

**CAMBRIDGE**  
INTERNATIONAL EXAMINATIONS

**NOVEMBER 2002**

**INTERNATIONAL GCSE**

**MARK SCHEME**

**MAXIMUM MARK : 60**

**SYLLABUS/COMPONENT : 0654/6**

**CO-ORDINATED SCIENCES  
(ALTERNATIVE TO PRACTICAL)**



UNIVERSITY of CAMBRIDGE  
Local Examinations Syndicate

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- 1
- (a) 39s 22s 13s 7s  
4 correct 2  
2 or 3 correct 1  
1 or 0 correct 0 [2]
- (b) labelling of axes 1  
choice of scale 1  
plotting (completely correct) (1)  
curve (1) [4]
- (c) higher the temperature, lower the time taken OWTTE [1]
- (d) +/- 1 s value depends on candidate's graph [1]
- (e) Plot 1/time taken against temperature (or find gradients) [1]
- (f) Surround with crushed ice [1]

total ten marks

- 2.
- (a) (i) 7.5 +/- 0.1, 8.4 +/- 0.1 [2]  
(ii) 7.6, 8.3 (ecf) [2]  
(iii)  $\frac{\text{change in length}}{\text{original length}} \times 100$   
 $0.4/8.0 \times 100 = 5\%$  [2]
- (b) (i) water moves out of potato (by osmosis) OWTTE [1]  
(ii) water moves into potato OWTTE [1]
- (c) solution C has the same water potential/osmotic potential (1)  
no (net) movement of water into or out of cells OWTTE(1) [2]

total 10 marks

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3. (a) 775 352 128 67 17 9  
6 or 5 correct (2) 4 or 3 correct (1)  
2, 1 or 0 correct (0) [2]
- (b) to find background count [1]
- (c) (i) gamma only (1)  
(ii) alpha and beta (2)  
(iii) alpha only (1) [3]
- (d) do not point at people  
use (lead) shield  
warning sign  
keep in store unless being used (any one) [1]
- (e) locked away  
in lead shield  
with warning sign (any 2) [2]

total 10 marks

4. (a) (i) A inspired, B expired [1]  
(ii) limewater (1) goes cloudy/milky (1)  
OR bicarbonate indicator (1) goes yellow (1) [2]  
(iii) tube B (1)  
expired air contains more carbon dioxide OWTTE (1) [2]
- (b) (i) C 22s D 8s [2]  
(ii) faster breathing/ more energy needed/  
higher respiration rate/gaseous exchange/  
using more carbohydrate (any 2) [2]
- (c) more oxygen in inspired air than in expired air [1]

total ten marks

