Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

PHYSICS **0625/52**

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

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.

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Question	Answer	Marks
1(a)(i)	*V* values to at least 1dp and < 3 V	**1**
	I values to at least 2 dp and < 1 A	**1**
	R values correct and to 2/3 consistent s.f.	**1**
	m, V, A, Ω	**1**
1(a)(ii)	correct difference	**1**
1(b)(i)	potential difference, current and resistance values present with R_1 > final value in table	**1**
1(b)(ii)	new set of values present and sensible	**1**
	$R_1 = 2 \times R_2 \pm 10\%$	**1**
1(c)	**to match results**	**1**
1(d)	different heating effects on wires different interpolation of readings between marks on meters difficult to measure length of wire to nearest mm/to judge the position of the sliding contact cell may run down/power of cell may be less **Any 2 × 1 mark each**	**2**
	Total:	**11**

Question	Answer	Marks
2(a)	*a* values 40 cm, 35 cm, 30 cm, 25 cm, 20 cm	**1**
	b values all less than 50 cm and decreasing	**1**
2(b)	Graph: axes correctly labelled	**1**
	suitable scales	**1**
	all plots correct to ½ small square	**1**
	good line judgement, thin, continuous line	**1**
2(c)	expect NO. line does not pass through origin	**1**
2(d)(i)	mass 50 g to 200 g and *mX* seen	**1**
2(d)(ii)	calculations correct	**1**
	Qb + *mX* must be between 36 and 40 inclusive	**1**
2(e)	not taken the weight of the rule/moment of the weight into account/the pivot is not at the centre of the rule	**1**
	Total:	**11**

Question	Answer	Marks
3(a)	ray-trace: normal in centre of AB and CD (by eye) and FE at 40° to normal	**1**
	first P_1 P_2 distance at least 5 cm	**1**
3(b)	P_3 P_4 line correctly drawn	**1**
	α correctly measured to ± 2°	**1**
	x correct to 2 mm	**1**
3(c)	α *and* β values 38 – 42	**1**
	correct units for x and y	**1**
	all lines present and in approximately correct positions and neat	**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/pins must be >5 cm apart ensure pins vertical/upright/perpendicular to the paper view bases of pins use thin pencil lines/thin pins	**1**
	Total:	**11**

Question	Answer	Marks
4	method to include:	
MP1	measurements of temperature of hot water over a period of time/measurement of temperature at start and end of a specified cooling time/measurement of time for a specified temperature drop	**1**
MP2	repeat using variety of fan speeds (blowing air over water surface)	**1**
MP3 MP4	two from: room temperature initial temperature of hot water volume/mass/amount of hot water distance of beaker to fan for each speed setting time of cooling temperature drop	**2**
MP5	table with columns for fan speed, time and temperature with units	**1**
MP6	compare readings to find which fan speed produces the greatest temperature drop/takes least time/plot a graph	**1**
MP7	in the same time/for the same temperature drop/compare slopes	**1**
	Total:	**7**