

**CAMBRIDGE**  
INTERNATIONAL EXAMINATIONS

**JUNE 2003**

**INTERNATIONAL GCSE**

**MARKING SCHEME**

**MAXIMUM MARK: 40**

**SYLLABUS/COMPONENT: 0652/01**

**PHYSICAL SCIENCE**  
**Paper 1 (Multiple Choice)**



|               |                                       |                 |              |
|---------------|---------------------------------------|-----------------|--------------|
| <b>Page 1</b> | <b>Mark Scheme</b>                    | <b>Syllabus</b> | <b>Paper</b> |
|               | <b>IGCSE EXAMINATIONS – JUNE 2003</b> | <b>0652</b>     | <b>1</b>     |

| <i>Question Number</i> | <i>Key</i> | <i>Question Number</i> | <i>Key</i> |
|------------------------|------------|------------------------|------------|
| 1                      | <b>C</b>   | 21                     | <b>A</b>   |
| 2                      | <b>B</b>   | 22                     | <b>C</b>   |
| 3                      | <b>B</b>   | 23                     | <b>D</b>   |
| 4                      | <b>C</b>   | 24                     | <b>C</b>   |
| 5                      | <b>C</b>   | 25                     | <b>D</b>   |
| 6                      | <b>A</b>   | 26                     | <b>B</b>   |
| 7                      | <b>D</b>   | 27                     | <b>A</b>   |
| 8                      | <b>B</b>   | 28                     | <b>A</b>   |
| 9                      | <b>B</b>   | 29                     | <b>D</b>   |
| 10                     | <b>C</b>   | 30                     | <b>D</b>   |
| 11                     | <b>D</b>   | 31                     | <b>B</b>   |
| 12                     | <b>A</b>   | 32                     | <b>A</b>   |
| 13                     | <b>D</b>   | 33                     | <b>A</b>   |
| 14                     | <b>D</b>   | 34                     | <b>B</b>   |
| 15                     | <b>B</b>   | 35                     | <b>D</b>   |
| 16                     | <b>D</b>   | 36                     | <b>D</b>   |
| 17                     | <b>B</b>   | 37                     | <b>A</b>   |
| 18                     | <b>B</b>   | 38                     | <b>B</b>   |
| 19                     | <b>C</b>   | 39                     | <b>A</b>   |
| 20                     | <b>A</b>   | 40                     | <b>D</b>   |

**TOTAL 40**

**CAMBRIDGE**  
INTERNATIONAL EXAMINATIONS

**JUNE 2003**

**INTERNATIONAL GCSE**

**MARKING SCHEME**

**MAXIMUM MARK: 60**

**SYLLABUS/COMPONENT: 0652/02**

**PHYSICAL SCIENCE  
Paper 2 (Core)**



| Page 1 | Mark Scheme                    | Syllabus | Paper |
|--------|--------------------------------|----------|-------|
|        | IGCSE EXAMINATIONS – JUNE 2003 | 0652     | 2     |

|    |         |   |     |
|----|---------|---|-----|
| 1. | 15      | 1 |     |
|    | 14      | 1 |     |
|    | 2, 8, 4 | 1 | (3) |

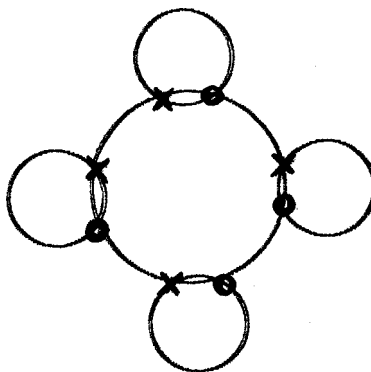
**Total 3**

|            |  |                   |     |
|------------|--|-------------------|-----|
| 2. (a) (i) | Any three of:<br>circuit complete<br>current in coil<br>core magnetised<br>armature attracted to the core                  | 1 + 1 + 1 (3 max) |     |
| (ii)       | soft iron loses its magnetism easily<br>EITHER steel retains its magnetism<br>OR so that contacts re-open when S is opened | 1<br>1            | (2) |

|     |  |             |     |
|-----|--|-------------|-----|
| (b) | EITHER use of $R = V/I$ (in any form)<br>OR $R = 12/4$ (in any form)<br>$R = 3$<br>Ohm | 1<br>1<br>1 | (3) |
|-----|--|-------------|-----|

