

GCE

Chemistry B (Salters)

Mark Scheme

Question	Answer	Mark	Guidance
1 (a) (i)	$\text{Cl}_2 + \text{H}_2\text{O} \rightleftharpoons \text{HClO} + \text{HCl}$ Formulae correct ✓ Reversible symbol used ✓	2	<p>Please put a mark (e.g.: red cross) on each of the three additional pages that appear with this answer, if they are blank. Please put in links to relevant question parts for any answers written on these pages.</p> <p>ALLOW multiples. ALLOW equation written other way round. ALLOW atoms in a formula written in a different order (e.g.: CHO). ALLOW reversible symbol shown as: \rightleftharpoons but nothing else. IGNORE state symbols. Mark independently.</p>
1 (a) (ii)	The <u>chlorine / Cl</u> has an oxidation state or number of (+)1 (in this compound) ✓	1	<p>ALLOW it is the oxidation state of the chlorine. DO NOT ALLOW 'it is the oxidation state of the Cl_2'. An oxidation state of -1 CONs the mark.</p>
1 (a) (iii)	(Chlorine / HClO / chloric acid) kills or destroys bacteria / microbes / pathogens / (micro-)organisms / germs (that cause the disease) OR (Chlorine / HClO / chloric acid) has anti-bacterial properties ✓	1	<p>IGNORE references to changes of pH or making the solution <u>acidic</u>. ALLOW 'kills viruses'. DO NOT award the mark if the answer includes or is for another chemical, including references to making acid. DO NOT ALLOW 'kills the cholera'. IGNORE references to sterilising and disinfectant.</p>
1 (b) (i)	$\text{Ca}(\text{ClO})_2$ ✓	1	<p>ALLOW CaCl_2O_2 ALLOW atoms in a formula written in a different order</p>

Question	Answer	Mark	Guidance
1 (b) (ii)	Chlorine is oxidised and reduced ✓ (Reduced) from +4 (in CIO ₂) to +1 in HClO ✓ (Oxidised) from +4 (in CIO ₂) to +5 in HClO ₃ ✓	3	<p>The first mark can be gained from the rest of the answer if correct comments about oxidation and reduction of chlorine are mentioned. Reference to any other substance being oxidised or reduced CONS the first mark.</p> <p>DO NOT ALLOW mp 1 if the oxidation and reduction are the wrong way round (e.g.: chlorine is oxidised from +4 to +1) or if the answer includes incorrect reference to loss and gain of electrons (e.g.: oxidised by gaining electrons).</p> <p>For mp1, answer must say ‘chlorine’ or Cl / ClO₂ not Cl₂ or another chlorine compound.</p> <p>Can score oxidation state marks if written on the equation. Answer must be clear +4 in ClO₂ / reactant / at beginning in either mp 2 or 3.</p> <p>IGNORE references to charge in description of oxidation state.</p> <p>ALLOW oxidation states shown on equation. IGNORE oxidation states of other elements written on equation.</p> <p>Answers giving 1+, 4+ and/or 5+ OR 1, 4 and/or 5 CONS 1 of mp 2 or 3.</p>

Question	Answer	Mark	Guidance
1 (b) (iii)	<p>Any two from:</p> <p>1. Calcium chlorate(I) is easy to handle / weigh / transport / store AW ORA ✓</p> <p>2. Calcium chlorate(I) is safe(r) or less hazardous to handle / transport / store AW ORA ✓</p> <p>3. Chlorine has an unpleasant smell / can cause breathing difficulties AW ORA ✓</p> <p>4. Chlorine forms HC/ AW ORA ✓</p> <p>5. Calcium chlorate(I) is more soluble ✓</p>	2	<p>ALLOW 'measure' for 'weigh'.</p> <p>IGNORE toxic.</p>
1 (c) (i)	<p>$2\text{I}^- \rightarrow \text{I}_2 + 2\text{e}^-$</p> <p>$\text{I}^- \rightarrow \text{I}_2$ ✓</p> <p>Adding electrons and balancing ✓</p>	2	<p>ALLOW multiples in balancing.</p> <p>ALLOW e for e^-</p> <p>Equation that includes other species CONs the first mark. Second mark is for a completely correct equation.</p> <p>ALLOW $2\text{I}^- - 2\text{e}^- \rightarrow \text{I}_2$</p> <p>IGNORE state symbols</p>
1 (c) (ii)	<p>12.30×0.0010 /1000 and evaluate ($= 1.23 \times 10^{-5}$) ✓</p>	1	<p>ALLOW answers with 3 s.f. or more.</p>
1 (c) (iii)	<p>$\frac{1}{2} \times 1.23 \times 10^{-5}$ and evaluate ($= 6.15 \times 10^{-6}$) ✓</p>	1	<p>ALLOW ecf from incorrect answer to (c)(ii)</p> <p>ALLOW answers with 3 s.f. or more.</p>

