



Cambridge IGCSE™

PHYSICS

0625/63

Paper 6 Alternative to Practical

October/November 2020

MARK SCHEME

Maximum Mark: 40

Published

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

Question	Answer	Marks
1(a)	24(.0) (°C)	1
1(b)	units all correct: s, °C, °C	1
	<i>t</i> values all present (30, 60, 90, 120, 150 & 180)	1
1(c)	suitable precaution, e.g. - take reading at 90° / perpendicularly to scale - stir (before reading / throughout experiment)	1
1(d)(i)	conclusion matching results, e.g. beaker B cools more slowly / owtte	1
1(d)(ii)	cooling rate decreases as temperature falls / owtte	1
1(e)(i)	°C / s	1
1(e)(ii)	$x_A = 0.158$ and $x_B = 0.0556$	1
1(e)(iii)	statement matching results	1
	$x_B < \frac{1}{2}$ of x_A / owtte	1
1(f)	any suitable suggestion, e.g. - thicker / more insulated lid ; - higher <u>initial</u> temperature	1

Question	Answer	Marks
2(a)	either correct voltmeter symbol in parallel with X or correct ammeter symbol in series	1
	second correct meter and circuit completed	1
2(b)	$V = 3.3 \text{ (V)}$ and $I = 0.82 \text{ (A)}$	1
2(c)(i)	V, A	1
2(c)(ii)	correct calculations of R (4.02 / ecf, 3.89, 4.10)	1
	consistent 2 or consistent 3 sig figs	1
2(d)	statement matching results	1
	within limits of experimental accuracy / owtte with values or comparative values seen	1
2(e)	any parallel or series and parallel arrangement of <u>three</u> resistors	1
2(f)(i)	rectangle with strike-through arrow only	1
2(f)(ii)	any suitable advantage, e.g. • can obtain continuous set of values • more straightforward to change current • can obtain more values easily	1

Question	Answer	Marks
3(a)	$h_o = 2.0$ (cm)	1
3(b)(i)	$h_I = 3.7$ (cm)	1
3(b)(ii)	$W = 0.54$ / ecf	1
3(c)	graph:	
	axes labelled correct orientation, with quantity and unit	1
	appropriate scales (plots occupying at least $\frac{1}{2}$ grid)	1
	plots all correct to less than $\frac{1}{2}$ small square and precise plots	1
3(d)	well-judged line <u>and</u> thin line	1
	triangle method seen on graph	1
	f in range 12.0 (cm) to 15.4 (cm)	1
	any suitable explanation, e.g. - values of h_I become very small / difficult to measure - greater % uncertainty	1
3(e)	any suitable improvement, e.g. - use a larger object - use graph paper on screen - mark top and bottom of image and measure after	1

Question	Answer	Marks
4	MP1 Factor diameter / mass of ball	1
	MP2 Apparatus stop-watch (or similar)	1
	MP3 Control variable any suitable control variable, e.g. • mass of ball (if diameter is the factor) • diameter of ball (if mass is the factor) • distance (timed over)	1
	MP4 Method any one from: • measure the chosen factor (i.e. mass / diameter) ; • apparatus used to measure mass / diameter ; • precaution: repeat (procedure) <u>and</u> average	1
	MP5 Method drop ball in tube of water <u>and</u> time (over fixed distance)	1
	MP6 Method repeat for different value of chosen factor (i.e. mass / diameter)	1
	MP7 Analysis any one from: • comparison of time / speed with chosen factor • graph of time / speed vs chosen factor	1