UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the NOVEMBER 2004 question paper

0654 CO-ORDINATED SCIENCES

0654/05 Paper 5 (Practical Test), maximum raw mark 45

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*.

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

CIE is publishing the mark schemes for the November 2004 question papers for most IGCSE and GCE Advanced Level syllabuses.

Grade thresholds taken for Syllabus 0654 (Co-ordinated Sciences) in the November 2004 examination.

	maximum mark available	minimum mark required for grade:			
		AA	CC	EE	FF
Component 5	45	31	21	17	14

The threshold (minimum mark) for B is set halfway between those for Grades A and C.
The threshold (minimum mark) for D is set halfway between those for Grades C and E.
The threshold (minimum mark) for G is set as many marks below the F threshold as the E threshold is above it.
Grade A* does not exist at the level of an individual component.

November 2004

INTERNATIONAL GCSE

MARK SCHEME

MAXIMUM MARK: 45

SYLLABUS/COMPONENT: 0654/05

CO-ORDINATED SCIENCES
Paper 5 (Practical Test)

1 **(a)** data entered correctly on table

values increase then decrease

number of bubbles/minute calculated correctly **[3]**

(b) suitable scale chosen

axes labelled correctly

plotting correct

smooth curve drawn **[4]**

(c) increases initially due to increased collisions/kinetic theory explanation

reaches optimum (highest rate of reaction)

at temperature read from graph

decreases due to denaturation of enzyme **[2 max]**

(d) **(i)** repeat readings

keep tube in water bath throughout experiment

collect gas in measuring cylinder or syringe

any other suitable improvement

(ii) repeating readings allows an average to be calculated

maintaining a constant temperature will prevent fluctuations

measuring quantity of gas produced would give more accurate reading of gas volume **[2]**

(e) do experiment with constant conditions or one specified

increase surface area

count the bubbles

graph/compare results **[4]**

Total 15

2 **(a)** value for f_1 similar to supervisor

values f_2 and f_3 recorded

average correct **[3]**

(b)

between F and 2F	smaller	inverted
at 2F	same	inverted
beyond 2F	larger	inverted

[9]

(c) both lines correctly drawn

correct measurement for height of line

accuracy **[3]**

3 Table

four times recorded in seconds

times increase

one mark for each time if within 20% of SV **[6]**

Graph

axes correctly labelled

suitable scales

plotting correct

suitable curve **[4]**

time taken correct from graph **[1]**

(d) using graph to answer in terms of **rate** (not time) **[1]**

(e) weighing magnesium

collect and measure gas volume

drawing is suitable **[3]**