Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

PHYSICS **0625/61**

Paper 6 Alternative to Practical **May/June 2018**

MARK SCHEME

Maximum Mark: 40

Published

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Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

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Question	Answer	Marks
1(a)	d = 5(.0) (cm)	**1**
1(b)(i)	D = 50 (cm)	**1**
1(b)(ii)	t = 14.06	**1**
1(b)(iii)	T = 1.406 (allow ecf from 1(b)(ii): t/10 (s))	**1**
1(b)(iv)	T^2 = 1.98 or 1.99 (allow ecf from 1(b)(iii))	**1**
1(b)(v)	g = 10.1 (allow ecf from 1(b)(iv))	**1**
1(c)(i)	Unit s^2	**1**
1(c)(ii)	g given to 2 or 3 significant figures	**1**
1(d)	Use of additional d values **OR** use a larger d value	**1**
	Count more swings	**1**
1(e)	Any **one** from: Perpendicular viewing of rule Counting beginning with zero (owtte) Use of fiducial mark (owtte) Use of set-square or horizontal rule to aid measurement of d Use rule close to/touching the bob Time taken from centre of swing, (not extremities) Measure length to top and bottom of bob and average Measure string length and add radius of bob measured with callipers or micrometer	**1**

Question	Answer	Marks
2(a)(i)	EITHER V_1 = 2.2 **OR** I = 0.46 correct	**1**
	Both values correct **and** correct units V and A	**1**
2(a)(ii)	R_1 = 4.78 (Ω) (allow ecf from 2(a)(i))	**1**
2(b)	Statement matches readings (Expect YES)	**1**
	Expect justification to include the idea of within the limits of experimental accuracy (but accept beyond limits, if ecf allowed for statement matching readings)	**1**
2(c)	R = 14.3 **OR** 14.4; 2 or 3 significant figures required	**1**
	Unit Ω	**1**
2(d)	$3V_1$	**1**
2(e)	3 resistors in parallel	**1**
	Correct variable resistor symbol	**1**
	Voltmeter symbol correct **and** circuit correct	**1**

Question	Answer	Marks
3(a)	*uv* values 1065, 1128, 1200, 1283, 1353	**1**
3(b)	Graph: (all marks are still available if *uv* values are wrong) 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**
3(c)	Triangle method clearly shown on graph	**1**
	Triangle using at least half of candidate's line	**1**
3(d)	*G* in range 14.0 to 16.0	**1**
	f = *G* to 2 or 3 significant figures	**1**
3(e)	Any **two** from: Finding exact position that gives clearest image Measuring to centre of lens Room too bright/lamp too dim/image too faint	**2**

Question	Answer	Marks
4	Method to include: (Hot) water in copper can, time taken for temperature to drop	**1**
	Correct use of at least 3 larger outer containers, separately	**1**
	Some indication that size of air gap is measured	**1**
	Any **two** from: Use of something to cover air gap Use of lid on copper can Same starting temperature Same room temperature Same volume of hot water Use of 'control' with no outer container Inner container standing on an insulator Uniform air gap all round	**2**
	Table with clear columns for temperature and/or time (to match method) and air-gap, with appropriate units	**1**
	Conclusion: Least temperature drop **OR** longest time for temperature to drop shows lowest cooling rate **OR** best insulation **OR** plot temperature against time and least gradient shows lowest cooling rate (ora)	**1**