UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education Ordinary Level

PHYSICS **5054/03**

Paper 3 Practical Test

October/November 2004

2 hours

ANSWER BOOKLET

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name on all the work you hand in.
Write in dark blue or black pen in the spaces provided on this Answer Booklet.
You may use a soft pencil for any diagrams, graphs or rough working.
Do not use staples, paper clips, highlighters, glue or correction fluid.
All of your answers should be written in this Answer Booklet: scrap paper must **not** be used.

Answer **all** questions.
Graph paper is provided in this Answer Booklet. Additional sheets of graph paper should be used only if it is necessary to do so.
At the end of the examination, fasten any additional answer paper used securely to this Answer Booklet.

If you have been given a label, look at the details. If any details are incorrect or missing, please fill in your correct details in the space given at the top of this page.

Stick your personal label here, if provided.

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This document consists of **7** printed pages and **1** blank page.

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Section A

1 **(a)** record of R

(b) record of h_2

record of h_1

record of l

(c) explanation of how the vertical heights h_1 and h_2 were measured

(d) **(i)** calculation of θ using $\cos\theta = \dfrac{h_2 - h_1}{l}$,

(ii) calculation of W using $W = \dfrac{R}{\tan\theta}$.

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2 **(a)** record of θ_1

(b) record of θ_2

record of θ_3

(c) **(i)** calculation of the loss in thermal energy of the hot water using

change in thermal energy = mass × specific heat capacity × temperature change

where specific heat capacity of water = 4.2 J/(g K)
and 1 cm³ of water has a mass of 1 g

(ii) calculation of the gain in thermal energy of the cold water

(d) explanation of any difference between the two answers obtained in part **(c)**

3 **(b)** record of f_1

(c) explanation of how it was ensured that f_1 was measured from the centre of the lens

(d) record of f_2

(e) diagram showing water between lens and mirror

statement as to whether the water acts as a converging lens or a diverging lens

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Section B

4 **(a)** diagram of the circuit that has been set up by the Supervisor
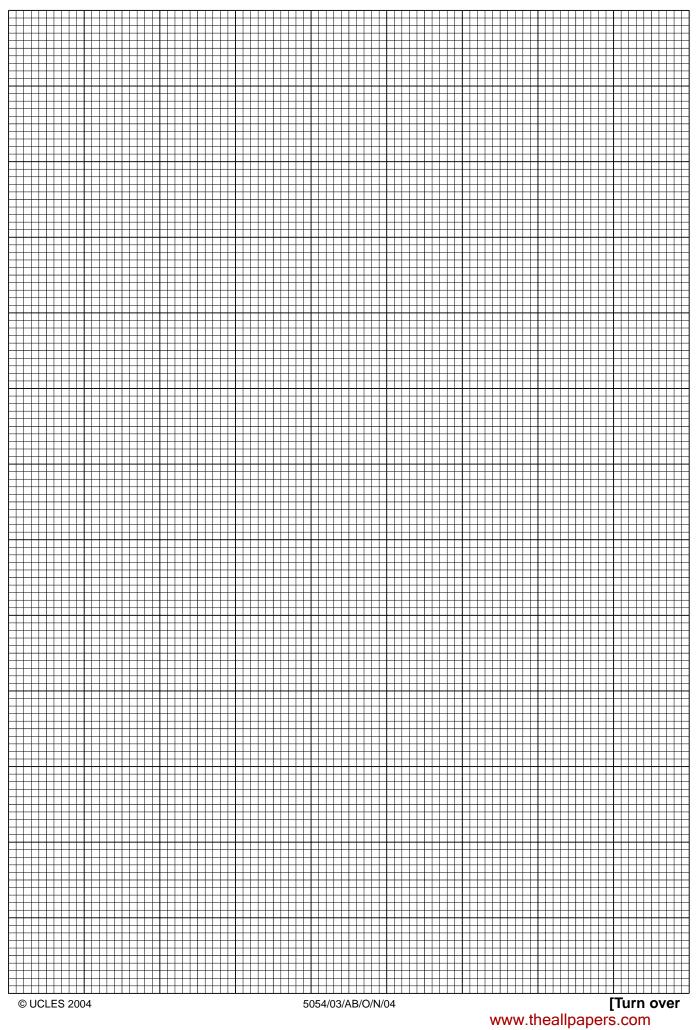
(b) record of V and I

(c) table of values of resistors used, *V* and *I*

(d) using the grid on page 7, plot a graph of *V*/V on the *y*-axis against *I*/A on the *x*-axis

(e) determination of *S*

(f) determination of *r*

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