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

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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**

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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**

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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**

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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

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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**

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