Excellence • Accountability • Respect • Teamwork • Honesty

FIDES PRAESID

NEWENT COMMUNITY SCHOOL AND SIXTH FORM CENTRE

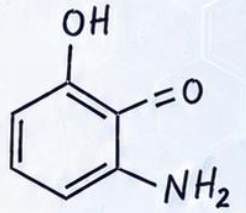
Chemistry

A LEVEL

Summer Work

Think React Succeed!

$2H_2 + O_2 \rightarrow 2H_2O$



Curious
Creative
Confident

The best reactions start with curiosity.

A Level Chemistry Summer Work

Well done on choosing to study A Level Chemistry, and welcome to the Chemistry Department!

This booklet contains information and summer work designed to help you prepare for the challenges of A Level Chemistry in September, regardless of which school you currently attend or which GCSE exam board you studied.

The summer work is **compulsory** bridging work and must be completed independently before the start of the course. Your teachers will expect to see evidence that it has been completed when you return in September.

There is a significant step up from GCSE to A Level in both the depth of knowledge and the skills required for success. To help bridge this gap, we strongly recommend working through the **CGP Head Start to A Level Chemistry** book.

If you do not have access to this book, you can instead use your GCSE revision guides, exercise books and other revision resources. Spend time revising the topics you found most challenging at GCSE to ensure you have a secure foundation.

This booklet also includes a selection of GCSE examination questions. Please complete these to help consolidate your knowledge and prepare for the start of the A Level course.

In September, please bring:

- Your completed summer revision notes (from the CGP book or other GCSE revision resources).
- Your completed GCSE exam questions **marked using the mark schemes**.

We hope you enjoy your summer break and look forward to welcoming you to the Chemistry Department in September.

If you have any questions, please contact:
Dr Johns: cjohns@newent.gloucs.sch.uk **or Mrs Ali:** mali@newent.gloucs.sch.uk

2026 Practice Questions for Chemistry knowledge.

Structure & Bonding & Properties

Q1. Neodymium is a metal used in powerful magnets.

(a) One stage in the extraction of neodymium from its ore is to heat neodymium fluoride with calcium.

The table shows the melting points of the substances in this stage of the extraction.

Melting point in °C			
calcium	calcium fluoride	neodymium	neodymium fluoride
850	1418	1024	1410

(i) Balance the equation for this reaction.

(1)

.....NdF_3 + ...Ca → .....Nd + ...CaF_2

(ii) At one point in this extraction, the temperature of the reaction mixture is 1100 °C.
Which two substances are solids at this temperature?

(1)

..... and .....

(iii) Suggest the most likely type of bonding present in neodymium fluoride.

(1)

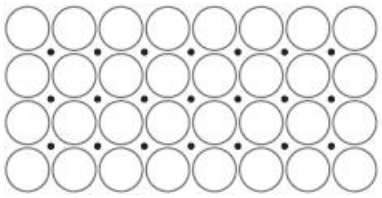
.....

(iv) Neodymium reacts with oxygen to form neodymium oxide.
Suggest the formula of neodymium oxide.

(1)

.....

(b) The diagram shows the particles in neodymium



Explain, with reference to the diagram, why neodymium is malleable and a good conductor of electricity.

(4)

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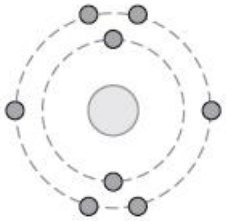
(Total for question = 8 marks)

Q2. The diagram shows how the electrons are arranged in an atom of oxygen.



Oxygen atoms form both covalent and ionic bonds.

(a) Water is formed when two atoms of hydrogen combine with one atom of oxygen.

(i) Draw a dot and cross diagram of a molecule of water. You need only show the electrons in the outer shells.

(2)

(ii) Explain how the covalent bonds in the water molecule hold the hydrogen and oxygen atoms together.

(2)

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.....

(b) The electronic configuration of a sodium atom is 2.8.1

Sodium oxide, Na_2O, is an ionic compound formed when sodium reacts with oxygen.

(i) Describe, in terms of electrons, what happens when sodium oxide is formed in this reaction.

(3)

.....

.....

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.....

(ii) The reaction of sodium to form sodium oxide can be described as oxidation because it involves the addition of
oxygen.

State one other reason why this reaction can be described as oxidation.

(1)

.....

