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

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)	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**

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**

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 and 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**

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**