Question	Answer	Mark	Guidance
1 (c) (iv)	<p>Answer to c(iii) / 250 ✓</p> <p>$\times 1000 (= 2.46 \times 10^{-5})$ ✓</p> <p>2.5×10^{-5} to 2s.f. ✓</p>	3	<p>ALLOW s.f. mark for any correctly evaluated and rounded 2 sig. fig. answer that follows from any calculation.</p> <p>MP 1 and 2 can be scored in either order.</p> <p>In order to score the second mark, there must be a correct evaluation of their expression.</p> <p>2.5×10^{-5} on the answer line scores all marks, including the s.f. mark.</p>
1 (d)	<p>5 ✓</p> <p>p^6 ✓</p>	2	<p>IGNORE any inner shells.</p> <p>Mark separately.</p> <p>ALLOW upper or lower case letter but number for electrons in sub-shell must be superscript.</p> <p>IGNORE a 'dot-and-cross' diagram.</p>
1 (e)	<p>Any one from:</p> <p>Bleach ✓</p> <p>(Making) PVC ✓</p> <p>(Making) solvents / a named solvent ✓</p> <p>Disinfectant / antiseptic ✓</p> <p>(Making) hydrochloric acid ✓</p> <p>Extraction of bromine ✓</p>	1	<p>IGNORE cleaning.</p> <p>DO NOT ALLOW just 'making plastics'.</p> <p>ALLOW sterilising.</p> <p>ALLOW (making) (H)CFCs.</p> <p>ALLOW (making) medicines.</p> <p>ALLOW chemical warfare.</p>
	TOTAL	20	

Question	Answer	Mark	Guidance
2 (a) (i)	$1\frac{1}{2} \text{O}_2 \rightarrow \text{O}_3$ ✓	1	<p>IGNORE state symbols.</p> <p>All other species must be absent from the equation for the mark to be given.</p> <p>ALLOW $\text{O}_2 + \frac{1}{2} \text{O}_2 \rightarrow \text{O}_3$</p> <p>ALLOW multiples.</p>
2 (a) (ii)	<p>Catalyst is NO / nitrogen monoxide / nitrogen (II) oxide OR NO₂ / nitrogen dioxide / nitrogen (IV) oxide OR O / oxygen atom / oxygen radical ✓</p> <p>It is regenerated / recycled / reformed ✓</p>	2	<p>ALLOW 'nitrogen oxide'.</p> <p>ALLOW 'remains unchanged at the end', 'not used up'.</p> <p>DO NOT ALLOW 'not involved in reaction'.</p> <p>Second mark depends on first.</p>
2 (a) (iii)	(A particle) with one (or more) unpaired electron(s) ✓	1	<p>IGNORE 'free' or 'lone' or single electron.</p> <p>ALLOW 'an electron not in a pair'.</p> <p>DO NOT ALLOW 'is an unpaired electron' OR 'an element or compound or substance with ...'.</p> <p>IGNORE wrong method of formation e.g.: heterolytically.</p>
2 (b) (i)	$\begin{array}{c} \text{H} \\ \diagdown \\ \text{C}=\text{O} \\ \diagup \\ \text{H} \end{array} \quad \checkmark$	1	Must show all atoms and all bonds for the mark.