(c) Explain why water has a much lower melting point than sodium oxide.

(2)

.....

.....

.....

.....

(d) A teacher added sodium oxide to water in a beaker.

The equation shows the reaction that occurred.

$$Na_2O(.....) + H_2O(.....) \rightarrow 2NaOH(.....)$$

(i) Insert the appropriate state symbols in this equation.

(2)

(ii) Some universal indicator was then added to the beaker. A colour change occurred. State the final colour of the
universal indicator and identify the ion responsible for the colour change.

(2)

Final colour

.....

Ion responsible for colour change

.....

(Total for Question = 14 marks)

Quantitative Chemistry & acids/bases

Q3. (a) A student made a solution of sodium hydroxide by dissolving 10.0 g of solid sodium hydroxide in distilled water to make 250 cm^3 of solution.

(i) Calculate the amount, in moles, of NaOH in 10.0 g of sodium hydroxide.

(3)

amount = ... mol

(ii) Calculate the concentration, in mol/dm^3, of this solution of sodium hydroxide.

(2)

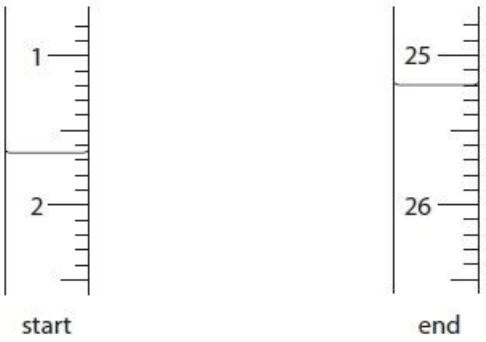
concentration = ... mol/dm^3

(b) (i) The student uses the sodium hydroxide solution to find the concentration of a solution of hydrochloric acid.

He uses this method

· use a pipette to put 25.0 cm^3 of the sodium hydroxide solution into a conical flask
· add a few drops of methyl orange indicator to the solution
· gradually add the hydrochloric acid from a burette until the solution in the flask just changes colour

The diagram shows his burette readings.



Complete the table, giving all values to the nearest 0.05 cm^3.

(3)

burette reading at end in cm^3	
burette reading at start in cm^3	
volume of acid added in cm^3	

(ii) State the colour of the methyl orange at the start and at the end of the experiment.

(2)

colour at start

.....

colour at end

.....

(iii) Why is a burette used instead of a pipette for adding the acid?

(1)

.....

.....

(c) Sodium hydroxide reacts with carbon dioxide. The equation for this reaction is

$$2NaOH + CO_2 \rightarrow Na_2CO_3 + H_2O$$

A solution of sodium hydroxide of concentration 2.00 mol/dm^3 is used.

(i) Calculate the amount, in moles, of sodium hydroxide in 200 cm^3 of this solution.

(2)

amount of sodium hydroxide = ... mol

(ii) Deduce the maximum mass, in grams, of carbon dioxide that can react with this solution of sodium hydroxide.

(2)

mass of carbon dioxide = ... g

(Total for question = 15 marks)

Q4. Magnesium reacts with dilute hydrochloric acid. The equation for the reaction is

$$Mg(s) + 2HCl(aq) \rightarrow MgCl_2(aq) + H_2(g)$$

(a) 0.0960 g of magnesium was added to 25.0 cm^3 of 0.400 mol/dm^3 hydrochloric acid.

(i) Calculate the amount, in moles, of magnesium used.

(2)

amount of magnesium = ... mol

(ii) Calculate the amount, in moles, of HCl in the 25.0 cm^3 of hydrochloric acid.

(2)

amount of HCl = ... mol

(b) Use your answers from (a) to determine which of the reactants is in excess.

Show your reasoning.

(2)

The reactant in excess is

.....

