



Cambridge IGCSE™

PHYSICS**0625/62**

Paper 6 Alternative to Practical

March 2021

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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This document consists of **8** printed pages.

Question	Answer	Marks
1(a)	method outlined e.g. measure distance of rule from bench at two places <u>and</u> horizontal if equal	1
1(b)	$d = 96.0$ (cm)	1
1(c)	any suggestion with reference to checking if t measurable / checking if d value appropriate / establishing a range of d and t values	1
1(d)	$1 / T = 0.28$ (1 / s)	1
1(e)	graph: • axes labelled with quantity and unit	1
	• appropriate scales (plots occupying at least $\frac{1}{2}$ grid)	1
	• plots all correct to $\frac{1}{2}$ small square <u>and</u> precise plots	1
	• well-judged line <u>and</u> thin line	1
1(f)	G present and triangle method seen on <u>graph</u>	1
1(g)(i)	timing errors have less effect / smaller % uncertainty	1
1(g)(ii)	repeat each reading and calculate average value	1

Question	Answer	Marks
2(a)(i)	$\theta_R = 23$ (°C)	1
2(a)(ii)	suitable precaution e.g.: line of sight perpendicular to scale wait until reading stops rising (at start) stir before reading	1
2(b)	s, °C, °C	1
2(c)	clear statement that cup B is more effective	1
	comparison of temperature changes over 180 s, matching statement	1
2(d)(i)	$x_A = 0.058$	1
	unit °C / s	1
2(d)(ii)	repeat cup A experiment <u>without a lid</u>	1
	calculate cooling rate and subtract x_A	1
2(e)	any 2 suitable control: same volume of water, same initial temperature, same diameter / height of cup, same room temp / named appropriate environmental condition	2

Question	Answer	Marks
3(a)	$I = 0.18 \text{ (A)}$	1
	$V_R = 3.7 \text{ (V)}$	
3(b)	R_L and R_R calculated correctly	1
	R_L and R_R <u>all</u> consistent 2 or consistent 3 significant figures	
3(c)(i)	R_L decreases (as V_L decreases)	1
3(c)(ii)	statement matching results	1
	within limits of experimental accuracy / owtte and supported by values from table	
3(d)	obtain <u>more values</u> and plot a graph of R_L vs V_L	1
	extend line to R_L axis and read intercept	
3(e)	correct variable resistor symbol (rectangle with strike-through arrow only)	1
	in completed series circuit <u>and</u> correct voltmeter symbol connected in parallel with resistor	

Question	Answer	Marks
4	MP1 factor: named factor	1
	MP2 method: measure time for motion of ball and means of doing so (stopwatch / timer) over measured distance and means of measuring (probably metre rule / tape measure) / mention of between fixed points	1
	MP3 repeat for new value of the independent variable	1
	MP4 control: any variable appropriate to independent variable e.g. mass of ball if diameter is factor	1
	MP5 table: columns, with units, at least for independent variable, time	1
	MP6 analysis: compare readings in the table to see if change in factor produces change in speed, 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, repeat (whole) experiment for same factor but a new condition use of fiducial aid (e.g. mark fixed points to time between) release ball without pushing suitable means of release	1