

Mark Scheme (Results)

March 2013

GCSE Chemistry
5CH1F/01

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Question Number	Answer	Acceptable answers	Mark
1(a)(i)	C (78%)		(1)

Question Number	Answer	Acceptable answers	Mark
1(a)(ii)	oxygen	O ₂ Reject O ² , O2, O	(1)

Question Number	Answer	Acceptable answers	Mark
1(b)	<p>An explanation linking any two of</p> <ul style="list-style-type: none"> • {Earth/atmosphere} cooled (1) • water vapour condensed / forms rain / forms clouds / forms precipitation (1) • {seas/ oceans} formed / soaked into ground (1) 		(2)

Question Number	Answer		Acceptable answers		Mark
1(c)					(2)
	process	adds carbon dioxide	does not affect amount of carbon dioxide	removes carbon dioxide	
	burning fossil fuels	(✓)			
	volcanic activity	✓			
	dissolving in the oceans			✓	

Reject any row with two or more ticks; allow any symbol for tick

Question Number	Answer	Acceptable answers	Mark
1(d)	<p>An explanation linking any two of</p> <p>EITHER</p> <ul style="list-style-type: none"> • photosynthesis (1) • which takes in/ absorbs / removes carbon dioxide (1) <p>OR</p> <ul style="list-style-type: none"> • wood burned / wood decays (1) <p>THEREFORE</p> <ul style="list-style-type: none"> • carbon dioxide increases (1) 	<p>Accept CO₂ in each case</p> <p>Ignore "breathes in carbon dioxide"</p>	(2)

Question Number	Answer	Acceptable answers	Mark
2(a)	B (increases noise)		(1)

Question Number	Answer	Acceptable answers	Mark
2(b)(i)	An explanation linking the following <ul style="list-style-type: none"> • break down (of a compound) (1) • heat / high temperature (makes process happen) (1) 	break up/ split up [ignore decompose]	(2)

Question Number	Answer	Acceptable answers	Mark
2(b)(ii)	56 (kg)	Accept 100-44 if not worked out if units given must be kg	(1)

Question Number	Answer	Acceptable answers	Mark
2(c)(i)	Marble		(1)

Question Number	Answer	Acceptable answers	Mark
2(c)(ii)	An explanation linking <ul style="list-style-type: none"> • heat/high temp (1) • (high) pressure / compressed (1) 	Reject if melting	(2)

Question Number	Answer	Acceptable answers	Mark
2(c)(iii)	Igneous		(1)

Question Number	Answer	Acceptable answers	Mark
3(a)	(good) conductor (of electricity) / flexible / malleable / ductile / unreactive	Allow explanations eg 'allows electricity to pass through'. Copper does not rust is not accepted	(1)

Question Number	Answer	Acceptable answers	Mark
3(b)	D (are stronger)		(1)

Question Number	Answer	Acceptable answers	Mark
3(c)	An explanation linking two of <ul style="list-style-type: none"> • unreactive/inert (1) • does not corrode (1) • malleable (1) • ductile (1) • scarce / valuable / expensive (1) • appropriate melting point (1) • (so stays) shiny /attractive (1) 	Ignore does not rust	(2)

Question Number	Answer	Acceptable answers	Mark
3(d)	An explanation linking <ul style="list-style-type: none"> • mixture of a metal (1) • with another metal or carbon (1) 	Do not allow combining / bonding / joining etc instead of mixture allow specific examples	(2)

Question Number	Answer	Acceptable answers	Mark
3(e)	iron oxide + carbon monoxide → iron + carbon dioxide reactants (1) products (1)	Allow fully balanced symbol equation for 2	(2)

Question Number	Answer	Acceptable answers	Mark
3(f)	<p>An explanation linking</p> <ul style="list-style-type: none"> • preserves supplies (1) • as new ore not needed (1) <p>OR</p> <ul style="list-style-type: none"> • fewer quarries / mines / eyesores (1) • because ore does not have to be dug up (1) <p>OR</p> <ul style="list-style-type: none"> • iron objects last a long time (1) • so would fill up landfill sites (1) <p>OR</p> <ul style="list-style-type: none"> • because just has to be melted (1) <p>OR</p> <ul style="list-style-type: none"> • saves energy (1) • therefore less carbon dioxide released (1) 	Ignore references to cost	(2)

Question Number	Answer	Acceptable answers	Mark
4(a)(i)	break down food / (help) digestion		(1)

Question Number	Answer	Acceptable answers	Mark
4(a)(ii)	D (to neutralise excess acid)		(1)

Question Number	Answer	Acceptable answers	Mark
4(b)	zinc oxide + sulfuric acid → zinc sulfate + water any 3 correct – 1 mark all 4 correct (and no additional substances) – 2 marks	Allow fully correct balanced equation for 2	(2)

Question Number	Answer	Acceptable answers	Mark
4(c)(i)	A (electrolysis)		(1)

Question Number	Answer	Acceptable answers	Mark
4(c)(ii)	A description including <ul style="list-style-type: none"> lighted splint / ignite gas (1) (squeaky) pop (1) 		(2)