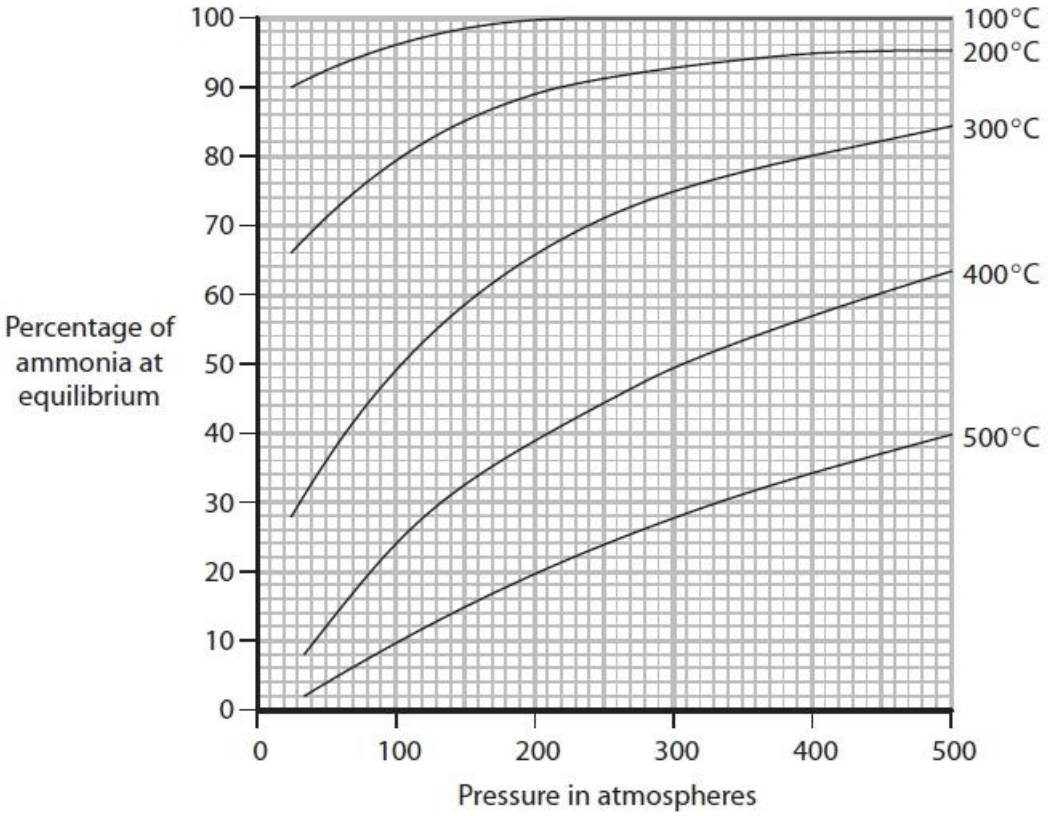
(Total for Question = 6 marks)

Rates of reaction & Dynamic Equilibria

Q5. Ammonia (NH_3) can be made by reacting nitrogen and hydrogen, in the presence of an iron catalyst, according to the equation

$$N_2(g) + 3H_2(g) \rightleftharpoons 2NH_3(g) \quad \Delta H = -92 \text{ kJ/mol}$$

The reaction is reversible and the reaction mixture can, if left for long enough, reach a position of dynamic equilibrium.
The graph shows how the percentage of ammonia at equilibrium depends on the temperature and pressure used.



(a) State two features of a reaction mixture that is in dynamic equilibrium.

(2)

1

.....

.....

2

.....

.....

(b) (i) Use the graph to state the effect on the percentage of ammonia at equilibrium of the following changes

- an increase in temperature at constant pressure
- an increase in pressure at constant temperatureWrite your answers in the table.

(2)

	Effect on percentage of ammonia at equilibrium
increase in temperature	
increase in pressure	

(ii) Explain why these changes have the effects you have given in (b)(i).

(2)

Increase in temperature

.....

.....

Increase in pressure

.....

.....

(c) The reaction between nitrogen and hydrogen is used to manufacture ammonia in the Haber process. This process
operates at a pressure of 200 atmospheres and a temperature of 450°C, with an iron catalyst.

If the reaction mixture reached a position of equilibrium, the expected yield of ammonia would be about 30%.

The actual yield of ammonia obtained in the Haber process is about 15%.

(i) Suggest why the actual yield of ammonia is lower than the expected yield.

(1)

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.....

.....

(ii) How is the ammonia separated from the unreacted nitrogen and hydrogen?

(2)

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.....

(iii) What happens to the unreacted nitrogen and hydrogen?

(1)

.....

(d) The reaction would be faster if a higher temperature were used.

Suggest why a higher temperature is not used in the Haber process.

(1)

.....

.....

.....

