Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

PHYSICS **0625/52**

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	Marks
1(a)(i)	value 50.0 ± 0.5(cm)	**1**
1(a)(ii)	(a)(i) value − 20.0	**1**
1(a)(iii)	value between 10 and 20	**1**
1(a)(iv)	Correct *W* in the range 1.8 – 2.2 (N)	**1**
1(b)	new *x* at least 5 cm different from original and possible new *x*, *y* and *W* present *W* in the range 1.8 – 2.2 (N) unit N	**1** **1** **1**
1(c)	**two** from: difficult to judge the best position of 'almost balanced' is the centre of mass of the ruler exactly over the pivot / has the rule slipped on the pivot? the load(s) obscure the scale the position of the (centre of the) load(s) is difficult to judge	**2 × 1**
1(d)	correct value 2 or 3 significant figures	**1** **1**
		Total: 11

Question	Answer	Marks
2(a)(i)	V_1 to at least 1dp and < 3 V and I_1 to at least 2dp and < 1 A	**1**
2(a)(ii)	*R* correctly calculated	**1**
2(b)(i)	new values present $I_2 < I_1$ and $V_2 < V_1$ units V and A at least once, not contradicted	**1** **1**
2(b)(ii)	correct *R* and unit Ω at least once, not contradicted	**1**
2(c)(i)	new values present and I_3 between I_4 and I_1	**1**
2(c)(ii)	*R* values same within 10%	**1**
2(d)(i)&(ii)	new values present and I_4 value largest, V_4 value largest	**1**
2(e)	statement to agree with results justification to include the idea of within (or beyond) the limits of experimental accuracy	**1** **1**
2(f)	**one** from: power supply runs down zero error on meter wavering reading	**1**
		Total: 11

Question	Answer	Marks
3(a)	ray trace: normal correct AB = 8 cm and $i = 20° \pm 1°$	 1 1
3(b)	initial P_1 P_2 distance at least 5.0 cm	1
3(c)	all lines neat and approximately correct table: x values measured correctly to $\pm$ 2 mm from trace x values 1.8, 2.9, 4.2, 6.0, 8.7 $\pm$ 0.5 cm	1 1 1
3(d)	Graph: axes correctly labelled suitable scales all plots correct to ½ small square good line judgement, thin and continuous line	 1 1 1 1
3(e)	any **one** from: difficult to judge when pins exactly in line ensure that the pins are vertical thickness of lines thickness of pins Protractor only measures to $\pm$1°	 1
		Total: 11

Question	Answer	Marks
4	clock / stopwatch and source of heat	1
	heat to boiling with and without lid	1
	measure time taken to reach **boiling point/boil**	1
	same volume / mass / amount of water	1
	same starting temperature	1
	suitable table with column headings and units (seconds or minutes)	1
	conclusion drawn	1
		Total: 7