**Total 8**

3. (a) (i)



2

|      |          |   |     |
|------|----------|---|-----|
| (ii) | covalent | 1 | (3) |
|------|----------|---|-----|

|         |  |   |     |
|---------|--|---|-----|
| (b) (i) | $\text{CH}_3\text{OH}$<br>( $\text{CH}_4\text{O}$ or similar = 1 compensation) | 2 |     |
| (ii)    | $12 + 4 + 16 = 32$ (ignore units)  | 1 | (3) |

**Total 6**

| Page 2 | Mark Scheme                    | Syllabus | Paper |
|--------|--------------------------------|----------|-------|
|        | IGCSE EXAMINATIONS – JUNE 2003 | 0652     | 2     |

|        |  |  |                |     |
|--------|--|--|----------------|-----|
| 4. (a) | (i)  | Evidence of both outer rays converging after leaving lens and central ray straight | 1              |     |
|        |  | all three rays pass through a single point on central ray                          | +1             |     |
|        | (ii)   | focal length correctly marked  | +1             | (3) |
| (b)    | (i)  | $i$ correctly marked   | 1              |     |
|        | (ii)   | ray reflected so that $i = r$  | 1              | (2) |
|        |  |  | <b>Total 5</b> |     |
| 5. (a) |  | Bromine atom takes electron from iodide ion EITHER to become bromide ion           | 1              |     |
|        |  | OR and replaces iodide/forms potassium bromide                                     | 1              | (2) |
| (b)    | <b>Ethane</b>  |  |                |     |
|        | $  \begin{array}{c}  \text{H} \quad \text{H} \\    \quad   \\  \text{H} - \text{C} - \text{C} - \text{H} \\    \quad   \\  \text{H} \quad \text{H}  \end{array}  $ |  | 1              |     |
|        | No change in colour  |  | 1              |     |
|        | <b>Ethene</b>  |  |                |     |
|        | $  \begin{array}{c}  \text{H} \quad \text{H} \\    \quad   \\  \text{C} = \text{C} \\    \quad   \\  \text{H} \quad \text{H}  \end{array}  $                       |  | 1              |     |
|        | goes colourless (or correct formula)   |  | 1              | (4) |
|        |  |  | <b>Total 6</b> |     |
| 6. (a) | (i)  | mercury or alcohol   | 1              |     |
|        | (ii)   | $35 \pm 1$   | 1              |     |
|        | (iii)  | Make Hg move further/increase sensitivity  | 1              | (3) |
| (b)    | (i)  | cools<br>liquid contracts  | 1<br>1         |     |
|        | (ii)   | correct position at 0  | 1              | (3) |
|        |  |  | <b>Total 6</b> |     |

| Page 3 | Mark Scheme                    | Syllabus | Paper |
|--------|--------------------------------|----------|-------|
|        | IGCSE EXAMINATIONS – JUNE 2003 | 0652     | 2     |

