UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the November 2005 question paper

0625 Physics

0625/06 Paper 6 Maximum mark 40

This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. It shows the basis on which Examiners were initially instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began. Any substantial changes to the mark scheme that arose from these discussions will be recorded in the published *Report on the Examination*.

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*.

The minimum marks in these components needed for various grades were previously published with these mark schemes, but are now instead included in the Report on the Examination for this session.

- CIE will not enter into discussion or correspondence in connection with these mark schemes.

CIE is publishing the mark schemes for the November 2005 question papers for most IGCSE and GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.

1 **(a)** m in g and θ in degrees

(b) θ *not* directly proportional to m
as m increases θ decreases

(c) clear in words or diagram that 'centre point' of protractor
is at point where bottom edge of rule meets protractor
and 0 – 180 line is horizontal 1
similarly clear how 'dead space' is dealt with, e.g. protractor
stuck to edge of bench with 0 – 180 line at top of bench level
OR rule placed on block that is same height as 'dead space' 1

(d) words or diagram to show rule at end of metre rule
to measure height above bench level 1
clear that rule is vertical (e.g. use set square)
OR clamped at constant angle 1

TOTAL 7

2 **(a)** correct symbols for resistor, voltmeter and ammeter 1
correct connections between resistors AB and BC in series with
CD in parallel with both 1
voltmeter and ammeter correctly positioned 1

(b) I in A, V in V, R in Ω 1
1.98 or 2.0; 4.00 or 4.0; 1.06 or 1.1 1
all to 2 sf or 3 sf 1

(c) 5.9Ω – 6.1Ω 1
resistance proportional to length/
doubling length, doubled resistance/
3 x length will have 3 x resistance/
wtte 1

TOTAL 8

3 **(a)** θ in °C, t in s 1

(b) & **(c)** θ axis labelled 1
scale starts at 40 °C and 2 cm to 10 °C 1
plots correct to ½ sq (–1 each error) 2
well judged best fit curves 1
lines not too thick 1

(d) Two from:
e.g. use a lid
insulate the bottom of the beaker
use a container that is a good conductor (metal) 2

TOTAL 9

4 **(a)** normal in correct position and at 90° (by eye) 1

(b) 9.9 – 10.2 cm 1

(c) incident ray drawn in correctly 1

(d) 27° (± 2°) 1

(e) 2.0 (or correct from candidates x value) 1
2 or 3 sf and no unit 1

(f) X on incident ray close to mirror 1
Y and Z on reflected ray 1
Y – Z distance at least 5 cm 1
i = r (by eye) 1

TOTAL 10

5 **(a)** 1, 2 and 3 (–1 each error or omission) 2

(b) 2 and 3 (–1 each error or omission) 2

(c) time a number (n) oscillations 1
divide time by n 1

TOTAL 6