UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the May/June 2010 question paper

for the guidance of teachers

0654 CO-ORDINATED SCIENCES

0654/52   Paper 52 (Practical), maximum raw mark 45

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.

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

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1 **(a)** measurements entered correctly;
and clearly in mm; [2]

(b) correct method for calculating average;
correct answer according to candidate's data; [2]

(c) **(i)** correct numbers of leaves in each range according to candidate's own data entered clearly; [2]

(ii) correct scales;
correct plotting;
correct drawing of bars (should be even width); [3]

(d) range calculated correctly according to student's data; [1]

(e) correct number of complete squares;
correct number of greater-than-half incomplete squares;
correct calculation of area; [3]

(f) any suitable factor + explanation
e.g.
variation in light intensity/carbon dioxide;
gives different rates of photosynthesis;
can also have different water/mineral availability [2]

[Total: 15]

2 **(a)** mass of can to nearest gram; [1]

(b) recorded to nearest 0.5 ^{o}C; [1]

(c) **(i)** sensible temperature measured to 0.5 ^{o}C; [1]

(ii) sensible volume of water; [1]

(iii) mass of water correctly calculated; [1]

(d) each correctly calculated;; [2]

(e) (i) correct substitution;
rearranging the equation;
correct calculation;
comparison with supervisor +/- 1 J; [4]

(ii) correct conversion to J kg^{-1} ^{o}C^{-1}; [1]

(f) mass of liquid;
power of heater;
time heater is on; [3]

[Total: 15]

3 (a) all readings for 5 experiments;;
one mark if any space in the timing columns [2]

(b) values across table increase;
values down each column decrease; [2]

(c) correct completion of third column in table; [1]

(d) axes correct;
sensible scale;
plotting correct;
suitable curve drawn; [4]

(e) rate increases with concentration;
more gas at any given time with the 2 M; [2]

(f) gas still being released; [1]

(g) repeat experiment using powder Mg, must use same mass of Mg;
amount of gas at each time will be greater;
greater surface area is the reason; [3]

[Total: 15]