



Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

PHYSICS

0625/62

Paper 6 Alternative to Practical

March 2018

MARK SCHEME

Maximum Mark: 40

Published

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This document consists of **7** printed pages.



Question	Answer	Marks
1(a)	measure width of mass and add $\frac{1}{2}$ width to mark at edge of mass / mean value of marks at both edges of mass / mark centre line of mass <u>and</u> edge of rule / line up mark through gap in slotted mass	1
1(b)	method such as: find point which just tips one way move rule to find point which just tips other way balance point is between these where rule tips either way / owtte	1
1(c)(i)	graph:	
1(c)(ii)	• axes labelled correct orientation, 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(c)(ii)	G present <u>and</u> triangle method seen on graph	1
1(c)(iii)	M_R in range 100 g to 400 g	1
1(d)	2 / 3 significant figures and unit	1
	more accurate <u>and</u> errors have less effect (with larger values) / less % uncertainty	1

Question	Answer	Marks
2(a)(i)	θ for beaker A = $87(.0)(^{\circ}\text{C})$ and <u>θ</u> for beaker B = $89(.0)(^{\circ}\text{C})$	1
2(a)(ii)	s, $^{\circ}\text{C}$, $^{\circ}\text{C}$ all correct	1
	30, 60, 90, 120, 150, 180	1
2(b)	one precaution e.g.: read at 90° (to scale) / perpendicularly, stir (before reading) / wait until reading stops rising(at start)	1
2(c)	conclusion matching results	1
	justification matching conclusion with <u>correct</u> mention of comparative temperature change <u>over 0 to 180 s</u>	1
2(d)(i)	unit $^{\circ}\text{C} / \text{s}$	1
2(d)(ii)	$x_1 = 0.094 / \text{ecf}$ and <u>$x_2 = 0.067$</u>	1
2(e)	statement matching results <u>with</u> results used in explanation and reference to different (starting) temperatures for x_1 and x_2	1
2(f)	experiment with lid and <u>no</u> insulation	1
	experiment with insulation and <u>no</u> lid	1

Question	Answer	Marks
3(a)	correct voltmeter symbol in parallel with lamp X	1
3(b)	$I_S = 0.34 \text{ (A)}$	1
3(c)(i)	$V_X = 1.2 \text{ (V)}$ <u>and</u> $V_Y = 1.9 \text{ (V)}$	1
3(c)(ii)	V_S present <u>and</u> correct units (A, V) seen in (b) and (c)	1
3(c)(iii)	statement matching results	1
	justification matching statement with <u>use of comparative values</u> (e.g. 3.1 and 3.0 are within limits of experimental accuracy)	1
3(d)	correct calculation of R_1 (3.5 / ecf)	1
3(e)(i)	lamps in parallel arrangement	1
	all circuit elements in correct arrangement and all circuit symbols correct	1
	resistance increases with temperature	1
3(e)(ii)	$R_2 > R_1$ <u>and</u> brighter lamp has higher temperature	1

Question	Answer	Marks
4	MP1 factor: clear statement of appropriate variable to test	1
	MP2 control variable: named variable which should be kept constant	1
	MP3 apparatus: metre rule and any apparatus essential to variable under test	1
	MP4 method: measure factor under test <u>and</u> drop ball <u>and</u> measure diameter / depth of depression	1
	MP5 repeat for new value of variable under test	1
	MP6 additional point: repeat experiment or each value of factor and average / means of measuring depth / diameter of crater accurately / apparatus for measuring diameter of ball accurately / measure diameter of ball / crater in different places (and take mean) / smooth / flatten sand surface / at least 5 sets of data taken / reliable means of releasing ball / sensible values for factor quoted	1
	MP7 graph: diameter / depth of depression vs appropriate <u>continuous</u> variable	1