AQA GCSE Science Combined Foundation

Practice answers

Question	Answers	Extra information	Mark	AO / Specification reference
01.1	mixed temperatures pure	answers must be in this order	1 1 1	AO1 5.8.1.1
01.2	thermometers **or** data logger		1	AO1 5.8.1.1
01.3	A		1	AO2 5.8.1.1
01.4	carbon dioxide gas		1	AO1 5.8.1.1
01.5	a formulation is a mixture that has been designed as a useful product		1	AO1 5.8.1.2
01.6	any one example from these categories: fuels, cleaning agents, paints, medicines, alloys, fertiliser and foods		1	AO1 5.8.1.2
02.1	98 °C	exact answer only	1	AO2 5.2.2.1
02.2	range of boiling points pure substances have a specific boiling point		1 1	AO2 5.8.1.1
02.3	98 – 103 °C		1	AO3 5.8.1.1

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02.4	in everyday language, pure means it has had nothing added to it/is in its natural state but in science it means a substance with only one element or compound orange juice is made up of multiple substances, so is not scientifically pure		1 1 1	AO1 5.8.1.1
03.1	a mixture that has been designed as a useful product		1	AO1 4.8.1.2
03.2	$\frac{20}{20+70+110} \times 100\%$ **or** $\frac{20}{200} \times 100\%$ = 10%	award two marks if answer correct and no working shown	1 1	AO2 4.8.1.2
03.3	C_7H_{16}		1	AO2 4.7.1.1
03.4	ethanol is renewable/can be obtained sustainably/burns more cleanly		1	AO1 4.10.1.1
04.1	filtration		1	AO2 5.1.1.2 5.8.1.3
04.2	distillation		1	AO2 5.1.1.2 5.8.1.3

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04.3	chromatography		1	AO2 5.1.1.2 5.8.1.3
04.4	filtration		1	AO2 5.1.1.2 5.8.1.3
05.1	magnesium chloride hydrogen	accept answers in either order	1 1	AO2 5.4.2.1
05.2	hold a lit splint at the end of the test tube of gas pop sound		1 1	AO1 5.8.2.1
05.3	bubble through limewater turns cloudy		1 1	AO1 5.8.2.3
05.4	chlorine		1	AO2 5.8.2.4
06.1	formulation		1	AO1 5.8.1.2
06.2	(6 + 3 + 1 = 10) $\frac{1}{10} \times 100$ = 10%	accept 10% for two marks	1 1	AO2 5.8.1.2

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06.3	$\frac{6}{10} = 0.6$ $250 \times 0.6 = 150\ cm^3$		1 1	AO2 5.8.1.2
07.1	hydrogen — relights a glowing splint oxygen — bleaches damp litmus paper chlorine — burns with a squeaky pop		3	AO1 5.8.2.1 5.8.2.2 5.8.2.4
07.2	(g) + (aq) ⟶ (s) + (l)		1	AO2 5.8.2.3
08.2	**Level 3:** Answer is detailed and accurate. The writing is clear, coherent and logical.		5-6	AO1 5.8.1.3
	Level 2: Answer generally correct, although may lack detail. The writing is mainly clear, although the structure may lack logic.		3-4	
	Level 1: Some correct points but lacks detail. The writing lacks clarity, coherence and logic.		1-2	
	No relevant content.		0	

Question	Answers	Extra information	Mark	AO / Specification reference
	Indicative content • chromatography • draw line in pencil onto paper • onto pencil line spot the ink • in a small beaker, add solvent/water • wrap paper around a pencil/stirring rod • balance pencil/stirring rod so that bottom of paper dips into solvent. • make sure solvent is below pencil line • leave until solvent has travelled to the top of the paper • remove from beaker			
08.2	A piece of paper with an origin line drawn 3 dots spaced vertically and in line	three spots drawn in a vertical line accept any vertical spacing between the spots dot on pencil line is not required	1	AO2 5.8.1.3
08.3	Value larger than $\frac{1}{Rf}$ values are always less than 1		1	AO3 5.8.1.3
08.4	red dye		1	AO3 5.8.1.3
08.5	**one** from: • one of the substances is made of two chemicals • impurity in the student's ink sample	accept other relevant experimental errors a specific experimental error must be given, do not award mark for "student made an error"	1	AO3 5.8.1.3

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08.6	to avoid bias/cheating		1	AO3 5.8.1.3
09.1	A: carbon dioxide B: oxygen C: hydrogen		1 1 1	AO2 4.8.2.1 4.8.2.2 4.8.2.3
09.2	damp litmus paper bleached		1 1	AO1 4.8.2.4
10.1	$\frac{1.0}{3.3} = \frac{0}{3}$	+/- 0.05	2	AO2 5.8.1.3
10.2	pure only one spot		1 1	AO2 5.8.1.3
10.3	spot drawn anywhere between spots for A and B		1	AO2 5.8.1.3
11.1	anode: oxygen cathode: copper		1 1	AO2 5.4.3.4
11.2	glowing splint relights		1 1	AO1 5.8.2.2
11.3	chlorine		1	AO2 5.4.3.2

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11.4	damp litmus paper bleached/turns white		1 1	AO1 5.8.2.4
11.5	hydrogen		1	AO1 5.1.2.5
11.6	burning split pop		1 1	AO1 5.8.2.1
12.1	filtration		1	AO1 5.1.1.2
12.2	**Level 3 (5-6 marks):** A full description of the method provided, with at least two pieces of equipment named.		5-6	AO1 5.1.1.2
	Level 2 (3-4 marks): Basic method provided, identifying that the water needs to evaporate (either by heating or by being left). At least one piece of equipment identified.		3-4	
	Level 1 (1-2 marks): Method identifies idea that water needs to evaporate/be heated. No equipment named.		1-2	
	No relevant content.		0	

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	Indicative content: method: • mixture placed in evaporating dish • evaporating dish placed on beaker half-full of water • place beaker/evaporating dish on tripod and gauze • heat the mixture/water • using Bunsen burner • until crystals start to form • remove mixture from the heat • leave for the rest of the water to evaporate			
12.3	chromatography		1	AO1 5.1.1.2