Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

PHYSICS **0625/51**

Paper 5 Practical Test **May/June 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.

Cambridge is publishing the mark schemes for the May/June 2016 series for most Cambridge IGCSE®, Cambridge International A and AS Level components and some Cambridge O Level components.

® IGCSE is the registered trademark of Cambridge International Examinations.

This syllabus is approved for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

© UCLES 2016

NOTES ABOUT MARK SCHEME SYMBOLS AND OTHER MATTERS

Brackets ( )	Brackets around words or units in the mark scheme are intended to indicate wording used to clarify the mark scheme, but the marks do not depend on seeing the words or units in brackets, e.g. 10 (J) means that the mark is scored for 10, regardless of the unit given.
Underlining	Underlining indicates that this must be seen in the answer offered, or something very similar.
OR / or	This indicates alternative answers or words, any one of which is satisfactory for scoring the marks.
AND	Both answers or words must be given for credit to be awarded.
e.e.o.o.	This means "each error or omission".
o.w.t.t.e.	This means “or words to that effect”.
c.a.o.	This means “correct answer only”.
NOT	This indicates that an incorrect answer is not to be disregarded, but cancels another otherwise correct alternative offered by the candidate, i.e. right plus wrong penalty applies.
e.c.f.	This means "error carried forward". If a candidate has made an earlier mistake and has carried an incorrect value forward to subsequent stages of working, marks indicated by e.c.f. may be awarded, provided the subsequent working is correct, bearing in mind the earlier mistake. This prevents a candidate from being penalised more than once for a particular mistake, but **only** applies to marks annotated e.c.f.

© Cambridge International Examinations 2016

Question	Answer	Marks
1(a)	correct *x* values in table 40, 35, 30, 25, 20 *y* values in table, between 5 cm and 50 cm, decreasing *A* and *B* values correct	**1** **1** **1**
1(b)	Graph: Axes correctly labelled with quantity and unit, right way round and starts at origin Appropriate scales All plots correct to ½ small square Good line judgement, thin, continuous line, with neat plots	 **1** **1** **1** **1**
1(c)	method clearly shown on graph	**1**
1(d)	*Y* value correct to ½ small square and *W* correct	**1**
1(e)	Difficulty of achieving balance or other sensible suggestion	**1**
1(f)	m in kg × g = *W* within tolerance with correct m unit (g or kg)	**1**
		Total 11

© Cambridge International Examinations 2016

Question	Answer	Marks
2(a)	All V to at least 1 d.p. and < 4 V	1
	All I to at least 2 d.p. and < 1 A	1
	R values calculated correctly	1
	Column headings m, V, A, Ω	1
2(b)	Expect 'No'. (ecf allowed)	1
	Reference to values and idea of difference between them being too large to be explained by experimental inaccuracy (ecf allowed)	1
2(c)	filament glows / dims, or lamp hot to touch	1
	increase / decrease in temperature of filament changes resistance	1
2(d)(i)	Variable resistor (rheostat) OR potentiometer OR potential divider	1
2(d)(ii)	Correct symbol for variable resistor	1
	Correct diagram, with variable resistor / potentiometer in series with power supply	1
		Total 11

© Cambridge International Examinations 2016

Question	Answer	Marks
3(a)(i)	v = 20.0 – 22.5	**1**
3(a)(ii)	f_1 correctly calculated using candidate's v	**1**
3(b)(i)	v = 19.0 – 21.0 and less than value in (a)	**1**
3(b)(ii)	f_2 correct. Both values 14–16 cm	**1**
3(c)	Correct method for average	**1**
3(d)	f value 14–16 cm Correct unit for focal length	**1** **1**
3(e)(i)	y value 29–31 cm	**1**
3(e)(ii)	(x – y) no greater than 2 cm	**1**
3(f)	Any two from: Use of darkened room / brighter lamp Mark position of centre of lens on holder Place metre rule on bench (or clamp in position) Ensure object and (centre of) lens are same height from the bench Object and lens and screen perpendicular to bench Move screen slowly back and forth to obtain best image (owtte) Repeat with different u value	**2**
		Total 11

© Cambridge International Examinations 2016

Question	Answer	Marks
4	Uses same container throughout	1
	Hot water in container (any) and takes temperatures at intervals or at start and after a fixed time OR Hot water in container (any) and takes time for a fixed temperature fall.	1
	Repeats with different insulators (all three used)	1
	Any two from: Constant room temperature Same starting temperatures (clearly stated) Same volumes of hot water (clearly stated) Same thickness / amount of insulation Use container without insulation Use of a lid Insulates bottom of container Uses the copper can	2
	Table or tables: Temperatures with unit ºC OR time with unit s (or min) as appropriate to method and different insulators shown	1
	Use of readings: graph of temperature against time OR compare results and comment that longest time to cool = best insulator or smallest drop in temperature in fixed time = best insulator (or reverse arguments)	1
		Total 7

© Cambridge International Examinations 2016