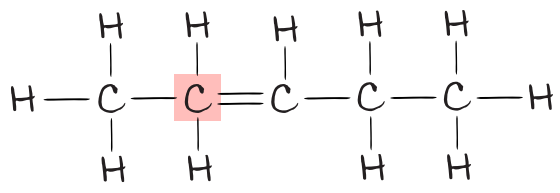
Changes to experiments that improve accuracy are those which reduce either systematic or random errors.

$\Delta H = +267\ kJ\ mol^{-1}$

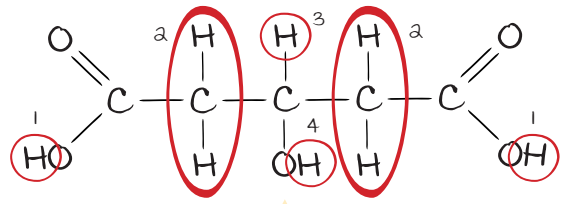
$\Delta S = +596\ J\ K^{-1}\ mol^{-1}$

$\varepsilon^{\circ} = -3.04\ V$

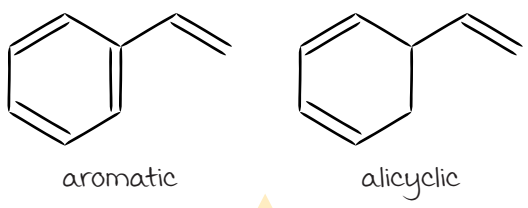
Make sure either positive or negative signs are shown for enthalpy values, entropy values, and electrode potentials.



When drawing organic compounds, make sure that all the atoms have the correct number of bonds.



When analysing ^{1}H NMR spectra, using a diagram to identify the different H environments is good practice.



An alicyclic molecule is one with a carbon ring with single or double bonds which is not aromatic.

$CH_3CH_2CH_2CH_2CH$ ✗

$CH_3CH_2CH_2CH_2CH^+$ ✓

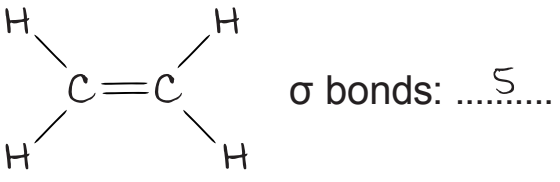
Make sure that the positive charges on ions produced during mass spectrometry are shown clearly.

$CaF_2(s)$ ✗ $CaF_2(s)$ ✓

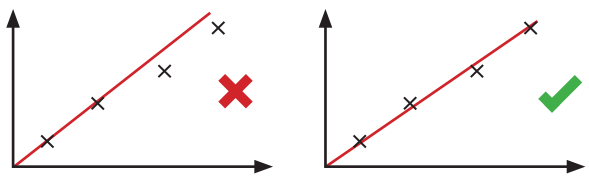
Make sure state symbols in equations are clear. Some wrote lower case 's' similarly to 'g', making it indistinguishable.

Your answer: ~~A~~ B

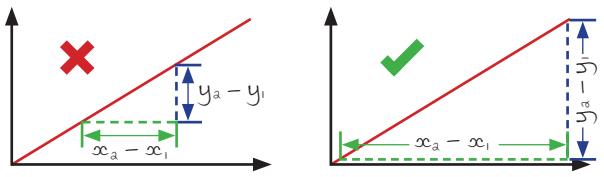
If changing the answer for an MCQ, completely cross out the wrong letter and write the correct one anew.



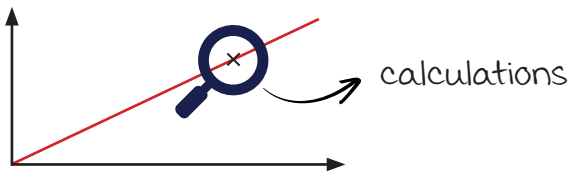
When totalling up sigma bonds in a molecule, remember double bonds are made up of a sigma bond and a pi bond.



When drawing graphs, lines of best fit should have a fair distribution of points above and below the line.



Triangles for gradient calculation should be as large as possible – too small a triangle gives a larger error in the value.



Read the scales on graphs carefully and check any reading is correct before using it in subsequent calculations.

Determine the rate constant and a possible two-step mechanism that are consistent with these results.

Underline key instructions when reading the question and refer back to them to ensure all of them have been addressed.

The full candidate exemplar materials for the 2018 Chemistry A Level papers can be found on Interchange.

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