Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

PHYSICS **0625/62**

Paper 6 Alternative to Practical **October/November 2019**

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 International will not enter into discussions about these mark schemes.

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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)	perpendicular viewing of scale / use of horizontal aid, e.g. set-square / clamp rule / rule close to pendulum	**1**
1(b)(i)	27.6(0)	**1**
1(b)(ii)	1.38	**1**
1(b)(iii)	1.90	**1**
1(c)	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(d)	triangle method indicated on graph	**1**
	with triangle at least half of candidate's line between the extreme plotted points	**1**
1(e)	correct calculation of *g*	**1**
	to 2 or 3 significant figures	**1**

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Question	Answer	Marks
2(a)	0.56	**1**
	with correct unit A	**1**
2(b)(i)	1.07 / 1.1	**1**
	2 or 3 significant figures	**1**
2(b)(ii)	V, Ω	**1**
2(c)(i)	2nd box ticked	**1**
2(c)(ii)	justification – only award if the 2nd box is ticked	**1**
2(d)(i)	value approximately halfway between the 40 cm and 60 cm values	**1**
2(d)(ii)	correct *R* value from candidate's value in **(d)(i)**	**1**
	2 or 3 significant figures	**1**
2(e)	use a low(er) current / voltage / switch off between readings / add a resistor in series / use a thinner wire	**1**

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Question	Answer	Marks
3(a)(i)	d = 8.0 cm or 80 mm	**1**
3(a)(ii)	D = 80 cm or 800 mm	**1**
3(b)	15.2 / 15.25 / 15.249 (cm)	**1**
3(c)(i)	14.9 / 14.85 (cm)	**1**
3(c)(ii)	correct average	**1**
	3 significant figures only	**1**
3(d)	one from: darkened room / brighter lamp object and lens at same height (above bench) object and lens and screen perpendicular to the bench ruler on bench or clamped mark centre of lens (on holder) move lens slowly / back and forth (to obtain best image)	**1**
3(e)(i)	D = 120(.0) (cm)	**1**
3(e)(ii)	(22.2 × 97.9) / 120 = 18.1 (cm)	**1**
3(e)(iii)	(expect not in agreement) too far apart / not close enough / more than 10% difference between values	**1**

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Question	Answer	Marks
4	**MP1 method** diagram: container, ice (cubes, thermometer and insulation)	**1**
	MP2 ice (in container), measure time (for all the ice) to melt	**1**
	MP3 repeat with different insulators	**1**
	MP4 control variables (total) mass / volume of ice cubes	**1**
	MP5 any **one** from: thickness / amount of insulation room temperature / other environmental condition size / shape / surface area of ice cubes initial temperature (of ice cubes)	**1**
	MP6 table table with headings of (named) insulator and time with correct units	**1**
	MP7 conclusion (use the table to) compare the insulator with the time taken for the ice cubes to melt	**1**

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