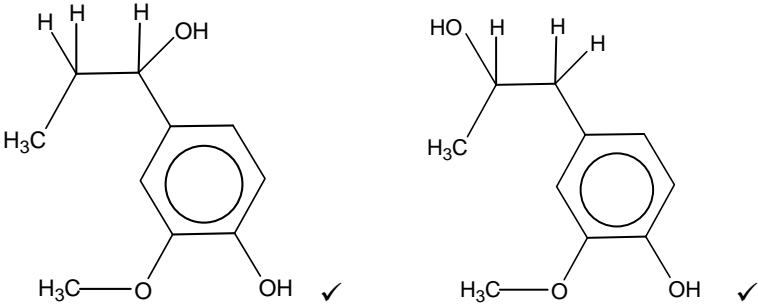
Question	Answer	Mark	Guidance
2 (b) (ii)	<p>(Potassium / sodium) dichromate / correct formula ✓</p> <p>Acidified / (sulfuric) acid / H_2SO_4 / H^+ ✓</p> <p>Distil ✓</p>	3	<p>IGNORE dichromate oxidation state if dichromate written in words (ALLOW minor spelling error). IGNORE formula if correct name is given.</p> <p>ALLOW hydrochloric acid / HCl / nitric acid / HNO_3 for second mark. DO NOT ALLOW the solution acidified with organic acids. IGNORE 'concentrated'.</p> <p>ALLOW concentrated sulphuric acid with water, but DO NOT give credit for conc. sulphuric acid as the <u>only</u> reagent.</p> <p>Only allow distil mark if dichromate given as reagent. Reflux CONs distil mark. IGNORE heat.</p> <p>Any additional reagent, other than water, negates the dichromate mark, but candidate can still score the acid mark.</p>

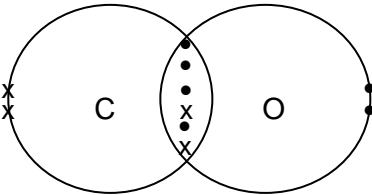
Question	Answer	Mark	Guidance
2 (b) (iii)	<p>1. The reaction will be faster at higher temp OR rate increases with temperature ORA ✓</p> <p>2. Greater proportion of collisions OR more frequent collisions OR more collisions per unit time:</p> <p>AND</p> <p>(a) have (total energy of at least) the activation enthalpy</p> <p>OR (b) are effective</p> <p>OR (c) are successful ✓</p> <p>3. QWC Particles / molecules / O₃ and C₂H₄ have more energy ORA ✓</p>	<p>2</p> <p>1</p>	<p>Please use annotations on answer in appropriate place.</p> <p>DO NOT ALLOW 'better chance of', 'are more likely' or 'particles have energy greater than activation energy' (must be collisions).</p> <p>MP2 must have one of the first 3 statements <u>and</u> one of (a), (b) or (c).</p> <p>DO NOT ALLOW atoms OR reagents OR reactants. ALLOW 'higher energy' for 'more energy'. IGNORE vibrational or rotational energy and references to speed.</p>
2 (b) (iv)	Respiratory problems / breathing difficulties / asthma attacks / weakens immune system / attacks lung tissue / greenhouse gas / degrades rubber ✓	1	IGNORE toxic and global warming. ALLOW '(adds to) greenhouse effect'.