(e) The equation for the formation of ammonia is

$$N_2(g) + 3H_2(g) \rightleftharpoons 2NH_3(g)$$

(i) Calculate the amount, in moles, of ammonia, that could be formed in the Haber process from 112 kilograms of nitrogen, assuming all the nitrogen is converted into ammonia.

(3)

Amount of ammonia =..... mol

(ii) Only 15% of the nitrogen is converted into ammonia.
Calculate the actual amount, in moles, of ammonia that is formed from 112 kilograms of nitrogen.

(1)

Amount of ammonia =..... mol

(Total for Question = 15 marks)

Q6. The equation for a reaction that occurs in the manufacture of nitric acid is

$$4NH_3(g) + 5O2(g) \rightleftharpoons 4NO(g) + 6H_2O(g) \quad \Delta H = -900 \text{ kJ/mol}$$

(a) (i) State the meanings of the symbols $\rightleftharpoons$ and ΔH

(2)

$\rightleftharpoons$

.....

ΔH

.....

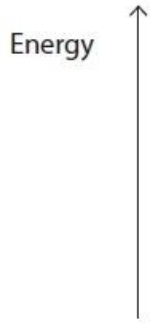
(ii) What does the negative sign of ΔH indicate about the reaction?

(1)

.....

(b) Complete the energy level diagram for this reaction.

(2)



(c) Typical conditions used for this reaction are a temperature of 900 °C and a pressure of 10 atmospheres.

Deduce the effects of changing the conditions as shown in the table. Choose from the words **increased**, **decreased** or **unchanged** to complete the table.

(4)

Change	Effect on rate of reaction	Effect on yield of products
increase in temperature		
addition of catalyst		

(d) A manufacturer considers using a pressure of 5 atm instead of 10 atm.

(i) Predict and explain the effect on the rate of reaction of changing the pressure to 5 atm.

(3)

Effect on rate of reaction

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Explanation

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(ii) Predict and explain the effect on the position of equilibrium of changing the pressure to 5 atm.
(2)

Effect on position of equilibrium

.....

.....

.....

Explanation

.....

.....

.....

(e) Balance the equation that represents the last stage in the manufacture of nitric acid.

.....NO_2 + ...O_2 + ...H_2O → .....HNO_3 **(1)**

(Total for Question = 15 marks)

Organic Chemistry

Q7. Alkenes are unsaturated hydrocarbons.

(a) State what is meant by the term **unsaturated**.

(1)

.....

.....

(b) One method of producing alkenes is by cracking alkanes.

(i) Complete the equation for the cracking of decane into octane (C_8H_{18}) and ethene.

(1)

$C_{10}H_{22}$ → ..... + ...

decane

(ii) State two conditions used for cracking alkanes in industry.

(2)

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(c) The diagram shows two alkenes that are isomers of each other.

(i) Explain why these two compounds are isomers.

(2)

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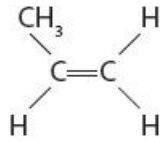
(ii) Draw a diagram to show the structure of an alkene that is another isomer of these two compounds.

(1)

(d) The structure of propene is



Propene can be polymerised.

(i) Give the name of the polymer formed from propene.

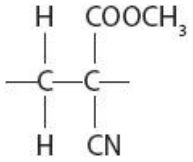
(1)

.....

(ii) Draw the repeat unit for this polymer.

(2)

(e) The repeat unit of an addition polymer used in a type of glue is shown in the diagram.



Draw the structure of the monomer used to make this polymer.

(1)

(Total for question = 11 marks)

Q8. There are two important ways to manufacture ethanol.

Reaction 1 $C_2H_4 + H_2O \rightarrow C_2H_5OH$

Reaction 1 $C_6H_{12}O_6 \rightarrow 2C_2H_5OH + 2CO_2$

(a) (i) Identify one raw material that could be used as the source of $C_6H_{12}O_6$

(1)

.....

(ii) Reaction 2 uses a catalyst called zymase, which is present in yeast.
Identify the catalyst used in reaction 1.

(1)

.....

(iii) In both reactions it is important to control the temperature.
State why the temperature in reaction 2 is kept below 35 °C.

(1)

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.....

(b) A manufacturing company plans to build a factory to produce ethanol on a large scale. The factory will be near an
oilfield. The ethanol will be used as a solvent for perfume.

Suggest why the company should use reaction 1 rather than reaction 2.

