Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

PHYSICS **0625/63**

Paper 6 Alternative to Practical **May/June 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.

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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)	21(.0) (ºC)	**1**
1(b)	s, ºC, ºC all correct	**1**
	30, 60, 90, 120, 150, 180	**1**
1(c)	appropriate precaution e.g. avoidance of parallax (only if explained) / wait until reading stops rising (at start)	**1**
1(d)(i)	beaker with lid **A** (has a greater rate of cooling)	**1**
	correct mention of comparative temperature change <u>over 0 to 180 s</u>	**1**
1(d)(ii)	any suitable change to <u>apparatus</u> relating to comparison e.g. insulate sides / stand on mat use plastic beaker thicker lid use of fan use wider beaker	**1**
	matching explanation e.g. thermal energy only escapes from surface less transfer of thermal energy by sides / bottom less conduction through lid larger surface area (for evaporation to occur)	**1**
1(e)	straight line	**1**
	through the origin	**1**
1(f)	any appropriate factor e.g. volume of water initial temperature of water (same) lids type / material / size of beaker room temperature / appropriate environmental factor	

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Question	Answer	Marks
2(a)	correct voltmeter symbol in parallel with **X**	**1**
2(b)(i)	I = 0.86 (A)	**1**
	V = 0.9 (V)	**1**
2(b)(ii)	Ω	**1**
	A, V	**1**
2(c)	correct calculations of P (0.77 / ecf, 0.94, 0.58(W))	**1**
	consistent 2 or consistent 3 significant figures	**1**
2(d)	increases (at first)	**1**
	to a maximum AND *then* decreases	**1**
2(e)	any 2 additions from: draw a graph; different / more resistors / values of resistance / greater range of values for resistance; use (at least) 5 sets of values for resistance	**2**

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Question	Answer	Marks
3(a)	h_O = 1.4 (cm)	**1**
3(b)(i)	h_I = 4.5 (cm)	**1**
3(b)(ii)	N = 0.31 / ecf	**1**
3(c)	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**
3(d)	G in range 14.0 to 17.0	**1**
	triangle method seen on graph occupying at least half line	**1**
3(e)	any inherent difficulty e.g. hand / ruler in way of image **OR** screen can move (when measuring)	**1**
	matching improvement to <u>apparatus</u> e.g. use translucent screen and view from behind **OR** fix ruler / grid to screen **OR** clamp screen in place	**1**

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Question	Answer	Marks
4	Apparatus: forcemeter, (10 g and 100 g) masses / masses only (if clear they are used to change the mass of the block and as weights to the block via the pulley)	**1**
	Diagram: block, workable means of pulling and measuring force	**1**
	Method (2): measure force required to make block slide / find mass (on pulley) required to make block slide	**1**
	repeat for new value of mass	**1**
	Precautions: any **one** from: same surface to slide on / repeat each measurement and take average / same angle of pulling force	**1**
	Graph: mass on block vs force (needed to slide)	**1**
	Any additional point: at least 5 sets of data taken / keep force horizontal / add mass of block to load / extra precaution	**1**

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