CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge International General Certificate of Secondary Education

MARK SCHEME for the October/November 2015 series

0652 PHYSICAL SCIENCE

0652/61

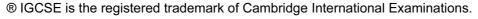
Paper 6 (Alternative to Practical), maximum raw mark 60

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 will not enter into discussions about these mark schemes.

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1	(a)	(i) (ii)	(more) efficient (at condensing); condenser always filled with water; cools vapour as soon as it enters condenser; vapour/it might (escape and) ignite (because of the proximity of the toxic nature of escaping vapour;	e Bunsen bi	[max 2] urner) ; [2]
	(b)	hex	anol 78 ; ane 69 ; otane 98 ;		[3]
	(c)	(i)	the more C atoms/the larger the molecule/the longer the chain/do the boiling point;	own series t	he higher [1]
		(ii)	boiling point quoted between 100 and 150;		[1]
	(d)	bpt	pentanol higher than 100/bpt water ;		[1] [Total: 10]
2	(a)	staı	rch ;		[1]
	(b)	(i) (ii)	burette/pipette/syringe; (dropping) pipette/syringe/burette/dropper; (must be different to the answer to (b)(i))		[1] [1]
	(c)	57	; 8 ; 4 ;		[3]
	(d)		† (no mark) cause it caused a faster reaction/shorter time/faster ;		[1]
	(e)	(i)	copper;		[1]
		(ii)	copper hydroxide ;		[1]
	(f)	Add	d 1 cm ³ water ;		1 (Tatal: 401
					[Total: 10]

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(a)	(i)	h = 8.2;	[1]
	(ii)	B = 4.6;	[1]
	(iii)	T = 6.7;	[1]
	(iv)	4.6 + 6.7 = 11.3. 11.3/2 = 5.7 ; (ecf) ALLOW 5.65	[1]
	(v)	$V = \pi d^2 h/4 = 3.14 \times 5.7^2 \times 8.2/4 = 209/209.2$;	[1]
(b)	(i)	55;	[1]
	(ii)	$V_2 = 250 - 55 = 195$;	[1]
(c)	2. r 3. a	neasuring cylinder/scale is not accurate/to 1 cm³; Any two lir bubbles in the water;	[2]
(d)			
	ALI	LOW subtract masses and divide by the density ;	[1]
		[Total	: 10]
(a)	3.6	; 2.2 ; 1.5 ;	[3]
(b)			[2]
(c)	(i)	X/3.6 Y/2.2 Z/1.5 in this order ;	[1]
	(ii)	A higher potential difference (voltage) must be applied (to get the same current) to a higher resistance OWTTE;	[1]
(d)	res	istance of X = 3.6/0.5 = 7.2 (ohms) ;	[1]
(e)	Wir	e 2 – Y	
	All	correct 2 marks, 1 correct 1 mark	[2]
		[Total	: 10]
	(b) (c) (d) (d)	(ii) (iii) (iv) (v) (b) (i) (ii) (c) 1. tt 2. r 3. a 4. v (d) Sutt ORALL (a) 3.6 (b) variation (c) (c) (i) (ii) (d) residue (e) Wirr Wirr Wirr Wirr Wirr Wirr Wirr Wir	 (a) (i) h = 8.2; (ii) B = 4.6; (iii) T = 6.7; (iv) 4.6 + 6.7 = 11.3. 11.3/2 = 5.7; (ecf) ALLOW 5.65 (v) V = πd²h/4 = 3.14 × 5.7² × 8.2/4 = 209/209.2; (b) (i) 55; (ii) V₂ = 250 - 55 = 195; (c) 1. the student cannot tell when the cup is "full" of water OWTTE; 2. measuring cylinder/scale is not accurate/to 1 cm³; 3. air bubbles in the water; 4. warmer/colder affecting density; (d) Subtract the masses AND gives volume; OR ALLOW subtract masses and divide by the density; (a) 3.6; 2.2; 1.5; (b) variable resistor/rheostat; correct symbol; (c) (i) X/3.6

Mark Scheme

Syllabus

Paper

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5	(a) tub	pe dips into water in suitable vessel ;	[1]
	(b) (i)	(first signs of the) whiteness / milkiness / cloudiness ;	[1]
	(ii)	6.4; 7.7; 7.0;	[3]
	(iii)	7(.0) or 7.03;	[1]
	(c) 7.0	03 × 0.015/25 OR 7 × 0.015/25 OR 0.004218/0.004/0.0042;	[2]
	(d) lith		
		ange/yellow to green/blue/purple ; other suitable indicator and correct colour change	[2]
			[Total: 10]
6	(a) On OF	ne student times the 1-metre run and the other times the 2-metre run ;	
		te student releases and other times at 1 m and 2 m ;	[1]
	(b) 2.6	Ss AND 3.5s recorded in correct place;	[1]
	(c) (i)	1/3.5 = 0.29 (m/s); $2/4.9 = 0.41 (m/s) OR 1/1.4 = 0.71 (m/s)$ (so must have accelerated);	
		OR same distance (1m); in less time quoting 1.4 s;	
		OR acceleration correctly calculated ;	[2]
	(ii)	height = 2 cm. average speed = 0.41 (m/s); height = 4 cm, average speed = 0.57 (m/s); height = 5 cm, average speed = 0.65 (m/s);	[max 2]

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(d) since acceleration due to gravity is independent of mass; The results will be the same;

OR

More friction;

slower; [2]

(e) (speeds too great) difficult to measure time/reaction time now significant; [1]

(f) (grav.) potential energy to kinetic energy; [1]

[Total: 10]