

Cambridge IGCSE™

PHYSICS**0625/61**

Paper 6 Alternative to Practical

May/June 2025

MARK SCHEME

Maximum Mark: 40

Published

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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)	two measurements in cm 2.7 and 2.5, both given to nearest mm	1
1(a)(ii)	correct average: expect 2.6 (cm)	1
1(a)(iii)	any reasonable advantage for the method in the question given OR it is difficult to measure the diameter directly OR hard to find centre of ball	1
1(b)	a ruler for measuring the diameter directly would give rise to parallax errors	1
	$V = 9.1(4)$	1
	unit: cm^3	1
1(c)	correct method for calculation of m_B shown	1
	$m_B = 11.6 \text{ (g)}$	1
	ρ on answer line correctly calculated to 2 or more significant figures	1
1(d)	unit: g / cm^3	1
	answer given to 2 or 3 significant figures	1

Question	Answer	Marks
2(a)	22 (°C) correctly shown	1
2(b)	cm ³ , °C	1
2(c)	axes correctly labelled with quantity AND unit AND right way round	1
	suitable scales (occupying at least ½ the grid)	1
	plots correct to ± ½ small square AND precise plots	1
	good best-fit line judgement, thin, continuous line	1
2(d)(i)	so that temperature change is due to cold water added rather than heat losses to the surroundings	1
2(d)(ii)	to ensure even / constant temperature (throughout the liquid)	1
2(e)	any two from: • some form of insulation • add a lid • shield from draughts • white / shiny surface	2
2(f)	measuring cylinder	1

Question	Answer	Marks
3(a)	normal neat and at 90°	1
	incident ray in correct quadrant at $40^\circ \pm 2^\circ$	1
3(b)	P ₁ P ₂ separation at least 5.0 cm	1
3(c)(i)	incident ray and reflected ray and normal meeting at B within 2 mm	1
3(c)(ii)	$\alpha = 48^\circ \pm 2^\circ$	1
3(d)	new reflected ray drawn above MR in an appropriate quadrant	1
	angle of reflection drawn $50^\circ \pm 2^\circ$	1
3(e)	statement to match results	1
	justification to include idea of results being equal within the limits of experimental error OR unequal if beyond the limits of experimental error	1
3(f)	any two from: • thin pins • thin lines / sharp pencil • view bases of pins / pins vertical • pins far apart / at least 5 cm	2

Question	Answer	Marks
4	MP1 circuit used: correct circuit diagram	1
	MP2 measurements made: measure wire diameter AND measure voltage and current OR record voltmeter and ammeter readings	1
	MP3 analysis of readings: calculate / work out resistance of wire	1
	MP4 performing the investigation: repeat for at least two other diameters of wire	1
	MP5 variable kept constant: length / material of wire	1
	MP6 table: with columns for diameter of wire, voltage, current and resistance each column must be labelled with both quantity and unit	1
	MP7 conclusion: plot a graph of resistance against diameter OR an answer which suggests comparing values of diameter AND resistance in table	1