|  |   |                |     |
|--|---|----------------|-----|
| 7. (a)   | Increase the potential energy of the molecules<br>OR do work in separating the molecules<br>against intermolecular forces/bonds | 1<br>1         | (2) |
| (b)  | Molecules are moving around randomly<br>spread in all directions  | 1<br>1         | (2) |
|  |   | <b>Total 4</b> |     |
| 8. (a)   | (i) refraction  | 1              |     |
|  | (ii) arrow drawn at right angles to the refracted<br>waves  | 1              | (2) |
| (b)  | (i) less  | 1              |     |
|  | (ii) the same   | 1              |     |
|  | (iii) less  | 1              | (3) |
|  |   | <b>Total 5</b> |     |
| 9. (a)   | Hydrochloric  | 1              | (1) |
| (b)  | (i) Carbon dioxide  | 1              | (1) |
|  | (ii) Bubble through limewater<br>goes cloudy/milky  | +1<br>+1       | (2) |
| (c)  | Filter<br>Evaporate (to dryness)  | 1<br>+1        | (2) |
|  |   | <b>Total 6</b> |     |
| 10. (a)  | Example 2 because force moves<br>(max 1 if box/boy moves)<br>whereas in 1 the force is stationary                               | 1<br>1         | (2) |
| (Note: there is no credit for correct answer without some form of explanation) |   |                |     |
| (b)  | 18<br>N   | 1<br>1         | (2) |
| (c)  | accelerates<br>uniformly/constantly/(steadily?)   | 1<br>+1        | (2) |
|  |   | <b>Total 6</b> |     |

|               |                                       |                 |              |
|---------------|---------------------------------------|-----------------|--------------|
| <b>Page 4</b> | <b>Mark Scheme</b>                    | <b>Syllabus</b> | <b>Paper</b> |
|               | <b>IGCSE EXAMINATIONS – JUNE 2003</b> | <b>0652</b>     | <b>2</b>     |

11. (a) hydrogen loses electron 1  
in the formation of H<sub>2</sub>O molecule 1 (2)
- (b) Energy given out on combustion 1 (1)
- (c) On combustion the only product is water 2 (2)  
(OR no products of combustion/pollutants 1  
except water 1)

**Total 5**





**CAMBRIDGE**  
INTERNATIONAL EXAMINATIONS

**JUNE 2003**

**INTERNATIONAL GCSE**

**MARKING SCHEME**

**MAXIMUM MARK: 80**

**SYLLABUS/COMPONENT: 0652/03**

**PHYSICAL SCIENCE  
Paper 3 (Extended)**



|        |                                |          |       |
|--------|--------------------------------|----------|-------|
| Page 1 | Mark Scheme                    | Syllabus | Paper |
|        | IGCSE EXAMINATIONS – JUNE 2003 | 0652     | 3     |

|   |     |  |                  |
|---|-----|--|------------------|
| 1 | (a) | Covalent molecules (N <sub>2</sub> ); weak forces between (non-polar) molecules;<br>∴ low B. Pt. → gas at room temperature | [3]              |
|   |     | <i>Marks can be in either (i) or (ii)</i>  |                  |
|   | (b) | Amphoteric; mid-way between basic and acidic oxides  | [2]              |
|   | (c) | Ions have same charge in same Group; but smaller ions attract electrons more strongly                                      | [2]              |
|   | (d) | PCl <sub>3</sub> <u>OR</u> PCl <sub>5</sub>  | [1]              |
|   |     | <b>Question</b>  | <b>Total [8]</b> |
| 2 | (a) | equation   | [1]              |
|   |     | correct substitution   | [1]              |
|   |     | 36.7 m/s <sup>2</sup>  | [1]              |
|   | (b) | k.e. equation  | [1]              |
|   |     | working  | [1]              |
|   |     | 4.5(4) J   | [1]              |
|   | (c) | g.p.e. equation  | [1]              |
|   |     | working  | [1]              |
|   |     | 2.0(3) J   | [1]              |
|   | (d) | (i) loose but correct idea of how well something is done   | [C1]             |
|   |     | clear statement of idea of ratio of input to effective output<br>work/energy/power   | [2]              |

|               |                                       |                 |              |
|---------------|---------------------------------------|-----------------|--------------|
| <b>Page 2</b> | <b>Mark Scheme</b>                    | <b>Syllabus</b> | <b>Paper</b> |
|               | <b>IGCSE EXAMINATIONS – JUNE 2003</b> | <b>0652</b>     | <b>3</b>     |