(3)

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(c) In the future, it may be necessary to convert the ethanol (produced by reaction 2) into ethene.

Write the equation for this reaction and state the type of reaction that occurs.

(2)

Equation

.....

Type of reaction

.....

(Total for Question = 8 marks)

MARKSCHEMES

Y12 Summer 2026 practice Qs - Mark Scheme

Q1.

Question number	Answer	Notes	Marks
a i	$2NdF_3 + 3Ca \rightarrow 2Nd + 3CaF_2$	Accept fractions and multiples	1
ii	calcium fluoride AND neodymium fluoride (in either order)	Accept formulae	1
iii	ionic	Accept electrovalent Ignore giant Ignore electron transfer Reject covalent bonding/ intermolecular forces	1
iv	Nd_2O_3	penalise incorrect use of symbols and subscripts	1
b	M1 (neodymium ions in) layers/rows/planes/sheets/ OWTTE M2 slide/slip (over each other) M3 delocalised electrons OR sea of electrons M4 (can) flow/travel/move (through structure) / are mobile (when voltage/pd is applied)	Accept atoms/cations/particles for ions Reject molecules Allow OWTTE, eg flow/shift/roll/move M2 DEP on mention of **EITHER** layers or equivalent **OR** mention of ions or equivalent Do not award M2 if molecules/protons/electrons/nuclei in place of ions etc If reference to ionic bonding / covalent bonding /molecules / intermolecular forces, no marks Not just electrons Ignore free electrons Ignore carry charge M4 DEP on M3 or near miss	4

(Total for question = 8 marks)

Q2.

Question number				Answer	Notes	Marks
	a	i	M1	H—O—H with both bonds represented by 2 shared electrons	Accept 2 dots, 2 crosses or 1 of each Atoms do not have to be labelled with H or O If wrongly labelled, only M1 can be awarded	1
			M2	8 electrons in outer shell of O AND 2 electrons in outer shell of both H	Ignore inner shell of O Reject if H has 2 shells M2 dependent on M1	1
		ii	M1	(strong electrostatic) attraction between bonding/shared pair of electrons	Must refer to pair or two electrons	1
			M2	and nuclei (of hydrogen and oxygen)	Accept word nucleus instead of nuclei if clear reference to 2 atoms 0/2 if any mention of ions / electron transfer M2 dependent on mention of both attraction and electrons in M1	1
	b	i	M1	idea of electron transfer / loss and gain of electrons		1
			M2	direction of transfer, eg sodium to oxygen / sodium loses and oxygen gains		1
			M3	correct number of electrons involved, eg (each) sodium loses 1 and oxygen gains 2	Ignore charges on ions	1

					Ignore covalent 0/3 if any mention of electron sharing All marks may be scored on diagrams or by reference to electronic configurations Max 2 if molecules mentioned	
		ii	M1	(sodium) loses electron(s)	Ignore oxygen gains electrons	1
	c		M1	attractions between water molecules are weak(er) / easily overcome / need little energy to break	Allow (named) intermolecular forces in place of attractions	1
			M2	attractions between (sodium and oxide) ions are strong(er) / ionic bonds are strong /need a lot of energy to break	Do not award M2 if any mention of intermolecular forces / metallic bonding Any implication of <u>breaking</u> covalent bonds = 0/2	1
	d	i	M1 M2 M3	s l aq	All three correct = 2 marks Two correct = 1 mark One/none correct = 0 marks Do not award M1 for g or if not possible to be sure that it is s and not g Do not award marks for abbreviations such as sol / liq	2
		ii	M1 M2	blue / purple OH^- / hydroxide	Allow indigo or violet M1 and M2 independent	1 1

Total 14 marks

Q3.

