



Cambridge IGCSE™

PHYSICS

0625/63

Paper 6 Alternative to Practical

October/November 2021

MARK SCHEME

Maximum Mark: 40

Published

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This document consists of **11** printed pages.

Question	Answer	Marks
1(a)	$\theta_R = 21 (^{\circ}\text{C})$	1
1(b)	s, $^{\circ}\text{C}$ both correct	1
1(c)	2 suitable precautions e.g.: view scale reading perpendicularly, wait until readings stops rising (at start), avoid thermometer touching beaker	2
1(d)	statement matching readings in table	1
	comparison of temperature changes over 180 s, matching statement (need to see <u>values</u> used in justification)	1
1(e)(i)	correct calculation of x_1	1
1(e)(ii)	Correct unit $^{\circ}\text{C} / \text{s}$	1
1(f)(i)	beaker B without lid	1
1(f)(ii)	statement matching data for beaker B with values quoted	1
	statement with comparison of data or cooling rates	1

Question	Answer	Marks
2(a)	ammeter in series connection <u>or</u> voltmeter in parallel connection	1
	second meter shown connected correctly <u>and</u> circuit complete	1
2(b)(i)	$V = 2.8$	1
	$I = 0.32$	1
2(b)(ii)	$R = 8.75$ / ecf, 5.78, 5.00, 3.19	1
	R consistent to 2 or 3 significant figures	1
2(b)(iii)	V , A , Ω all correct	1
2(c)(i)	$P = 1.51$ / ecf <u>and</u> $Q = 1.57$ / ecf	1
2(c)(ii)	statement matching results and values used	1
	justification matching statement e.g. within limits of experimental accuracy / owtte	1
2(d)	valid inherent source of inaccuracy e.g.: crocodile clip connection not even / difficult to connect at exactly the correct length / resistance wires not uniform	1

Question	Answer	Marks
3(a)	$hO = 2.0 \text{ (cm)}$	1
3(b)	move screen backwards and forwards / move screen slowly	1
3(c)	$1 / h_1 = 0.18$	1
3(d)	graph: - axes labelled with quantity and unit - appropriate scales (plots occupying at least $\frac{1}{2}$ grid) - plots all correct to $\frac{1}{2}$ small square, precise plots - well judged line and thin line	1
3(e)(i)	triangle method seen on <u>graph</u>	1
3(e)(ii)	f in range 14.0cm to 16.0cm	1
3(f)	any difficulty in measuring h_1 e.g.: ruler in way of light / difficult to see top and bottom of image / edges of image blurred / difficult not to move screen when placing ruler to measure image	1
	matching solution e.g.: use graph paper on screen / mark top and bottom of image and measure later / use translucent screen and measure at back / use larger object / clamp screen (after obtaining focus)	1

Question	Answer	Marks
4	MP1 apparatus: factor stated and apparatus appropriate to its measurement e.g. ammeter, voltmeter, coils (no apparatus for measuring required)	1
	MP2 control variable: any variable appropriate to independent variable (e.g. current if number of coils is the independent variable, number of coils if current is the independent variable. Same size / mass of paper clips)	1
	MP3 method: measure independent variable check number of paper clips supported	1
	MP4 repeat for new value of independent variable	1
	MP5 table: columns, with units, for independent variable and number of paper clips	1
	MP6 analysis: compare readings in the table to see if change in factor produces change in strength, plot line graph (with axes specified)	1
	MP7 additional point (one from): at least 5 sets of data taken, repeat each measurement <u>and</u> take average, 2nd appropriate control variable stated, repeat experiment for different variation (e.g. different no of coils if current is factor) arrangement of paper clips	1