

Cambridge IGCSE™

COMBINED SCIENCE**0653/62**

Paper 6 Alternative to Practical

February/March 2026

MARK SCHEME

Maximum Mark: 40

Published

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

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Question	Answer	Marks								
1(a)(i)	12 ;	1								
1(a)(ii)	2110.08 ; answer to 2 s.f. = 2100 ;	2								
1(b)(i)	<table border="1"><tr><td>A</td><td>0.5–2</td></tr><tr><td>B</td><td>2–3</td></tr><tr><td>C</td><td>3–4</td></tr><tr><td>D</td><td>4–5</td></tr></table> Intensity scores increase from A to D with no decrease ; All intensity scores within ranges given ;	A	0.5–2	B	2–3	C	3–4	D	4–5	2
A	0.5–2									
B	2–3									
C	3–4									
D	4–5									
1(b)(ii)	<u>greater number of pieces/more pieces</u> , greater <u>intensity score</u> ;	1								
1(b)(iii)	as <u>surface area</u> increases, <u>rate</u> (of diffusion) increases ;	1								
1(c)(i)	hazard: cutting / use of (sharp edge of) knife / scalpel ; precaution: cut away from hands / cut on stable surface ;	2								
1(c)(ii)	to stop (further) diffusion / reaction / stop (further) colour change / so that results are taken at 10 minutes/after same time ;	1								
1(c)(iii)	<u>intensity score</u> is subjective / difficult to judge / match <u>intensity score</u> ;	1								
1(d)(i)	1.5 ;	1								
1(d)(ii)	repeat for more values of surface area/different numbers of pieces / repeat for same values and check that results are the same ;	1								

Question	Answer	Marks
2(a)(i)	19.0 ; 30.5 ;	2
2(a)(ii)	11.5 ;	1
2(a)(iii)	(polystyrene) cup is an insulator / poor conductor / less thermal energy is lost (to the surroundings) ;	1
2(b)(i)	horizontal axis labelled 'mass of G (added to water) / g' AND vertical axis labelled 'temperature increase / °C' ; suitable linear scales such that plotted points occupy at least half of the grid ; correct plots to $\pm \frac{1}{2}$ small square ;	3
2(b)(ii)	point circled at 2.0 g and 14.0 °C ;	1
2(b)(iii)	best fit straight line <u>through the origin</u> ;	1
2(b)(iv)	there is a straight line that goes through the origin ;	1
2(b)(v)	mass read from graph ;	1
2(c)(i)	<u>white</u> precipitate is masked by the <u>blue / coloured</u> solution ;	1
2(c)(ii)	leave time for / allow the precipitate to settle / filter (to see the residue) ;	1

Question	Answer	Marks
3(a)	301.6 ;	1
3(b)	43(.0) ;	1
3(c)	$(301.6 / 43) = 7.0 \text{ (g / cm}^3\text{)} ;$	1

Question	Answer	Marks
3(d)	<i>any one from:</i> • pot not filled to brim ; • not all water from tray poured into measuring cylinder / some sticks to tray / some on outside of pot / some water spilled (out of the tray) ;	1
3(e)	Method 1 calculates percentage difference AND states appropriate conclusion ; M1 $(8.00 - 7.00) \div 8.00 \times 100 = \mathbf{12.5\%}$ OR $(8.00 - 7.00) \div 7.00 \times 100 = \mathbf{14.286\%}$ M2 <u>correct calculation of % difference</u> and stated No (not equal) if $> 10\%$ or Yes (equal) if $< 10\%$;	2
3(f)	larger (density) AND because (same) m divided by a smaller V ;	1

Question	Answer	Marks
4	one from each section and any other two marks: 1 Apparatus ray box / laser ; protractor and ruler / measuring tape ; set square (used to draw normal) ; 2 Method method described clearly such that another student could use it to obtain suitable results, e.g. use more than one value of i and measure d ; 3 Measurements measure i / angle of incidence / angle between incident ray and normal ; at least 5 different angles ; 4 Table of results table with heading i / angle (of incidence) / ° ; table with heading d / cm (or mm) ; 5 Processing results and conclusion plot a graph of d against i / angle (of incidence) ;	7