Question	Answer	Mark	Guidance
2 (c)	<p>1. It filters / removes / screens / absorbs / prevents / blocks / shields / stops (AW) any type of <u>uv</u> ✓</p> <p><i>Plus two from mp 2 – 6 :</i></p> <p>2. (radiation) of high energy / frequency / UVC / UVB / 10^{16} Hz / 200-320 nm ✓</p> <p>3. (radiation) causes skin cancer / damages skin / damages DNA / cell mutations ✓</p> <p>4. (radiation) damages eyes ✓</p> <p>5. (radiation) damages immune system ✓</p> <p>6. (radiation) affects crops ✓</p> <p><u>and:</u></p> <p>7. Oxygen OR water molecules are split OR dissociate to form (oxygen) atoms / radicals</p> <p>OR the bond in the O₂ OR H₂O molecule is broken ✓</p> <p>8. <u>uv</u> radiation causes formation of oxygen radicals ✓</p> <p>9. The O atoms / radicals react with O₂ forming ozone ✓</p> <p><i>QWC: Mark awarded for correct sequence of processes in the last part of the answer (mp 7 & 9) ✓</i></p>	<p>6</p> <p>1</p>	<p>Please use annotations on answer in appropriate place.</p> <p>IGNORE 'protects us from UV'. DO NOT ALLOW 'reflects UV'.</p> <p>ALLOW mp2 – 6 if the wrong type of radiation has been given in mp1. DO NOT ALLOW high intensity radiation. DO NOT ALLOW just 'cancer'.</p> <p>Mark can be awarded for the correct equation: O₂ → 2O OR H₂O → 2H + O Answer for oxygen must say 'oxygen molecules', O₂ or dioxygen. ALLOW splitting up of nitrogen oxides or any named oxide of nitrogen or correct formula.</p> <p>MP 8 can be awarded for uv written on reaction arrow, but not hν.</p> <p>Mark can be awarded for the correct equation: O + O₂ → O₃</p> <p>Please indicate QWC using green tick or red cross on the right of the pencil icon on the answer screen.</p>
	TOTAL	19	

Question	Answer	Mark	Guidance
3 (a)	<p>Any two from:</p> <p>Ether / alkoxy ✓</p> <p>Alkene ✓</p> <p>Phenol / hydroxy(l) ✓</p>	2	<p>Not methoxy</p> <p>Not C=C OR C to C double bond.</p> <p>Alcohol CONs phenol / hydroxy(l) mark.</p> <p>Additional incorrect answers CONs a correct answer.</p>
3 (b)	<p>(Colour change) from brown / orange / yellow ✓</p> <p>to colourless ✓</p>	2	<p>IGNORE red in the first answer.</p> <p>ALLOW a combination of these colours, but no others.</p> <p>DO NOT ALLOW 'clear' for the second answer.</p> <p>ALLOW 'is decolourised' for second mark.</p> <p>Mark separately, but must be in correct order.</p>
3 (c) (i)	<p>Hydrogen bonding (between water molecules) ✓</p> <p>Lone pair on oxygen / oxygen atom small & electronegative ✓</p> <p>(bonds to) hydrogen with $\delta+$ (charge) / O–H bond polarised / hydrogen attached to electron-withdrawing group ✓</p>	3	<p>NOT between chemicals other than just water.</p> <p>DO NOT ALLOW 'oxygen molecule'.</p> <p>NOT H is electropositive OR just positive OR 'bonds to hydrogen molecule'.</p> <p>ALLOW 'H has partial positive (charge)'</p> <p>ALLOW lone pair on O and $H^{\delta+}$ from a diagram.</p>

Question	Answer	Mark	Guidance
3 (c) (ii)	<p>Intermolecular bonds / hydrogen bonds between eugenol and water are weaker than the water-water interactions ORA ✓</p> <p>OR</p> <p>Eugenol can only form 1 / fewer hydrogen bond (per molecule) ORA ✓</p>	1	ALLOW intermolecular bonds between eugenol and water are weaker than the eugenol - eugenol imb ORA
3 (d) (i)	<p>(Isoeugenol) has a C=C bond ✓</p> <p>with different groups on each carbon of the C=C ✓</p>	2	<p>ALLOW just double bond.</p> <p>Different groups can be identified by labels on the structure of isoeugenol.</p> <p>Second marking point includes first (i.e.: scores 2 marks).</p>
3 (d) (ii)	<p>Platinum catalyst ✓</p> <p>r.t.p. ✓</p> <p>OR</p> <p>Nickel catalyst ✓</p> <p>High temperature <u>and</u> pressure ✓</p>	2	<p>Must score catalyst mark to get condition mark.</p> <p>Condition must match catalyst.</p> <p>Any additional chemicals CON one mark.</p> <p>ALLOW just 'room temperature'.</p> <p>Quoted values in the ranges temp. 100-200°C and pressure above 1 up to 10atm.</p>

