MARK SCHEME for the October/November 2014 series

0625 PHYSICS

0625/52

Paper 5 (Practical), maximum raw mark 40

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.

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Pa	age 2	2	Mark Scheme	Syllabus	Paper
			Cambridge IGCSE – October/November 2014	0625	52
1	(a)	(i)	h, w and d recorded in cm and sensible, accept $2.0 - 5.0$ cm		[1]
		(ii)	V_A present and h, w, d all to nearest millimetre		[1]
	(iii)	(iv)	<i>m</i> recorded and density calculated correctly		[1]
			density between 2.0 and 3.5 (g/cm ³)		[1]
	(b)	(i)	sensible <i>d</i> value – not smaller than all of <i>h</i> , <i>w</i> , <i>d</i>		[1]
		(ii)	diagram showing blocks and rule correctly used – blocks touching the sphere, and rule spanning gap and touching blocks		[1]
	(c)	V ₁ 9	$90 - 110 \mathrm{cm^3}, V_2 \mathrm{larger}$		[1]
		VB	correctly calculated and sensible, with unit cm ³		[1]
	(d)	mea son cub air volu diffi igne	two from: asuring cylinder not sensitive owtte ne clay left on fingers be not perfectly shaped/difficult to measure owtte bubbles clinging to modelling clay/within the modelling clay ume of string cult to judge the bottom of the meniscus/bubble on meniscus ore parallax not credit poor experimental practice e.g. spills or splashes		[2]
		uU			[Total: 10]

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2	(a)	sensible cold water temperature (accept $15(^{\circ}C) - 50(^{\circ}C)$)		[1]
	(b)	table: correct <i>V</i> values 10, 20, 30, 40, 50 temperatures decreasing, evidence of temperatures to at least 1°C final interval less than initial interval		[1] [1] [1]
	(c)	t_2 more than t_1 R_1 and R_2 correct cm ³ /s		[1] [1] [1]
	(d)	rate / flow is not constant		[1]
	(e)	any two from: room temperature / air conditioning initial / hot water temperature volume / quantity / amount of hot water cold water temperature		
		intervals/time between adding volumes of water ignore draughts/humidity/pressure		[2]
				[Total: 10]
3	(a)	V to at least 1 d.p. and < 3 V and increasing all column headings with correct unit cm, V, A, Ω		[1] [1]
	(b)	graph: axes correctly labelled and correct orientation suitable scales, plots using more than half available axes R values calculated and plotted correct to $\frac{1}{2}$ small square good line judgement, thin, continuous, do not allow 'blobs' greater than half square diameter		[1] [1] [1] [1]
	(c)	triangle method shown on graph G calculation correct using large triangle		[1] [1]
	(d)	R_1 value to 2 or 3 significant figures R_1 value about 2 × value at 0.5 m		[1] [1]
				[Total: 10]

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norr ang all li eme seco	first ray trace: normal at 90° in correct position (2.0 cm from A) angle of incidence $30^{\circ} \pm 1^{\circ}$ all lines present and neat emergent ray parallel to EF second trace: complete and neat		[1] [1] [1] [1]
(h)	<i>r</i> value correct to ±1°		[1]
(j)	<i>r</i> value correct to ±1° and within 2° of first value		[1]
(k)	idea of within (or beyond) limits of experimental accuracy		[1]
(I)	any two from: viewing bases of pins/ensure that pins are vertical/not bent large pin separations use of repeats use of thin pencil lines (or equivalent comment) close one eye (when aligning pins) use thin/sharp pins ignore parallax error		[2]
	NOT dark room		FT - 4 - 1 - 4 01

[Total: 10]