Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

PHYSICS **0625/61**

Paper 6 Alternative to Practical **May/June 2017**

MARK SCHEME

Maximum Mark: 40

Published

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Question	Answer	Marks
1(a)(i)	15	**1**
1(a)(ii)	Ring(s) do not extend (owtte)	**1**
1(b)	Use of set square to line up with scale OR perpendicular viewing	**1**
1(c)	Graph:	
	Axes correctly labelled and right way round	**1**
	Suitable scales	**1**
	All 6 plots correct to ½ small square	**1**
	Good line judgement, thin, single, continuous line	**1**
1(d)	(NO);line does not pass through origin	**1**
1(e)	*L* in range 6–8	**1**
	L in range 7.2–7.8	**1**
	Total:	**10**

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Question	Answer	Marks
2(a)	Normal in centre of AB and CD and FE at 30° to normal	**1**
	P_1 P_2 distance at least 5 cm	**1**
2(b)	P_3 P_4 line and KE correctly drawn (to K)	**1**
2(c)	α in range 28–32	**1**
	x in range 20–24 (mm)	**1**
2(d)	Statement matches readings (Expect YES, owtte)	**1**
	Justification to include the idea of within (or beyond, ecf) the limits of experimental accuracy	**1**
2(e)	Any one from: Large pin separation Ensure pins vertical / upright / erect View bases of pins Use thin pencil lines / thin pins	**1**
	Total:	**8**

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Question	Answer	Marks
3(a)	23 with unit °C	**1**
3(b)(i)	11 AND 8	**1**
3(b)(ii)	Starting temperature closer to room temperature in the second case (or further from room temperature in the first case)	**1**
3(c)	Two from: Increase draught (over surface of water) Increase temperature of hot water Increase surface area of water Longer time intervals Decrease room temperature Decrease volume of water Use metal can instead of glass beaker Stirring	**2**
3(d)	Any 2 from: Uses bottom of meniscus Perpendicular (to reading) That is where the scale markings are, owtte	**2**
	Total:	**7**

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Question	Answer	Marks
4(a)(i)	l shown clearly from bottom of clamp to centre of bob	**1**
4(a)(ii)	Any 2 from: Metre rule close to pendulum Measurement from bottom of clamp Set-square used as a horizontal reference	**2**
4(b)(i)	1.01(1)	**1**
4(b)(ii)	Any 2 from: Idea of averaging Reaction time / judgement of when to stop / start (owtte) Reduces effect of error / spreads error over 20 swings (owtte)	**2**
4(c)	1.02(212) with 2, 3 or 4 significant figures	**1**
	unit s^2	**1**
	Total:	**8**

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Question	Answer	Marks
5	**MP1** Diagram showing power supply, ammeter, voltmeter and resistance wire correctly connected (variable resistor optional)	**1**
	MP2 Correct symbols for ammeter and voltmeter. Variable resistor symbol correct if included.	**1**
	MP3 Measure potential difference (voltage) and current and calculate resistance.	**1**
	MP4 Repeat with other (types of) wires	**1**
	MP5 Key variables length AND diameter stated	**1**
	MP6 One of: Repeat with different voltages (or currents). Repeat and take average (voltage and current) readings. Repeat entire experiment with different length or different diameter. Use low current to prevent wire heating up. Keep temperature of wire constant / switch off between readings Use micrometer screw gauge to measure diameter / thickness of wire.	**1**
	MP7 Table with columns for type of wire, voltage, current, resistance with correct units (V, A and Ω)	**1**
	Total:	**7**

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