Question number	Answer	Accept	Reject	Marks
(a) (i)	**M1** – M_r (NaOH) = 40			1
	M2 – 10(.0) ÷ M1			1
	M3 – 0.25 (mol) Correct answer with no working scores 3			1
(ii)	**M1** – 0.25 x 1000 ÷ 250			1
	M2 – 1(.0) (mol/dm^3) Correct answer with no working scores 2 Mark csq throughout	M3 from (a)(i) ÷ 250 / 0.001 for 1 mark		1
(b) (i)	**M1** – (reading at end) 25.20			1
	M2 – (reading at start) 1.65			1
	M3 – (volume added) 23.55 Award 1 mark for correct end and start readings in reverse order Mark **M3** csq on **M1** and **M2** Penalise lack of two decimal places once only in a correct answer			1
(ii)	**M1** – (colour at start) yellow			1
	M2 – orange/pink	red		1
(iii)	different volumes can be measured /continuously graduated / addition (of acid) can be controlled / volume required is not known IGNORE references to precision or accuracy	pipette measures one volume only		1
(c) (i)	**M1** – 2(.00) x 200 ÷ 1000			1
	M2 – 0.4(0) (mol) Correct final answer with no working scores 2 marks	400 for 1 mark		1
(ii)	**M1** – $n(CO_2)$ = 0.2(0) / ½ of **M2** from (c)(i) (mol)			1
	M2 – mass(CO_2) = 8.8(0) (g) / **M1** x 44 Correct final answer with no working scores 2 marks			1

Q4.

Question number	Answer	Accept	Reject	Marks
(a) (i)	**M1** $\frac{0.096}{24}$ **M2** 0.004(0)			1 1
(ii)	**M1** $\frac{25(.0)\times 0.4(00)}{1000}$ **M2** 0.01(00)	an answer of 10(.0) for 1 mark (i.e. failing to divide by 1000)		
(b)	**M1** 0.004 mol of Mg react with 0.008 mol of HCl **OR** 0.01 is greater than 0.008 / M2 from (a)(ii) is greater than 2 x **M2** from (a)(i) **M2** HCl is in excess **M2** dep on **M1** Mark csq on answers in (a)(i) and (a)(ii)	Mg and HCl react in a 1:2 ratio (by moles)		1 1
			Total	**6**

Q5.

Question number	Answer	Accept	Reject	Marks
(a)	any two from: • forward and backward reactions (still) occurring • concentrations/amounts of reactants/products/components remain constant • rate of forward reaction = rate of reverse reaction **IGNORE** concentrations/amounts of reactants and products are the same **IGNORE** reaction is reversible/goes both ways, OWTTE **IGNORE** references to le Chatelier	both reactions (still) occurring stay the same in place of remain constant		2
(b) (i)	**M1** – (increase in temperature) decrease(s)	less/lower(s)/drop(s)/gets smaller		1
(ii)	**M2** – (increase in pressure) increase(s)	more/raise(s)/higher/gets bigger		1
	M1 – (forward) reaction is exothermic/gives out heat OR reverse reaction is endothermic/takes in heat		atoms	1
	M2 – fewer (gas) molecules/particles on right hand side OR fewer moles (of gas) on right hand side	reverse argument shifts to side with fewer (gas) molecules/fewer moles (of gas)		1
	IGNORE references to volumes **IGNORE** references to le Chatelier's principle **IGNORE** references to reverse reaction lowers the temperature **IGNORE** references to forward reaction reduces the pressure			

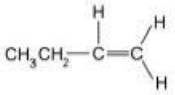
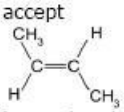
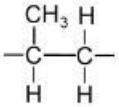
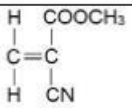
(c)	(i)	(the position of) equilibrium is not established/reached			1
	(ii)	**M1** – (the mixture of gases is) cooled	temperature is decreased		1 1
	(iii)	**M2** – ammonia liquefies/ condenses recycled / reused / recirculated	put (back) into the reaction chamber used again (in the process)		1 1
(d)		heat(ing) / energy costs would be higher	yield (of ammonia) would decrease		1
(e)	(i)	**M1** M_r (N_2) = 28 **M2** 112 000 ÷ 28 (= 4 000) / 112 000 ÷ **M1** **M3** 8 000 / **M2** x 2	28 anywhere in the calculation 112 ÷ 28) x 2 = 8 for 2 marks (112 000 ÷ 14) x 2 = 16 000 for 2 marks		1 1 1
	(ii)	1 200 / 15% of **M3**	Correct final answer without working for 3 marks		1
				Total	**15**

Q6.

