# UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS GCE Ordinary Level

## MARK SCHEME for the October/November 2008 question paper

## **5054 PHYSICS**

5054/03

Paper 3 (Practical Test), maximum raw mark 30

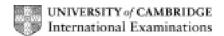
This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began.

All Examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

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

• CIE will not enter into discussions or correspondence in connection with these mark schemes.

CIE is publishing the mark schemes for the October/November 2008 question papers for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.



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#### Marking scheme - general points

Where the marking scheme does not give specific instructions, apply the following penalties:

- Disregard of instructions leading to poor presentation or error: -1
- Systematic error: -1
- Supervisor's help:

No penalty for correction of faulty apparatus.

No marks to be awarded where the candidate is at fault in the section where he/she was helped; e.g. if told how to use the apparatus in a question then the observation marks cannot be scored but subsequent processing marks can score.

### Marking scheme code

- B1 Independent mark.
- M1 Method mark; if not given subsequent A mark falls (up to the next B, M or C mark).
- A1 Answer mark; not awarded if an M mark immediately before it is not awarded.
- C1 Compensation mark; given automatically if the answer is correct, i.e. working need not be seen if the answer is correct. Also given if the answer is wrong but the point is seen in the working.

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1 (a) (ii) v recorded to the nearest mm or better with unit and in the range 10.0 cm to 14.0 cm. **B1** (iii) Took readings either side of the beaker to locate the centre of the beaker/ Used set square to locate the centre of the beaker/ Repeat readings seen/ Set square shown against rule at position of slit or screen/ Detail of no parallax precaution. **B1 B1 (b)** *f* calculated correctly with unit. (c) Larger *u* gives smaller *v*/ Smaller *u* gives larger v. **B1** (Values may be deduced from candidate's substitution into formula). [5] Both *f* values in the range 5.0 cm to 8.0 cm. **B1** 2 (a) t found to 0.1s or better and in range  $5.0 \text{ s} \ge t \ge 1.3 \text{ s}$ . M1 Correct average from at least 2 readings with unit. Α1 **(b)** Correct calculation of a with unit seen here or below. **B1** (Condone missing unit from **(b)** or **(c)** but do not allow contradictory units.) (c) (i) Correct calculation of  $a_T$  giving 0.89 or 0.892 (m/s<sup>2</sup>). **B1** (Correct answer only.) (ii) (a less than  $a_T$ ) friction has affected the results/ (a greater than  $a_T$ ) friction has not affected the results. **B1** [5] (Must have been significant experimental error). 3 (a) Circuit diagram showing power supply (accept single cell), ammeter, resistor and LDR connected in series, with correct circuit symbols. **B1** (b) Current measured to 0.1 mA or better with appropriate unit **B1** and in range 7.0 mA  $\geq I \geq$  0.5 mA. (c) Voltage measured to 0.1 V or better with appropriate unit and in range  $3.0 \text{ V} \ge V \ge 0.5 \text{ V}$ . **B1** (d) (i) Current reduces & voltage across the LDR increases. M1 Resistance of the LDR increases. A1 [5]

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		GCE O LEVEL – October/November 2008	5054	<b>03</b> B1		
(a)	l recorde	recorded to the nearest mm or better and in the region of 2.0 cm.				
(b)	(ii) d fou	und with unit and in the range 35.0 cm to 55.0 cm.		B1		
	(iii) – (v)	y and x correct with at least one reading to the nea (Unit must be seen on at least one of the three n l, x or y.)		B1		
		Evidence that <i>y</i> found from the difference of two so taken on a vertical rule/ Set square used to check that rule is vertical/ Eye level with position of reading.	ale readings,	B1		
(c)	(Allow e.	e in <b>(b)</b> and in the range 30.0 cm to 50.0 cm and $x < va$ c.f. wrong value of $d$ in <b>(b)</b> . see value of $d = value$ of $d $	lue in <b>(b)</b> .	B1		
		recorded with at least one value to the nearest mm onewhere.	r better with unit	B1	[6]	
Tab	le					
(d)	Table sh both.	owing all <i>d</i> and <i>x</i> values, including those from <b>(b)</b> and	(c) with units for	B1		
	A total of	5 or more points showing <i>x</i> increases as <i>d</i> increases		B1		
	Range o	f $d$ ≥ 25.0 cm.		B1	[3]	
Gra	ph					
(e)	Axes lab	elled with unit and correct orientation.		B1		
	scale is 6 (Allow so If scale of	scale, data occupies more than half page in both directed to follow; no 3's, 6's, 7's, etc. cales to start at the true origin. loes not start at the true origin, then data should 12 cm vertically and > 8 cm horizontally.)	ctions and	B1		
		nts plotted correctly from an easy to follow scale -rthest from the line.	- check the two	B1		
	Best fine	line and fine points. (Allow straight line through curve	e.)	B1	[4]	
Calculations						
(f)	Base of t	riangle ≥ 8.0 cm. (Do not allow triangle on curve.)		B1		
		calculation of gradient to 2 or 3 s.f. angle on a straight line or tangent to curve.)		B1	[2]	

Mark Scheme

Syllabus

Paper

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