

**MARK SCHEME for the May/June 2009 question paper  
for the guidance of teachers**

**0654 CO-ORDINATED SCIENCES**

**0654/05**

Paper 5 (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.

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- 1 (a) readings reasonable (clearly in mm) and entered correctly in column for tissue **A** ;  
readings reasonable and entered correctly in column for tissue **B** ;  
value for 5 mins in **A** must not be greater than 80 mm
- (b) points plotted accurately for tissue **A** ; allow 1 error  
smooth curve drawn through points ;  
points plotted accurately for tissue **B** ; allow one error  
smooth curve drawn through points ; [4]
- (c) (i) liver/tissue **C** ;  
fastest **rate** of production of oxygen ; OWTTE [2]
- (ii) animals liver has many chemical reactions/produce more hydrogen peroxide ;  
therefore it is removed more rapidly/it is removed before poison build up ; [2]
- (d) (i) 82 mm ;
- (ii) 8 mm ; [2]
- (e) hydrogen peroxide is running out/has been converted/concentration is falling ; [1]
- (f) leave detergent out of reaction tube (1) ;  
collect gas in a measuring cylinder over water or syringe (1) ; [2]
- [Total: 15]

- 2 (a), (b) (i) (ii) Table
- 5 sets for **h** and **V** ; **h** clearly in mm  
1<sup>st</sup> value of **h** is between 20–40 mm ;  
last value of **h** is between 100–140 mm ; [3]
- (c) 100 – **V** is correct ; do not award if **V** is incorrect [1]
- (d) axes correctly labeled ;  
scale ;  
plotting ; allow one error  
line ; ignore use of origin [4]
- (e) show how found ; allow if both figures are written down and correct  
correct evaluation on candidate's figures ; [2]

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(f) correctly evaluated to at least 1 dp but no more than 2 dp ;  
accuracy on  $V_w$  corrected if necessary ; value between 20–23

(g) wind string around tube & measure ;  
winding several times ;  
circumference to diameter ;

[3]

[Total: 15]

3 (a) red, brown or similar ; allow black if recognizes some brown particles

[1]

(b) (i) black residue ; if (a) is black then allow black or no change

[1]

(ii) dissolves ;  
green solution ;  
turns blue ;

[3]

(c) (i) red brown ;  
filtrate is blue ;

[2]

(ii) khaki colour (colour similar to khaki) accept yellow/green etc ;  
white or grey ppt. ; milky is allowed

[2]

(iii) brown/black solid ;  
colour fades to colourless or lighter blue, allow 'fizzing' ;

[2]

(d) brown fumes or notes brown solid ;  
dissolves ;  
blue solution ;

[3]

(e) copper (do not allow  $2^+$  oxidation state) do not allow any copper compound ;

[1]

[Total: 15]