- (ii) not efficient [1]  
clear statement of reason why not [1]  
first incorrect or missing unit only incurs penalty of -1

**Question Total [13]**

- 3 (a) Light can cause  $\text{Ag}^+$  ions  $\rightarrow$  Ag atoms; bottle keeps out light rays [2]  
(b) Na reacts violently with air and water; paraffin is inert and covers surface [2]  
(c) Easily picks up water vapour  $\rightarrow$  blue hydrate; desiccator keeps air dry [2]  
(d) Volatile so kept cold; poisonous vapour so in fume cupboard [2]

**Question Total [8]**

- 4 (a) correct order: image, object, lens, focus (or reversed) [1]  
either ray refracted correctly [1]  
correct construction [1]  
(b) virtual [1]  
magnified or correctly measured height } Any 3 [1]  
correct measurement of candidate's distance from lens, upright } [1]  
(c) magnifying glass/lens to correct long sight etc. [1]

**Question Total [7]**

|        |                                |          |       |
|--------|--------------------------------|----------|-------|
| Page 3 | Mark Scheme                    | Syllabus | Paper |
|        | IGCSE EXAMINATIONS – JUNE 2003 | 0652     | 3     |

- 5 (a) Mobile electrons (sea of electrons) NOT free electrons [1]
- (b) Unequal sizes of ions in alloy; give uneven (lumpy) layers; which cannot slide past each other easily; hence alloy is less malleable [4]
- (c) (i) Ca, Sr, Ba OR Ra [1]
- (ii) Fizzing  
Gradually dissolve  
Allow: Alkaline solution
- } Any 2
- [2]

**Question Total [8]**

- 6 (a) max voltage = 0.4 V [1]
- min voltage = 0.5 V [1]
- (b) mention of electromagnetic induction [1]
- idea of flux cutting or similar [1]
- (c) positive and negative peak [1]
- flux cuts coil in opposite directions [1]
- 1<sup>st</sup> peak lower [1]
- rate of flux cutting less [1]
- 1<sup>st</sup> peak wider
- magnet moving slower – time longer
- flat middle section
- zero rate of flux cutting
- } Any two **pairs** of answers, i.e. statement and consistent explanation

**Question Total [8]**

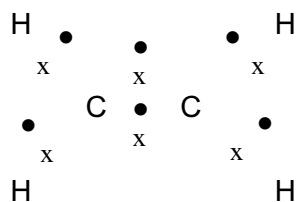
|        |                                |          |       |
|--------|--------------------------------|----------|-------|
| Page 4 | Mark Scheme                    | Syllabus | Paper |
|        | IGCSE EXAMINATIONS – JUNE 2003 | 0652     | 3     |

- 7 (a) (i) Charge on ion is +2 (oxidation number +2) [1]  
 Allow: - Valency is 2
- (ii) Calcium has only one possible oxidation number (valency) [1]
- (b) (i) 1000 cm<sup>3</sup> contains 1 mole [1]  
 ∴ 50 cm<sup>3</sup> contains 0.050 moles
- (ii) 1 mole CuCO<sub>3</sub> → 2 moles acid [1]  
 ∴ 0.025 moles CuCO<sub>3</sub> → 0.050 moles acid
- (iii) 64 + 12 + 3 x (16) [1] = 124 [1] [2]
- (iv) Mass = Moles x M<sub>r</sub> OR Mass = 0.025 x 124 [1] = 3.1 g [1] [2]
- Question Total [8]**

- 8 (a) idea of voltage [C1]  
 max terminal p.d./open circuit p.d. or other definition [2]
- (b) idea of high resistance implies low current [C1]  
 idea that voltmeter must drop vast majority of voltage [2]
- (c) (i) equation [1]  
 102 Ω used [1]  
 1.47 x 10<sup>-2</sup> A [1]
- (ii) use of current in (i) and 100 Ω [1]  
 1.47 V (e.c.f.) [1]
- (iii) larger resistance voltmeter [1]  
 smaller current [1]  
 less voltage dropped across internal resistance [1]  
 first incorrect or missing unit only incurs penalty of -1
- Question Total 12**

|        |                                |          |       |
|--------|--------------------------------|----------|-------|
| Page 5 | Mark Scheme                    | Syllabus | Paper |
|        | IGCSE EXAMINATIONS – JUNE 2003 | 0652     | 3     |

