UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS **GCE Ordinary Level**

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for the guidance of teachers

5054 PHYSICS

5054/42

Paper 4 (Alternative to Practical), maximum raw mark 30

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 must be read in conjunction with the question papers and the report on the examination.

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Cambridge is publishing the mark schemes for the May/June 2012 question papers for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.

Page	2	Mark Scheme: Teachers' version	Syllabus Syllabus	er	•
		GCE O LEVEL – May/June 2012	5054	030	
(a) (i)	ther	mometer drawn with bulb in centre of liquid		all	26.
(ii)		ported in the centre of the water/not touching beaker/no s scale facing you	Syllabus 5054	B1	102
(iii)		of sight/view/eye (level) perpendicular to scale v answers on Fig. 1.1		B1	[1]
(b) (i)	 b) (i) only timing every 2 minutes/time measured in minutes/reading to nearest sector temperature changes slowly/long time to cool that precision not required/clock accurate enough/does not need 0.01/0.1s 			ond B1	[1]
			1000 0.0 1/0.13	ы	[']
(ii)		see/read/notice thermometer and timer together measure temperature and time more accurately or quie	ckly	B1	[1]
(c) (i)		s: correct way round, labelled quantity and unit cm ≡ 10°C x: 2 cm ≡ 2 minutes		B1	
	scal	es: more than $\frac{1}{2}$ page, sensible		B1	
	poin	ts plotted accurately		B1	
	best	fit curved line neatly drawn		B1	[4]
(ii)	canı	not fall below/only falls to room temperature/temperatur	e of surroundings	B1	[1]
(iii)	1.2 1	o 1.4 minutes ecf graph		B1	[1]
(d) tim	ne dec	reases/temperature falls/cools more quickly		B1	
		(more) quickly (from larger area) es (more) quickly (from larger area)		B1	[2]
				[Total	. 401

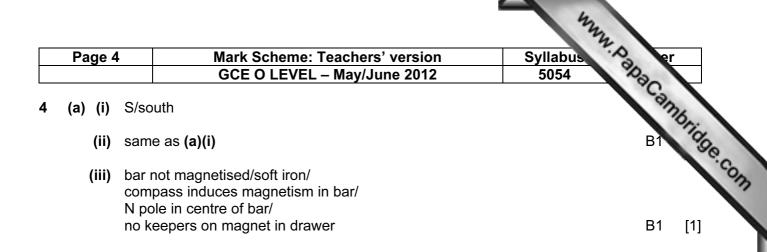
	Pa	ge 3		Mark Scheme: Teachers' version	Syllabus A	<u>e</u> r
		•		GCE O LEVEL – May/June 2012	5054 2030	
2	(a)	(i) (ii)	mea and e.g.	th marked accurately from support to centre of bob suring instrument stated additional detail how it is used	Syllabus 5054 Papaca	nbrides
			marł mea	¹ ∕₂ measured diameter bob < string (at correct length) sure from support to top and bottom of bob then averag cal rule + set-square described or drawn		[1]
	(b)	∑ ti	mes -	+ 60 explained/correct equation	B1	[1]
	(c)	10(.043)		C1	
		10.0	0 (m/s	s ²)	A1	[2]
	(d)	rep	eat fo	r different value(s) of length (and average)	B1	[1]
				[Tot	al: 6]	
3	(a)	(i)	A an	d B in series with cell and switch	B1	
			C la	belled and in parallel with cell	B1	[2]
		(ii)	voltn	neter across A	B1	[1]

(b)
۰.		,

Both lamp X and lamp Y are faulty		
Only lamp X is faulty		
Only lamp Y is faulty		
The cell is running down		
A connecting lead from the cell is broken		
The current in lamp X and lamp Y is too small	~	

B2 [2]

[Total: 5]



(b) marks may be awarded for clear diagram

in text	on diagram	
compass near magnet and mark end of plotting compass	magnet drawn with compass(near) with dot shown	M1
point to first mark, mark other end (along one field line)	new compass position along same correct field line OR series of dots along one correct field line	A1
continue to other pole or edge of paper OR join dots to give line OR repeat (to produce more field lines)	line of compasses or dots to other pole or edge of paper OR dots joined to give line OR more than 1 correct field line drawn	A1

[3]

[Total: 6]

[Total: 30]