Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

PHYSICS **0625/52**

Paper 5 Practical **March 2018**

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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Generic Marking Principles

These general marking principles must be applied by all examiners when marking candidate answers. They should be applied alongside the specific content of the mark scheme or generic level descriptors for a question. Each question paper and mark scheme will also comply with these marking principles.

GENERIC MARKING PRINCIPLE 1:

Marks must be awarded in line with:

- the specific content of the mark scheme or the generic level descriptors for the question
- the specific skills defined in the mark scheme or in the generic level descriptors for the question
- the standard of response required by a candidate as exemplified by the standardisation scripts.

GENERIC MARKING PRINCIPLE 2:

Marks awarded are always **whole marks** (not half marks, or other fractions).

GENERIC MARKING PRINCIPLE 3:

Marks must be awarded **positively**:

- marks are awarded for correct/valid answers, as defined in the mark scheme. However, credit is given for valid answers which go beyond the scope of the syllabus and mark scheme, referring to your Team Leader as appropriate
- marks are awarded when candidates clearly demonstrate what they know and can do
- marks are not deducted for errors
- marks are not deducted for omissions
- answers should only be judged on the quality of spelling, punctuation and grammar when these features are specifically assessed by the question as indicated by the mark scheme. The meaning, however, should be unambiguous.

GENERIC MARKING PRINCIPLE 4:

Rules must be applied consistently e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.

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GENERIC MARKING PRINCIPLE 5: Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).
GENERIC MARKING PRINCIPLE 6: Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

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Question	Answer	Marks
1(a)	5 *b* values decreasing	**1**
	all < 43.0 cm and *b* calculation correct	**1**
1(b)	graph:	
	• axes labelled correct orientation, with quantity and unit	**1**
	• appropriate scales (plots occupying at least ½ grid)	**1**
	• plots all correct to ½ small square and precise plots	**1**
	• well judged line and thin line	**1**
1(c)(i)	*G* present and triangle method seen on graph	**1**
1(c)(ii)	M_R in range 70 (g) to 400 (g)	**1**
	2 / 3 significant figures and unit	**1**
1(d)	(difficult to see correct mark) and: measure width of mass and add ½ width to mark at edge of mass / mean value of marks at both edges of mass / mark centre line of mass and edge of rule / line up mark through gap in slotted mass	**1**
1(e)	more accurate and errors have less effect (with larger values) / less % uncertainty	**1**

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Question	Answer	Marks
2(a)(i)	I_S <1.00 (A)	**1**
2(a)(ii)	V_X and V_Y both <3.00 (V) and $V_X < V_Y$	**1**
2(a)(iii)	V_S within 10% of ($V_X + V_Y$)	**1**
2(a)(iv)	statement matching results	**1**
	justification matching statement with comparative values used e.g. within limits of experimental accuracy	**1**
2(b)	correct calculation of R_1	**1**
	2 / 3 sig figs and unit Ω	**1**
2(c)	lamps in parallel arrangement	**1**
	all circuit elements in correct arrangement and circuit symbols correct	**1**
2(d)(i)	I_P and V_P present and V and A units correct throughout	**1**
2(d)(ii)	$R_2 > R_1$	**1**

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Question	Answer	Marks
3(a)	θ for 200 cm^3 decreasing	**1**
3(b)(i)	θ for 100 cm^3 decreasing more quickly	**1**
3(b)(ii)	s, °C, °C all correct	**1**
	30, 60, 90, 120, 150, 180	**1**
3(c)	conclusion matching results	**1**
	justification matching conclusion with correct mention of comparative temperature change over 0 to 180 s	**1**
3(d)(i)	unit °C / s	**1**
3(d)(ii)	correct calculation of x_1 and $x_2 < x_1$	**1**
3(e)	statement matching results with results used in explanation and reference to different starting temperatures for x_1 and x_2	**1**
3(f)	experiment with lid and no insulation	**1**
	experiment with insulation and no lid	**1**

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Question	Answer		Marks
4	MP1	**factor:** clear statement of appropriate variable to test	**1**
	MP2	**control variable:** named variable which should be kept constant	**1**
	MP3	**apparatus:** metre rule and any apparatus essential to variable under test	**1**
	MP4	**method:** measure factor under test and drop ball and measure diameter / depth of depression	**1**
	MP5	repeat for new value of variable under test	**1**
	MP6	**additional point:** repeat experiment or each value of factor and average / means of measuring depth / diameter of crater accurately / apparatus for measuring diameter of ball accurately / measure diameter of ball / crater in different places (and take mean) / smooth / flatten sand surface / at least 5 sets of data taken / reliable means of releasing ball / sensible values for factor quoted	**1**
	MP7	**graph:** diameter / depth of depression vs appropriate continuous variable	**1**

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