9 (a) ([1] for C=C, [1] for filled shells) [2]



(b) Alkenes have C=C bond; needs at least 2 carbon atoms [2]

(c) (i)  $C_4H_{10} \rightarrow 2C_2H_4 + H_2$  ([1] for formulae, [1] for balance) [2]

(ii) High temp; high Pressure OR catalyst [2]

Question Total [8]

**CAMBRIDGE**  
INTERNATIONAL EXAMINATIONS

**JUNE 2003**

**INTERNATIONAL GCSE**

**MARKING SCHEME**

**MAXIMUM MARK: 30**

**SYLLABUS/COMPONENT: 0652/05**

**PHYSICAL SCIENCE**  
**Practical**



| Page 1 | Mark Scheme                    | Syllabus | Paper |
|--------|--------------------------------|----------|-------|
|        | IGCSE EXAMINATIONS – JUNE 2003 | 0652     | 5     |

|                    |  |   |
|--------------------|--|---|
| <b>1 (a) (iii)</b> | a reading for $h_0$<br>5 readings taken (-1 if not in g)<br>force calculated correctly<br>extension calculated (deduct 1 if not in mm) | 4 |
| <b>(b)</b>         | axes labelled correctly<br>sensible scale<br>plotting correctly<br>best line drawn goes through or would go through origin             | 4 |
| <b>(c)</b>         | extension read correctly or calculated   | 1 |
| <b>(d)</b>         | proportional (2) allow one if says extension increases by fixed amount for fixed force   | 2 |
| <b>(e)</b>         | line correctly drawn and labelled  | 1 |
| <b>(f)</b>         | read extension<br>use graph<br>calculate in g or kg using correct number,<br>i.e. /10 to kg or x 100 to g                              | 3 |

**Total 15**

|              |  |        |
|--------------|--|--------|
| <b>2 (a)</b> | each metal correct as –ve<br>three values of p.d. to be within 0.2V of SV  | 1<br>3 |
| <b>(c)</b>   | magnesium with a suitable explanation  | 2      |
| <b>(d)</b>   | correct order Mg, Zn, Cu   | 1      |
| <b>(e)</b>   | bubbling, colour fades, black/brown deposit, magnesium disappears<br>or other suitable observation                       | 3      |
|              | magnesium is displacing copper ion (some reference to electron movement or ion changes is essential to score both marks) | 2      |
| <b>(f)</b>   | test with each metal<br>note polarity<br>compare this polarity with the other three                                      | 3      |

**Total 15**



**CAMBRIDGE**  
INTERNATIONAL EXAMINATIONS

**JUNE 2003**

**INTERNATIONAL GCSE**

**MARKING SCHEME**

**MAXIMUM MARK: 60**

**SYLLABUS/COMPONENT: 0652/06**

**PHYSICAL SCIENCE**  
**Alternative to Practical**



| Page 1 | Mark Scheme                    | Syllabus | Paper |
|--------|--------------------------------|----------|-------|
|        | IGCSE EXAMINATIONS – JUNE 2003 | 0652     | 6     |

