

**MARK SCHEME for the October/November 2009 question paper  
for the guidance of teachers**

**0653 COMBINED SCIENCE**

**0653/05**

Paper 5 (Practical Test), maximum raw mark 30

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) good quality of drawings ;  
chlorophyll label ; [2]
- (c) leaf **B** and **C** same shape as in part (a) ;  
leaf **A** only one containing starch, correctly labelled ; ignore small traces of starch in **B** and **C**  
pattern of starch matches chlorophyll pattern in (a) ; [3]
- (d) (leaf **A** starch present)  
light and carbon dioxide both needed (for photosynthesis) ;  
starch only found where chlorophyll is ;
- leaf **B**  
no photosynthesis because carbon dioxide is absent ;  
do not allow if stated that water also absent
- leaf **C**  
no photosynthesis because light is absent ; [4]
- (e) to remove carbon dioxide ; OWTTE [1]
- [Total: 10]**
- 2 (a) recording the refractive index ; [1]
- (d) 5 suitable drawings ;;  
Give ONE mark if only 4 (2)
- Table  
angles of **i** are about 60°, 55°, 40°, 30° and 20° and **r** values ;;  
ONE mark if only 4 values (2)
- angles of **r** decrease appropriately ; (1) [5]
- (e) Graph  
scale ;  
plotting ;  
suitable curve ; [3]
- (f) correctly read from graph ; [1]
- [Total: 10]**

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3 (a) accept anything between 0.03 and 0.08 ; [1]

(c) results for all three ;  
value for **B** is half **A** within 2 drops ;  
value for **C** is half **B** within 2 drops ;  
value for **C** within 2 drops of Supervisors value ; [4]

(d) most concentrated is **A** ;  
needs the largest number of drops ; [2]

(e) brown ppt. ; [1]

(f) green ppt. ; [1]

(g) one mark for iron(II) ; [1]

**[Total: 10]**