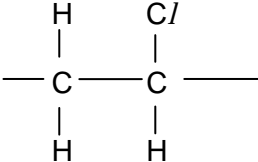
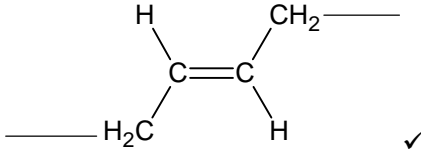
Question	Answer	Mark	Guidance
3 (d) (iii)		2	<p>ALLOW condensed structural formulae or skeletal formulae.</p> <p>ALLOW bonds to wrong atoms of groups (e.g.: bond line to H of OH).</p> <p>If the same mistake in the rest of the molecule is made in both isomers and the positions of the OH and H groups are correct, allow max 1 (e.g.: have only drawn the relevant part of the molecule).</p>
3 (e) (i)	Aldehyde ✓	1	ALLOW carbonyl
3 (e) (ii)	1720 – 1740 (cm ⁻¹) ✓	1	Data range taken from Data Sheet provided to students.
3 (e) (iii)	<p>Any two from:</p> <p>Region below 1500 (cm⁻¹) / to the right of 1500 (cm⁻¹) ✓</p> <p>Unique (part of the spectrum) for molecule AW ✓</p> <p>Can be used to identify the molecule (by comparison with a database) ✓</p>	2	<p>ALLOW right-hand end of spectrum / low frequency end of spectrum / low wavenumber end of spectrum.</p> <p>ALLOW 1450 (cm⁻¹) ± 50 (cm⁻¹)</p> <p>For mp 2 and 3: ALLOW 'element'; 'compound'; 'substance'; 'chemical' for 'molecule'.</p> <p>IGNORE references to the shape of the spectrum.</p> <p>For mp 3: IGNORE 'functional group' or 'bonds' in place of molecule.</p>
	TOTAL	18	

Question	Answer	Mark	Guidance
4 (a)	 <p>Bonding electrons ✓ Non-bonding electrons (provided diagram has 6 bonding electrons) ✓</p>	2	<p>ALLOW without circles.</p> <p>Any symbols can be used to represent the electrons (but it must be two different symbols denoting electrons from C and O, so dative bond is clear).</p> <p>ALLOW bonding electrons in any order, as long as there are 4 of the oxygen symbol and 2 of the carbon symbol.</p> <p>Non-bonding electrons do not have to be shown in pairs. IGNORE any inner electron shells.</p>
4 (b) (i)	$\text{CO(g)} + \text{H}_2\text{O(g)} \rightarrow \text{CO}_2\text{(g)} + \text{H}_2\text{(g)}$ <p>Equation with correct state symbols ✓</p>	1	ALLOW equation with <u>one</u> missing +.
4 (b) (ii)	<p>Any one from:</p> <p>React the CO₂ with lime ✓ Disposal in an old oil well / old gas well ✓ At the bottom of the ocean ✓ Making fizzy drinks ✓ Pump it into rocks ✓</p>	1	ALLOW 'under the sea' but not 'into the sea'
4 (b) (iii)	<p>Atom economy = $(2/46) \times 100 = 4\% / 4.3\% / 4.35\% / 4.348\%$ ✓</p>	1	ECF from incorrect equation in 4(b)(i)
4 (b) (iv)	<p>Not very useful (AW) as it has a low <u>atom economy</u> ✓</p>	1	<p>Comment on reaction and low atom economy necessary for mark.</p> <p>ALLOW ecf from 4(b)(iii) (i.e.: If answer is 50% or less, not very useful as atom economy is low; if more than 50%, reaction is useful because atom economy is high).</p>