- 1 (a)** Masses:
- |                   |   |                                    |   |
|-------------------|---|------------------------------------|---|
| object A – 41.4g  | } | No tolerance<br>(do not allow 28g) | 3 |
| object B – 64.2 g |   |                                    |   |
| object C – 28.0g  |   |                                    |   |
- (b)** Volumes:
- |                              |   |              |   |
|------------------------------|---|--------------|---|
| object A – 27cm <sup>3</sup> | } | No tolerance | 3 |
| object B – 12cm <sup>3</sup> |   |              |   |
| object C – 56cm <sup>3</sup> |   |              |   |
- (c)** Density of object C =  $28/56 = 0.5$  (allow 1 mark for correct substitution but incorrect answer) (allow ecf from (a) and (b)) 2
- unit g/cm<sup>3</sup> (mark is independent of answer to calculation) 1
- (d)** object C would **float** [1]
- because it is less dense than water (OWTTE) [1] (explanation must relate to relative densities of object C and water) 2
- do NOT allow independent answers, i.e. correct explanation MUST be given to score first mark.
- (allow converse answer if candidate's value for part (c) is >1)
- (e)** some water would be left in the beaker when transferring to the measuring cylinder 1
- do NOT allow 'the experiment/results is/are not accurate'

**Total 12**

| Page 2 | Mark Scheme                    | Syllabus | Paper |
|--------|--------------------------------|----------|-------|
|        | IGCSE EXAMINATIONS – JUNE 2003 | 0652     | 6     |

|              |   |                               |   |
|--------------|---|-------------------------------|---|
| <b>2 (a)</b> | Magnesium copper [1]  | pd = 2.0 [1] (do NOT allow 2) | 2 |
|              | Zinc copper [1]   | pd = 1.1 [1]                  | 2 |
| <b>(b)</b>   | most negative = magnesium   |                               | 1 |
|              | most positive = copper  |                               | 1 |
| <b>(c)</b>   | magnesium, zinc, copper   |                               | 1 |
| <b>(d)</b>   | find the p.d. with each of the other metals [1]                   |                               |   |
|              | note which metal is positive/negative [1]                         |                               |   |
|              | metal X is positive with a more reactive metal and vice versa [1] |                               | 3 |
|              | Answers must relate to the experiment used in the question.       |                               |   |

**Total 10**

| Page 3 | Mark Scheme                    | Syllabus | Paper |
|--------|--------------------------------|----------|-------|
|        | IGCSE EXAMINATIONS – JUNE 2003 | 0652     | 6     |

- 3 (a)**  $h_3 = 160$  (mm)       $h_4 = 122$  (mm)       $h_5 = 85$  (mm)  
(tolerance  $\pm 1$ mm)      2
- (2 marks if all three values correct, reduce by one mark for each error to minimum 0)
- (b)** Forces      1.5      2.0      2.5(N)      2  
(1 only if 2 or more incorrect)  
Extensions      110      148      185 (mm)  
(e.c.f. – 1 for each error)
- (c)** Plotting points [2] – 5/6 points plotted correctly – 2 marks  
3/4 points plotted correctly – 1 mark  
1/2 points plotted correctly – 0 marks      2
- Straight line passing through the origin [1]      1
- (d)** (Directly) proportional      1  
(do NOT allow ‘as mass increases, extension increases’)
- (e)** place mass on hanger and record extension [1]  
use graph to find force (or plot new graph if extension greater than values already plotted) [1]  
multiply Force by 100 to find mass of object [1]      (2 of 3)      2

**Total 10**

| Page 4 | Mark Scheme                    | Syllabus | Paper |
|--------|--------------------------------|----------|-------|
|        | IGCSE EXAMINATIONS – JUNE 2003 | 0652     | 6     |

|                  |   |   |
|------------------|---|---|
| <b>4 (a) (i)</b> | Blue/Dark green (must be <b>COLOUR</b> i.e. <i>NOT pH number</i> )<br>(do NOT allow 'purple') | 1 |
|                  | Ammonia/gas is alkali(ne) (allow 'basic/base')  | 1 |
| <b>(a) (ii)</b>  | Red   | 1 |
| <b>(b)</b>       | (Light) Green   | 1 |
|                  | Gases <b>neutralise</b> each other ( <b>NOT</b> one gas is acidic and the other is alkaline)  | 1 |
| <b>(c) (i)</b>   | Ammonia moves faster  | 1 |
| <b>(c) (ii)</b>  | Because it has smaller particles (allow converse)   | 1 |
| <b>(d)</b>       | Spreading out of particles (OWTTE)  | 1 |

