MARK SCHEME for the May/June 2010 question paper

for the guidance of teachers

0654 CO-ORDINATED SCIENCES

0654/51   Paper 51 (Practical), maximum raw mark 45

1 (a) (i) 2 drawings with sun leaf smaller;
shows some detail rather than simple outline e.g. veins [2]

(ii) accurate measurement of length of sun leaf from diagram +/- 2 mm;
accurate measurement of length of shade leaf from diagram +/- 2 mm;
(these values should be the maximum possible lengths)
give ONE if in cm [2]

(b) larger area for greater absorption of light (for photosynthesis); [1]

(c) (i) table constructed correctly with correct headings;
correct comparison of leaf thickness;
correct comparison of numbers of palisade cells;
correct comparison of size of air spaces; [4]

(ii) any suitable feature and linked explanation. e.g.
feature   two rows of palisade cells;
explanation   greater amount of photosynthesis; [2]

(iii) prevents too much water (vapour) loss due to transpiration; [1]

(d) (i) length = 63 mm ; (allow 1 mm tolerance) [1]

(ii) magnification = 63/0.2;
= 315 (times); (allow e.c.f.) [2]

[Total: 15]

2 (a) suitable figures for both;
(do not give this mark if in cm)
use of figures correctly;
answer; [3]

3 (b) (iv) table
5 readings;
all decreasing;
d_2 values all less than d_1;
if only 4 readings, lose 1st mark
if only 3 readings lose 1st and 2nd mark [3]

(c) Graph
A axes labelled correctly;
S suitable scale;
P 4 points plotted correctly;
L best straight line; [4]

(d) clear indication of values chosen from graph; (values must be correct)
correct evaluation;
if value is between 1.1 and 1.5; [3]

(e) measure a known volume and weigh;
density is mass / volume; [2]

[Total: 15]

3 (a) volume of drop between 0.05 and 0.1 cm^3; [1]

(b) number of drops for **X** is between 20 and 30;
values decrease;
number of drops approximately halves going down; [3]

(c) **X** is most concentrated because needs most drops; [1]

(d) does not relight;
pops;
hydrogen; [3]

(e) white ppt.;
hydrochloric; [2]

(f) litmus blue;
ammonia; [2]

(g) use same amount of acid and magnesium;
time taken to dissolve;
shortest time means most concentrated; [3]

other methods may be accepted if would work but max 2 if refers to amount of fizzing;

[Total: 15]