Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

PHYSICS **0625/51**

Paper 5 Practical **October/November 2016**

MARK SCHEME

Maximum Mark: 40

Published

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Question	Answer	Mark
1(a)	Either suitable use of a horizontal straight edge Or holding rule close to pendulum Or line of sight perpendicular to rule	**1**
1(b)(i)	t = 27.8 – 29.0 (s)	**1**
1(b)(ii)	T correct Unit s	**1** **1**
1(b)(iii)	More likely to miscount/pendulum may stop swinging	**1**
1(c)(i)	Correct calculation and unit s^2	**1**
1(c)(ii)	g between 9 and 11 from correct T and working 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:	**11**

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Question	Answer	Mark
2(a)	θ_H 60 – 100 θ_C 10 – 40 and θ_{AV} correct Unit °C	**1** **1** **1**
2(b)	*θ_M between θ_H and θ_C*	**1**
2(c)	Perpendicular viewing of scale OR wait until temperature stops rising OR carry out without undue delay between parts	**1**
2(d)(i)	Correct diagram with lid Insulation placed round beaker	**1** **1**
2(d)(ii)	Sensible series of values with θ_M between θ_H and θ_C	**1**
2(d)(iii)	Statement and justification to match results	**1**
2(d)(iv)	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	**11**

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Question	Answer	Mark
3(a)	Ray trace: Correct normal and all lines in approximately the right places P at least 5 cm from **AB** Table: θ values within ±2° of ray trace values θ values within ± 1° of 20, 30, 40, 50, 60	 **1** **1** **1** **1**
3(b)	Graph: 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(c)	Triangle method shown on graph <u>and</u> triangle using at least half of candidate's line *G* 0.9 – 1.1	**1** **1**
3(d)	Points close to/scattered from line (to match graph)/all on line.	**1**
	Total:	**11**

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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:	2
	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	
	Total:	**7**

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