Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

PHYSICS **0625/62**

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.

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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 = 23 (mm)	**1**
1(b)	recognisable set-square shown from spring to rule along one of the dotted lines	**1**
1(c)(i)	*e* values 8, 17, 23, 32, 40	**1**
1(c)(ii)	N, mm, mm	**1**
1(d)	Graph:	
	axes correctly labelled and right way round	**1**
	suitable scales, at least ½ the grid used	**1**
	all plots correct to ½ small square	**1**
	good line judgement, thin, continuous line	**1**
1(e)	triangle method used and seen on graph	**1**
	at least half of candidate's line used	**1**
1(f)	answers within the range 0.025 ± 0.005 (N / mm) and expressed to 2 / 3 significant figures only	**1**

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Question	Answer	Marks
2(a)(i)	V_T = 2.5(0) (V)	**1**
	I_T = 0.18(0) (A)	**1**
2(a)(ii)	0.45 (W)	**1**
2(b)(i)	P_X = 0.23, P_Y = 0.22 and unit W	**1**
2(b)(ii)	statement: Yes idea of within the limits of experimental accuracy	**1**
	explained: e.g. close enough, very close, not too far apart	**1**
2(c)	statement: disagree / no	**1**
	low current not sufficient to make lamp glow / first lamp would not glow with no current / since there is a current (other lamp cannot be broken).	**1**
2(d)	lamps and voltmeter in parallel	**1**
	correct symbols for lamps, ammeter and voltmeter	**1**
	variable resistor, correct symbol and position in a correct circuit	**1**

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Question	Answer	Marks
3(a)(i)	normal at centre of AB (by eye) produced to cross CD	**1**
3(a)(ii)	$i = 30° \pm 1°$ drawn to the left of the normal	**1**
3(a)(iii)	P_1 and P_2 in air at minimum distance apart of 5.0cm	**1**
3(b)	line through P_3 and P_4 neat, straight and continued to N	**1**
3(c)(i)	$a = 55 \pm 1$ (mm)	**1**
3(c)(ii)	$b = 37 \pm 1$ mm and <u>both</u> with correct unit	**1**
3(c)(iii)	n within the range 1.42 ± 1.60 if 3 s.f. quoted, or within the range 1.4 to 1.6 if 2 s.f. quoted	**1**
	2 or 3 significant figures with no unit	**1**
3(d)	at least two additional angles suggested	**1**
	between 10(°) and 60(°) inclusive with at least 5(°) difference between values	**1**
3(e)	any **one** from: large pin separation / pins at least 5 cm apart ensure that the pins are vertical / upright / perpendicular to the paper / placed straight view the bases of the pins use thin pencil lines / thin pins	**1**

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Question	Answer	Marks
4	method: **MP1** measure room / starting temperature	**1**
	MP2 measure time to raise water temperature to boiling point	**1**
	MP3 repeat with the other two containers	**1**
	control variables: **MP4** any two from: same starting temperature / same room temperature same volume / mass / amount of water **MP5** keep Bunsen burner flame constant / keep the distance from the flame to the bottom of the beaker constant	**2**
	table: **MP6** table to show container and heating time	**1**
	conclusion: **MP7** comparison of heating times and suitable comment made	**1**

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