Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

PHYSICS **0625/61**

Paper 6 Alternative to Practical **October/November 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.

Cambridge International will not enter into discussions about these mark schemes.

Cambridge International is publishing the mark schemes for the October/November 2018 series for most Cambridge IGCSE™, Cambridge International A and AS Level components and some Cambridge O Level components.

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

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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)	l_0 = 22 (mm)	**1**
1(b)(i)	*e* = 31 (mm) ecf allowed	**1**
1(b)(ii)	*k* = 0.0968 (N / mm) ecf allowed	**1**
1(c)(i)	*t* = 3.46 (s)	**1**
1(c)(ii)	*T*= 0.346 (s) T^2 = 0.12 (0.1197)	**1**
	units s and s^2	**1**
1(c)(iii)	*k* = 0.1	**1**
1(d)	Statement matches results	**1**
	Idea of within (or beyond) limits of experimental accuracy explained, e.g. close (enough), very close, nearly the same; (too) far apart	**1**
1(e)	At least 3 additional values given	**1**
	Values between 50 g and 600 g	**1**

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Question	Answer	Marks
2(a)	I = 0.48	**1**
2(b)	V = 0.5	**1**
2(c)	cm, V	**1**
2(d)	Graph: Axes correctly labelled and right way round	**1**
	Suitable scale	**1**
	All plots correct to ½ small square	**1**
	Good line judgement, single, thin, continuous line	**1**
2(e)(i)	Triangle method seen on graph	**1**
	At least half of candidate's line used	**1**
2(e)(ii)	R in range 0.040 to 0.055. No ecf allowed	**1**
	Unit Ω / cm OR Ω	**1**

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Question	Answer	Marks
3(a)(i)	Normal through block and at centre of AB	**1**
3(a)(ii)	$i = 30°$ on correct side of normal	**1**
3(a)(iii)	P_1 and P_2 at minimum distance apart of 5.0 cm	**1**
3(b)(i)	Line through P_3 and P_4 straight and continued to **NL**	**1**
3(b)(ii)	*a* in range 17 mm to 21 mm	**1**
3(b)(iii)	*b* in range 55 mm to 56 mm and both *a* and *b* with correct unit	**1**
3(b)(iv)	*n* in range 1.31–1.65, 2 or 3 significant figures	**1**
3(c)	*n* = 1.5 or 1.53, both *n* with no unit	**1**
3(d)	Any **two** from: Getting pins vertical / pins are bent Lining up the pins exactly / seeing pins clearly Drawing accurate / thin lines Replacing block accurately on outline / outline larger than block / owtte	**2**
3(e)	3rd box (view bases of pins)	**1**

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Question	Answer	Marks
4	**MP1** Workable, correct circuit diagram with power source and correct symbols for ammeter and voltmeter.	**1**
	Method to include:	
	MP2 Measuring V and I	**1**
	MP3 Repeating with at least two other values of V or power, and / or I	**1**
	MP4 Measuring time to raise water temperature by a specific amount or to a specific value	**1**
	MP5 Any **ONE** from: Same starting temperature Same finishing temperature Same temperature difference Same room temperature Same volume / mass / amount of water	**1**
	MP6 Table with clear columns for time, V and I, with appropriate units and P(or VI)	**1**
	MP7 Conclusion: Plot a graph of power against time.	**1**

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