Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

PHYSICS **0625/51**

Paper 5 Practical Test **May/June 2017**

MARK SCHEME

Maximum Mark: 40

Published

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Question	Answer	Marks
1(a)	l_0 clearly shown	1
1(b)	Sensible value for l_0	1
	Remainder of values increasing	1
1(c)	Use of set square to line up with scale OR perpendicular viewing Scale close to / touching spring	1
1(d)	Graph:	
	Axes correctly labelled and right way round	1
	Suitable scales	1
	All plots correct to ½ small square	1
	Good line judgement, thin, continuous line	1
1(e)	Expect NO. Line does not pass through origin	1
1(f)	Use of $2 \times l_0$ shown on graph	1
	L correct to ½ small square	1
	Total:	**11**

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Question	Answer	Marks
2(a)	Sensible value for room temperature with unit °C	**1**
2(b)	Correct times	**1**
	Temperatures decreasing	**1**
	First temperature difference greater than second	**1**
	Consistent significant figures for temperatures in table	**1**
2(c)(i)	Both temperature differences correct	**1**
2(c)(ii)	Starting temperature closer to room temperature in the second case (or further from room temperature in the first case)	**1**
2(d)	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	**2**
2(e)	Uses bottom of meniscus	**1**
	Perpendicular to reading	**1**
	Total:	**11**

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Question	Answer	Marks
3(a)	Ray-Trace:	
	Normal in centre of AB and CD, on left, and FE at 30 ° ± 1 ° to normal	**1**
	First P_1 P_2 distance at least 5 cm	**1**
	P_3 P_4 line correctly drawn to K	**1**
	All lines present in approximately correct positions and neat	**1**
3(b)	*α* correctly measured to ± 2 °	**1**
	x correct to 2 mm	**1**
3(c)	*α* values 28–32 and 48–52	**1**
	Correct unit for *x*	**1**
3(d)	Statement matches readings (Expect YES)	**1**
	Justification to include the idea of within (or beyond, ecf) the limits of experimental accuracy	**1**
3(e)	Any one from: Large pin separation Ensure pins vertical View bases of pins Use thin pencil lines / thin pins	**1**
	Total:	**11**

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Question	Answer	Marks
4	**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 wire	**1**
	MP5 Key variables length <u>and</u> diameter stated	**1**
	MP6 One of: Repeat with different voltages (or currents). Repeat and take average of 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. 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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