Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

PHYSICS **0625/61**

Paper 6 Alternative to Practical **October/November 2016**

MARK SCHEME

Maximum Mark: 40

Published

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

Cambridge will not enter into discussions about these mark schemes.

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This syllabus is approved for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

Question	Answer	Mark
1(a)	l = 4.1 – 4.2 (cm)	**1**
1(b)	Either suitable use of a horizontal straight edge, explained briefly Or holding rule close to pendulum Or line of sight perpendicular (to rule)	**1**
1(c)(i)	T = 1.39 (s) OR 1.4	**1**
1(c)(ii)	Pendulum may stop OR student may lose count	**1**
1(c)(iii)	1.93 s^2 (ecf allowed)	**1**
1(c)(iv)	10.2(2) 2 or 3 significant figures	**1** **1**
1(d)(i)	Explanation of cause of inaccuracy in measurement of t or l. e.g. student did not react quickly enough when starting/stopping stopwatch OR difficulty in measuring accurately to centre of bob	**1**
1(d)(ii)	Any two from: Use different length(s) Repeat timing Use of a fiducial mark Increased number of oscillations Plot a graph using length and time or time^2	**2**
	Total:	**10**

Question	Answer	Mark
2(a)(i)	88 (°C)	**1**
2(a)(ii)	θ_{AV} = 53.5 (°C)	**1**
2(b)	Perpendicular viewing of scale OR stirring OR wait until temperature stops rising, OR avoid delay (between adding water and taking temperature) Allow thermometer not touching beaker, owtte	**1**
2(c)	Correct diagram with lid drawn Insulation placed round beaker	**1** **1**
2(d)	Statement and justification to match results. A number or numbers must be seen. Comment must include yes or no or 'too close to call'; owtte	**1**
2(e)	Two from: Room temperature (or other environmental condition) Temperature of cold water Temperature of hot water Volumes of water Size/shape/material/surface area of beaker	**2**
	Total:	**8**

Question	Answer	Mark
3(a)	Ray trace: $i = 20$	**1**
3(b)(i)	P at least 5 cm from the block	**1**
3(b)(ii)	Greater accuracy with greater distance owtte OR easier to line up accurately	**1**
3(b)(iii)	19°	**1**
3(c)	Graph: θ 19 (or ecf), 29,41,51,59 i 20, 30, 40, 50, 60 Axes correctly labelled and right way round Suitable scales All plots correct to ½ small square Good line judgement, thin, continuous line	 **1** **1** **1** **1**
3(d)	Triangle method shown on graph and triangle using at least half of candidate's line G 0.9 – 1.1	**1** **1**
	Total:	**10**

Question	Answer	Mark
4	**MP1** On circuit diagram: one voltmeter in parallel with any component	**1**
	MP2 Circuit diagram correctly shows power supply, ammeter, unless in a branch, two or more resistors in parallel	**1**
	MP3 Circuit diagram: Correct symbols for ammeter, voltmeter and fixed resistor	**1**
	MP4 Repeat with a different number of resistors (in parallel)	**1**
	MP5 Table that includes columns for number of resistors, voltage/V and current/A	**1**
	MP6 & MP7 Then any two from: Resistance calculated (may be shown in table) Use low current (to stop resistors getting too hot)/switch off between readings Use at least 5 different combinations Repeat with different current or voltage or variable resistor setting Drawing a graph of number of resistors against combined resistance	**2**
	Total:	**7**

Question	Answer	Mark
5(a)	c	**1**
5(b)(i)	(yes) straight line through the origin	**1** **1**
5(b)(ii)	0.174 or 0.17 N/mm	**1** **1**
	Total:	**5**