**Total 8**

| Page 5 | Mark Scheme                    | Syllabus | Paper |
|--------|--------------------------------|----------|-------|
|        | IGCSE EXAMINATIONS – JUNE 2003 | 0652     | 6     |

|                  |  |   |
|------------------|--|---|
| <b>5 (a) (i)</b> | Crystal dissolved [1] (do NOT allow 'melted')                                    |   |
|                  | Particles spread out/diffused into the liquid [1]                                | 2 |
| <b>(a) (ii)</b>  | Any TWO from:  |   |
|                  | Stir [1]   |   |
|                  | Heat/warm [1]  |   |
|                  | Shake [1]  | 2 |
| <b>(b)</b>       | Alkali(ne)/has pH greater than 7   | 1 |
| <b>(c) (i)</b>   | Mixed with water/water has been added  | 1 |
| <b>(c) (ii)</b>  | Alkali and acid have reacted [1] so the solution is neutral/pH 7 [1]             | 2 |
| <b>(c) (iii)</b> | Alkali is in excess (OWTTE) (do NOT allow 'the acid has not reached the alkali') | 1 |
| <b>(c) (iv)</b>  | Calcium Hydroxide + Ethanoic Acid $\longrightarrow$ Calcium Ethanoate + Water    | 1 |

**Total 10**

| Page 6 | Mark Scheme                    | Syllabus | Paper |
|--------|--------------------------------|----------|-------|
|        | IGCSE EXAMINATIONS – JUNE 2003 | 0652     | 6     |

|                |  |   |
|----------------|--|---|
| <b>6 (a)</b>   | Mass of beaker = 43.4g   | 1 |
|                | Mass of beaker + water = 93.6g   | 1 |
|                | Mass of beaker + sodium chloride solution = 108.6g   | 1 |
| <b>(b) (i)</b> | Mass of sodium chloride solution = $108.6 - 43.4 = 65.2\text{g}$<br>(allow ecf from (a))   | 1 |
| <b>(ii)</b>    | Mass of sodium chloride crystals = $108.6 - 93.6 = 15.0\text{g}$<br>(allow ecf from (a)) (do NOT allow 15g)                                      | 1 |
| <b>(c)</b>     | Volume = $55\text{ cm}^3$  | 1 |
| <b>(d)</b>     | (b) (i) and (c) (both required for mark)   | 1 |
|                | (accept values quoted (allow ecf)) (allow calculated value of density e.g. $65.2/55$ or $1.19\text{g/cm}^3$ (allow ecf from candidate's values)) |   |
| <b>(e)</b>     | Place hexane in measuring cylinder to a known volume [1]   |   |
|                | Add 15g of sodium chloride to the hexane [1]   |   |
|                | Note new volume in measuring cylinder and subtract original volume of hexane [1]   | 3 |

**Total 10**

**Grade thresholds** taken for Syllabus 0652 (Physical Science) in the June 2003 examination.

|             | maximum mark available | minimum mark required for grade: |    |    |    |
|-------------|------------------------|----------------------------------|----|----|----|
|             |                        | A                                | C  | E  | F  |
| Component 1 | 40                     | -                                | 27 | 21 | 17 |
| Component 2 | 60                     | -                                | 32 | 21 | 18 |
| Component 3 | 80                     | 47                               | 29 | -  | -  |
| Component 5 | 30                     | 21                               | 17 | 13 | 11 |
| Component 6 | 60                     | 54                               | 43 | 27 | 24 |

The threshold (minimum mark) for B is set halfway between those for Grades A and C.

The threshold (minimum mark) for D is set halfway between those for Grades C and E.

The threshold (minimum mark) for G is set as many marks below the F threshold as the E threshold is above it.

Grade A\* does not exist at the level of an individual component.