

Cambridge IGCSE™

PHYSICS

0625/62

Paper 6 Alternative to Practical

May/June 2025

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.

Cambridge International will not enter into discussions about these mark schemes.

Cambridge International is publishing the mark schemes for the May/June 2025 series for most Cambridge IGCSE, Cambridge International A and AS Level components, and some Cambridge O Level components.

Question	Answer	Marks
1(a)(i)	3.4 (cm)	1
1(a)(ii)	89 (cm ³)	1
1(a)(iii)	$V = 11 \text{ (cm}^3\text{)}$	1
1(b)	read (the scale) at right angles / at eye level / perpendicularly	1
1(c)	axes labelled with quantity and unit	1
	suitable scales (occupying at least $\frac{1}{2}$ the grid)	1
	plots correct to $\pm \frac{1}{2}$ small square AND precise plots	1
	good best-fit line judgement, thin, continuous line	1
1(d)	some indication <u>on the graph</u> as to how gradient found AND correct <u>method</u> of calculation of gradient i.e. $\Delta y / \Delta x$	1
1(e)(i)	$d = 2.1 \pm 0.2 \text{ (cm)}$	1
1(e)(ii)	any one from: - the line of best fit is approximate - the gradient is approximate / not accurate / can vary - test-tube not a perfect cylinder / diameter of test-tube not uniform / test-tube curved at the bottom h includes the thickness of the glass - difficult to get ruler close to the test-tube - measuring cylinder only reads to 1 cm³ - water sticks to the sides of the measuring cylinder - difficult to judge the position of the water level in the test-tube	1

Question	Answer	Marks
2(a)	correct symbol only for the LDR chosen AND a series connection	1
2(b)(i)	correct voltmeter symbol AND voltmeter connected in parallel with the resistor	1
2(b)(ii)	0.8(0) (V)	1
2(c)	$I = 0.0017 \div 1.7 \times 10^{-3}$	1
	A / ampere / amps	1
2(d)	$R_B = 1290$ OR 1292 OR 1292.5 OR 1293 OR 1294 OR 1300 (Ω) OR 2.2 $\div$ candidate's (c)	1
2(e)(i)	$R_D = 9086.6$ OR 9086.7 OR 9087 OR 9090 OR 9100 (Ω)	1
2(e)(ii)	reading / voltage / p.d. decreases (as the distance increases)	1
	after 15 cm / from 20 cm the reading becomes constant	1
2(f)	$V_{XY} + V_{YZ}$ remains constant / values are nearly equal / increases	1
	values quoted to confirm statement	1

Question	Answer	Marks
3(a)(i)	$x = 4.1$ (cm)	1
3(a)(ii)	$X = 20.5$ (cm) OR candidate's (a)(i) $\times 5$	1
3(b)(i)	inverted, diminished triangle drawn	1
3(b)(ii)	39.3 (cm)	1
3(c)	15.17(346875) (cm)	1
	15.2 (cm)	1
3(d)	14.9 (cm)	1
3(e)	statement to match results (expect YES)	1
	values used in a calculation to justify the statement	1
3(f)(i)	move the <u>lens</u> slowly / backwards and forwards	1
3(f)(ii)	better contrast between the image and the rest of the screen / <u>edges of the image are sharper</u> / more visible / easier to view	1

Question	Answer	Marks
4	MP1 additional apparatus: stopwatch / timer / clock <u>and</u> thermometer / temperature probe / sensor	1
	MP2 method: • <u>heat</u> the water to a known / measured temperature • time the water cooling for <u>five minutes</u> • measure the final temperature of the water	1
	MP3 repeat for a new value of (initial) temperature	1
	MP4 control variables: any one from: • volume / mass / amount of water • time (of cooling) • room temperature	1
	MP5 results table: columns for initial temperature and final temperature with correct units	1
	MP6 conclusion: any one from: • plot a graph of <u>rate</u> of cooling against <u>initial</u> temperature (of the water) • (compare the results in the table to) see <u>if / how</u> the initial temperature affects the rate of cooling / final temperature reached	1
	MP7 additional point: any one from: • second control variable stated • at least five sets of data taken • repeat each <u>measurement</u> AND take an average • evidence of rate formula <u>used</u>	1