Question Number	Answer	Acceptable answers	Mark
4(d)(i)	An explanation linking <ul style="list-style-type: none"> chlorine toxic / poisonous (1) fume cupboard removes gas / OWTTE (1) 	ignore harmful etc	(2)

Question Number	Answer	Acceptable answers	Mark
4(d)(ii)	PVC / poly(chloroethene)	Polychloroethene / polychlorethene reject poly(chloroethane)	(1)

Question Number	Answer	Acceptable answers	Mark
5(a)	An explanation linking <ul style="list-style-type: none"> (B) contains carbon and hydrogen (1) only (1) 	Ignore references to single or double bonds	(2)

Question Number	Answer	Acceptable answers	Mark
5(b)(i)	D (burns to produce heat energy)		(1)

Question Number	Answer	Acceptable answers	Mark
5(b)(ii)	octane + oxygen → carbon dioxide + water reactants (1) products (1)	Allow fully balanced symbol equation for 2	(2)

Question Number	Answer	Acceptable answers	Mark
5(b)(iii)	carbon monoxide	Allow CO Reject Co	(1)

Question Number		Indicative Content	Mark
QWC	*5(c)	<p>A description including some of the following points</p> <p>Fractions (in order)</p> <ul style="list-style-type: none"> • (gases) • petrol / gasoline • [naphtha] • kerosene • diesel (oil) • (fuel oil) • (bitumen) <p>Uses</p> <p>Many fractions are used as fuel gases / LPG – for camping / domestic cooking petrol – for cars kerosene - for aircraft / domestic heaters diesel oil – for cars and larger vehicles, trains fuel oil – for large ships, power stations</p> <p>naphtha – raw material bitumen can be used for road making and roofs / waterproofing</p> <p>some fractions can be cracked and alkenes used to make plastics</p>	(6)
Level	0	No rewardable content	
1	1 - 2	<ul style="list-style-type: none"> • a limited description e.g. petrol, used as a fuel in cars • the answer communicates ideas using simple language and uses limited scientific terminology • spelling, punctuation and grammar are used with limited accuracy 	
2	3 - 4	<ul style="list-style-type: none"> • a simple description e.g. most fractions are used as fuels, including petrol in cars, kerosene in aircraft • the answer communicates ideas showing some evidence of clarity and organisation and uses scientific terminology appropriately • spelling, punctuation and grammar are used with some accuracy 	
3	5 - 6	<ul style="list-style-type: none"> • a detailed description e.g. most fractions are used as fuels - petrol in cars, kerosene in aircraft and diesel in lorries – and bitumen is sticky and used on road and roof surfaces • the answer communicates ideas clearly and coherently uses a range of scientific terminology accurately • spelling, punctuation and grammar are used with few errors 	

Question Number	Answer	Acceptable answers	Mark
6(a)(i)	A (ethene can form a polymer)		(1)

Question Number	Answer	Acceptable answers	Mark
6(a)(ii)	<ul style="list-style-type: none"> propane [exact spelling](1) C₃H₈ (1) $ \begin{array}{c} \text{H} \quad \text{H} \quad \text{H} \\ \quad \quad \\ \text{H}-\text{C}-\text{C}=\text{C} \\ \quad \quad \\ \text{H} \quad \quad \text{H} \end{array} \quad (1) $	Allow methyl group	(3)

Question Number	Answer	Acceptable answers	Mark
6(a)(iii)	description including the following points <ul style="list-style-type: none"> (add) bromine (water) (1) (orange to) colourless (1) 	allow decolourised / ignore discoloured, clear	(2)

Question Number		Indicative Content	Mark
QWC	*6(b)	<p>A description including some of the following points</p> <p>recycling – advantages saves raw materials/crude oil / saves making more plastic landfill sites do not fill up as plastics non-biodegradable less possible damage to animals from discarded waste less energy used (in recycling than in starting from crude oil)</p> <p>recycling – disadvantages transport to collection area/recycling point uses fuel collection point may cause litter problem/eyesore etc plastics need to be sorted</p> <p>burning – advantages and disadvantages volume / amount of waste (bags) decreased energy released can be used landfill sites do not fill up as plastics non-biodegradable burning could produce toxic/poisonous fumes /harmful gases burning produces carbon dioxide</p> <p>any general comments about reducing pollution, less harm to the environment and economic issues etc can be ignored.</p>	(6)
Level	0	No rewardable content	
1	1 - 2	<ul style="list-style-type: none"> • a limited description e.g. recycling is good as plastics do not rot • the answer communicates ideas using simple language and uses limited scientific terminology • spelling, punctuation and grammar are used with limited accuracy 	
2	3 - 4	<ul style="list-style-type: none"> • a simple description e.g. plastic bags do not rot so burning is good because it leaves little waste • the answer communicates ideas showing some evidence of clarity and organisation and uses scientific terminology appropriately • spelling, punctuation and grammar are used with some accuracy 	
3	5 - 6	<ul style="list-style-type: none"> • a detailed description e.g. recycling is good because it conserves oil but the plastics do have to be sorted first • the answer communicates ideas clearly and coherently uses a range of scientific terminology accurately • spelling, punctuation and grammar are used with few errors 	

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