UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS GCE Ordinary Level

MARK SCHEME for the May/June 2012 question paper for the guidance of teachers

5054 PHYSICS

5054/42

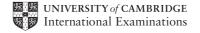
Paper 4 (Alternative to Practical), maximum raw mark 30

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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Paper

rage z		•	Mark Scheme. Teachers Version	Syllabus	i apei	
			GCE O LEVEL – May/June 2012	5054	42	
	(a) (i)	therr	mometer drawn with bulb in centre of liquid		B1	[1]
	(ii)		ported in the centre of the water/not touching beaker/nos s scale facing you	need to hold it	/ B1	[1]
	(iii)		of sight/view/eye (level) perpendicular to scale v answers on Fig. 1.1		B1	[1]
	(b) (i)	-	timing every 2 minutes/time measured in minutes/read	ing to nearest s	econd	
			perature changes slowly/long time to cool precision not required/clock accurate enough/does not	need 0.01/0.1s	B1	[1]
	(ii)		see/read/notice thermometer and timer together measure temperature and time more accurately or quic	ckly	B1	[1]
	(c) (i)		s: correct way round, labelled quantity and unit cm ≡ 10°C x: 2 cm ≡ 2 minutes		B1	
		scale	es: more than ½ page, sensible		B1	
		point	ts plotted accurately		B1	
		best	fit curved line neatly drawn		B1	[4]
	(ii)	cann	not fall below/only falls to room temperature/temperatur	e of surrounding	gs B1	[1]
	(iii)	1.2 t	to 1.4 minutes ecf graph		B1	[1]
	(d) time	e deci	reases/temperature falls/cools more quickly		B1	
			(more) quickly (from larger area) tes (more) quickly (from larger area)		B1	[2]

Mark Scheme: Teachers' version

Page 2

1

[Total: 13]

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Page 3	Mark Scheme: Teachers' version	Syllabus	Paper
	GCE O LEVEL – May/June 2012	5054	42

2	(a)	(1)	length marked accurately from support to centre of bob	В1	[1]
		(ii)	measuring instrument stated and additional detail how it is used e.g. add ½ measured diameter bob mark string (at correct length) measure from support to top and bottom of bob then average	ae	
			vertical rule + set-square described or drawn	B1	[1]
	(b)	∑ti	imes ÷ 60 explained/correct equation	B1	[1]
	(c)	10((.043)	C1	
		10.	0 (m/s ²)	A1	[2]
	(d)	rep	peat for different value(s) of length (and average)	B1	[1]
				[Tot	al: 6]
3	(a)	(i)	A and B in series with cell and switch	B1	
			C labelled and in parallel with cell	B1	[2]
		(ii)	voltmeter across A	B1	[1]
	(b)				
		Во	oth lamp X and lamp Y are faulty		
		Oı	nly lamp X is faulty		

B2 [2]

[Total: 5]

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

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Paper

Syllabus

		GCE O LEVEL – May/June 2012	5054	42	
4	(a) (i)	S/south		B1	[1]
	(ii)	same as (a)(i)		B1	[1]
	(iii)	bar not magnetised/soft iron/ compass induces magnetism in bar/ N pole in centre of bar/ no keepers on magnet in drawer		B1	[1]

Mark Scheme: Teachers' version

(b) marks may be awarded for clear diagram

Page 4

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]