Question	Answer	Mark	Guidance
4 (c) (i)	<p>Rate of forward reaction = rate of back reaction ✓</p> <p><u>Concentrations</u> of reactants and products remain constant (AW) OR closed system ✓</p>	2	<p>ALLOW 'reactants and products produced at same rate' and 'products change to reactants and back again at same rate'.</p> <p>DO NOT ALLOW concentrations of reactants and products <u>are</u> the same / equal.</p>
4 (c) (ii)	<p><i>Higher temperature:</i> Amount of methanol produced / yield decreases ✓</p> <p>(increased temperature) pushes (position of) <u>equilibrium</u> in the endothermic direction OR equilibrium moves to the left as this it is endothermic OR equilibrium moves towards the reactants as it is endothermic ✓</p> <p><i>Higher pressure:</i> Amount of methanol produced / yield increases ✓</p> <p>(increased pressure) pushes (position of) <u>equilibrium</u> to the side with fewer (gaseous) molecules / moles / particles ✓</p>	4	<p>IGNORE references to 'favour'.</p> <p>ALLOW reverse argument. Must mention endothermic (or exothermic, if reverse argument is used). Mark independently.</p> <p>ALLOW reverse argument. Mark independently.</p>
4 (c) (iii)	<p>Methanol produced more quickly / rate of reaction increased ✓ Reaction proceeds by a route with lower <u>activation enthalpy</u> / <u>energy</u> ✓</p>	2	<p>MP 2 requires both 'route' and 'lower E_a' for the mark. QWC: Term 'activation enthalpy / energy' must be correctly spelled for the mark to be awarded. IGNORE references to intermediates.</p>

Question	Answer	Mark	Guidance
4 (d) (i)	Hydrogen chloride / hydrochloric acid / HC/ ✓ Heat / high temperature ✓	2	IGNORE references to a named catalyst and to pressure. ALLOW PCl_5 , PCl_3 , $POCl_3$ OR $SOCl_2$ in place of HC/ ALLOW reflux for heat. Second mark depends on first.
4 (d) (ii)	$346 / 6.02 \times 10^{23}$ ✓ $\times 1000 = 5.7 / 5.75 \times 10^{-19} \text{ J}$ ✓	2	One mark is for dividing by 6.02×10^{23} (Avogadro's constant). The other mark is for converting the answer from kJ to J, i.e.: multiplying by 1000. Can be scored in either order. In order to score the second mark, there must be a correct evaluation of their expression. A completely correct answer on its own scores both marks. ALLOW 2 or more s.f. correctly rounded ($5.747508306 \times 10^{-19}$). 5.74×10^{-19} scores 1 (incorrect rounding).

Question	Answer	Mark	Guidance
4 (d) (iii)	<p>Answer to (d) (ii) / 6.63×10^{-34} ✓ $= 8.67 \times 10^{14}$ Hz ✓</p>	2	<p>One mark is for dividing the answer to (d)(ii) by the value of 6.63×10^{-34} (Planck's constant).</p> <p>The second mark is for evaluating that expression and no other.</p> <p>ALLOW 2 or more s.f. correctly rounded</p> <p>A completely correct answer on its own scores both marks.</p> <p>If answer to (d)(ii) is rounded to 2 s.f., answer will be 8.60/8.6×10^{14}.</p>
4 (d) (iv)	<p>1. (Halogenoalkanes) break down in the presence of uv (or high-frequency radiation) AND give chlorine / bromine / halogen radicals ✓</p> <p>2. The radicals catalyse the breakdown / removal of ozone ✓</p> <p>3. Low ozone concentrations were found above the Antarctic ✓</p>	3	<p>In mp1, ALLOW photodissociation / photolysis for 'break down in the presence of uv'.</p> <p>In mp 2, ALLOW a description of a catalytic process, in words or equations.</p> <p>In mp3, ALLOW 'ozone hole' for 'low ozone concentrations'.</p> <p>Answer must mention both low concentration of ozone and Antarctic / Antarctica / South Pole / Arctic / North Pole / Poles.</p>
	TOTAL	23	