Question number				Answer	Notes	Marks
	a	i	M1	reversible (reaction) / goes forwards and/or backwards / can go in either direction	Ignore equilibrium	1
			M2	enthalpy/heat/energy change	Ignore kJ/mol Reject energy produced/released	1
		ii		exothermic / heat/energy given out/lost	Accept enthalpy in place of heat/energy Ignore references to temperature	1
	b		M1	two (vaguely) horizontal lines: one with reactants or their formulae AND one with products or their formulae	Ignore all curves and connecting lines Ignore line representing *x*-axis and any label Accept R for reactants and P for products	1
			M2	reactants (line) above products (line)	No penalty for products to left of reactants	1
					Accept formulae in place of words for reactants and products Do not penalise minor errors in formulae (e.g. NH instead of NH_3) or missing coefficients	
	c		M1	(effect of temp on rate) increased		1
			M2	(effect of temp on yield) decreased		1
			M3	(effect of catalyst on rate) increased		1
			M4	(effect of catalyst on yield) unchanged		1

	d	i	M1	decreased	No ECF from increased / no effect Accept longer time for reaction Ignore references to equilibrium	1
			M2	particles further apart/more widely spaced / more space to move in / concentration decreases	Accept molecules Reject atoms/ions in M2 only If neither of M2 and M3 scored, accept fewer collisions with no reference to frequency or time	1
			M3	less frequent (successful) collisions / fewer (successful) collisions per second/minute	Accept more time between collisions Ignore decreased chance / probability / likelihood of collisions	1
					References to change in energy/speed of particles means M2 and M3 cannot be scored	
		ii	M1	shifted to right / more products / shifts in exothermic/forward direction	Ignore references to rate No ECF from shift to left / no change Accept forward reaction favoured	1
			M2	more (gas) moles/molecules on right	Accept fewer (gas) moles on left Accept favours side with more (gas) moles Accept 9 moles on left and 10 moles on right	1
	e			4 (1) 2 4	Accept fractions and multiples	1
					Total	**15**

Q7.

Question number	Answer	Notes	Marks
(a)	(the molecule) contains a (carbon to carbon) double bond	accept 'multiple bond' ignore refs to single bonds	1
(b) (i)	C_8H_{18} and C_2H_4	Ignore names of compounds	1
(ii)	**M1** 600-700°C **M2** silica / alumina (catalyst)	 accept 'aluminium oxide / silicon dioxide / aluminosilicate / zeolite' accept correct formulae	2
(c) (i)	**M1** (they have) the same molecular formula **M2** (but have) different structural formulae /	allow 'both have same number of carbon and hydrogen (atoms as each other)' accept 'the atoms are arranged differently'	2
(ii)	displayed formulae / structures 	accept  ignore bond angles accept fully displayed formula	1
(d) (i)	poly(propene) / polypropene	accept 'polypropylene'	1
(ii)	 **M1** correct structure **M2** extension bonds	ignore brackets and 'n' **M2** dep on **M1** except award **M2** if >1 repeat unit given	2
(e)		penalise incorrect use of upper / lower case letters and subscripts penalise bonds to incorrect atoms	1

(Total for question = 11 marks)

Q8.

Question number				Answer	Notes	Marks
	a	(i)	M1	(cane) sugar/ sugar beet	Do not accept any named sugar	1
		(ii)	M1	(conc / syrupy) phosphoric acid / H_3PO_4	Accept (conc) sulfuric acid / H_2SO_4 If both name and formula given, both must be correct Ignore oxidation numbers Penalise dilute acid Accept wrong spellings, eg phosphuric acid / phospheric acid	1
		(iii)	M1	(to prevent) zymase/enzyme being denatured	Accept zymase/enzyme work best at these temperatures / this is the optimum temperature for zymase/enzyme Accept yeast/zymase/enyme killed/destroyed	1
	b			reaction 1 reasons	Accept reaction 2 reasons	
			M1	gives pure(r) product / higher (percentage) yield /ethanol is the only product	gives impure product / lower (percentage) yield OR contains solid/sediment/yeast/water Ignore more ethanol produced	3
			M2	reaction fast(er)	reaction 2 slow(er)	
			M3	ethene/C_2H_4 available (from oil refinery)		
			M4		needs land to grow sugar (cane)	
			M5		needs warm climate	
			M6	reaction continuous	reaction batch	
					Any three for 1 each Ignore references to cost / efficiency	
	c		M1	C2H5OH → C2H4 + H2O	Equation must be balanced Accept reversible arrow Accept structural/displayed formulae Accept word equation	1
			M2	dehydration	Accept elimination / (thermal) decomposition Treat other reaction types (eg reduction) as contradictions	1
						Total 8 marks