Question	Answer	Mark	Guidance
5 (a)	Softens / flows / melts / is deformed when <u>warmed / heated</u> ✓ Example: nylon / polycarbonate ✓	2	ALLOW 'can be (re)moulded / <u>reshaped</u> on heating' These are the only examples to score.
5 (b)	Refining oil / generating electricity / power stations / processes in a petrochemical plant / producing steel / producing iron / heating limestone / fermentation / incineration of waste ✓	1	ALLOW 'burning a fossil fuel' provided it is the context of another industrial activity e.g.: in a factory. ALLOW 'making cement'.
5 (c)	Any two from: Reduces the (vehicle's) weight / makes (vehicle) lighter ✓ Greater design flexibility / can be more easily moulded or shaped ✓ Polymers do not rot like wood / corrode like metals ✓	2	Answers must be a comparison. IGNORE references to roll-over.
5 (d)	Co-polymer ✓	1	DO NOT ALLOW co-polymerisation
5 (e) (i)	 ✓	1	Any unambiguous representation. IGNORE brackets and n. Answer must show only one repeat unit.
5 (e) (ii)	 ✓	1	Any unambiguous representation (e.g.: skeletal formula). Shape not important. IGNORE brackets and n. Answer must show only one repeat unit.

Question	Answer	Mark	Guidance
5 (f) (i)	Propagation ✓	1	ALLOW words that sound correct, e.g.: 'propagation / propergation'.
5 (f) (ii)	Initiation ✓	1	
5 (g) (i)	(The adhesive) cannot make bonds OR only makes weak bonds AND with the polymer OR poly(ethene) OR surface ✓	1	ALLOW covalent bond, imb or named imb. Answer must have comment on bonding and polymer or surface for the mark.
5 (g) (ii)	Instantaneous (dipole) – induced dipole ✓	1	IGNORE 'id-id'. ALLOW Van der Waals. ALLOW small spelling errors
5 (h)	The reaction produces only one product (AW) ✓ OR They have joined without producing a small molecule / losing atoms (AW) ✓	1	ALLOW 'polymer has the same empirical formula as the monomer' or 'polymer = (monomer) _n '
5 (i) (i)	Could be used in production of electricity / power a polymer production plant / provide heating for homes / power other processes / heat other processes ✓	1	

Question	Answer	Mark	Guidance
5 (i) (ii)	<p>Any two from:</p> <p>Carbon dioxide / CO₂ ✓ is a greenhouse gas / is linked to global warming ✓</p> <p>OR</p> <p>Carbon monoxide / CO ✓ is toxic (or description, e.g.: 'reduces oxygen uptake') / causes smog to form ✓</p> <p>OR</p> <p>Any nitrogen oxide ✓ are toxic / cause acid rain / greenhouse effect / smog formation / cause breathing difficulties ✓</p> <p>OR</p> <p>HCN / dioxin ✓ toxic ✓</p>	4	<p>Please use annotations on answer in appropriate place.</p> <p>In each pair, second mark depends on first. IGNORE references to hydrocarbons.</p> <p>ALLOW NO_x OR 'nitrogen oxides'. IGNORE catalyse the depletion of ozone.</p>

Question	Answer	Mark	Guidance
5 (j)	<p>Poly(propene): Tough, so accelerator / pedal does not break OR become damaged when used OR Exceptional fatigue resistance, so accelerator / pedal withstands continual use (AW) ✓</p> <p>Poly(chloroethene): Good impact strength, so imitation leather / seat cover / fabric does not tear easily OR Flexible, so the imitation leather / seat cover / fabric can be pulled or stretched to the (correct) shape OR Durable, so imitation leather / seat cover / fabric does not wear out (AW) ✓</p>	2	<p>Property quoted must match to a use in a vehicle.</p> <p>Must have the answers on the correct lines.</p> <p>Must mention property, use and appropriate reason (as left) to score each mark.</p>
	TOTAL	20	