This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. This shows the basis on which Examiners were initially instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners’ meeting before marking began. Any substantial changes to the mark scheme that arose from these discussions will be recorded in the published Report on the Examination.

All Examiners are instructed that alternative correct answers and unexpected approaches in candidates’ scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes must be read in conjunction with the question papers and the Report on the Examination.

- CIE will not enter into discussion or correspondence in connection with these mark schemes.

CIE is publishing the mark schemes for the June 2005 question papers for most IGCSE and GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.
**Grade thresholds** taken for Syllabus 9705 (Design and Technology) in the June 2005 examination.

<table>
<thead>
<tr>
<th>Component 3</th>
<th>maximum mark available</th>
<th>minimum mark required for grade:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>A</td>
</tr>
<tr>
<td>Component 3</td>
<td>120</td>
<td>91</td>
</tr>
</tbody>
</table>

The thresholds (minimum marks) for Grades C and D are normally set by dividing the mark range between the B and the E thresholds into three. For example, if the difference between the B and the E threshold is 24 marks, the C threshold is set 8 marks below the B threshold and the D threshold is set another 8 marks down. If dividing the interval by three results in a fraction of a mark, then the threshold is normally rounded down.
<table>
<thead>
<tr>
<th>MARK SCHEME</th>
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<tr>
<td>MAXIMUM MARK: 120</td>
</tr>
<tr>
<td>SYLLABUS/COMPONENT: 9705/03</td>
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<tr>
<td>DESIGN AND TECHNOLOGY</td>
</tr>
<tr>
<td>Written 2</td>
</tr>
</tbody>
</table>
Section A

Part A – Product Design

1 (a) description of process:
- fully detailed 3 - 5
- some detail 0 - 2

quality of sketches up to 2 7 x 2 [14]

(b) extrusion
- consistent section
- long lengths produced

casting
- complex one off shapes
- little wastage/extra machining

turning
- quality/accuracy of finish
- small batches produced 3 x 2 [6]

[Total: 20]

2 (a) appropriate material including:
- aluminium
- acrylic
- hardwood 1

reasons including:
- takes a good finish
- easy to clean/attractive 1 x 2 [3]

(b) description to include:
- appropriate method
- shaping, drilling
- bending

quality of description:
- fully detailed 3 - 6
- some detail 0 - 2

quality of sketches up to 2 [8]

(c) explanation could include:
- change in process
- change in materials
- use of templates, jigs, formers
- simplification of design

quality of explanation:
- logical, structured 4 - 7
- limited detail 0 - 3

quality of sketches up to 2 [9]

[Total: 20]
3 Discussion could include:

Consumers
- market pull/research
- fashion/trends
- product trialling

Manufacturers
- producer led
- new materials/technologies
- cost

New technologies
- materials
- processes
- 'must have' gadgets

Overall comprehension and interpretation 2

examination of issues: up to 6 marks
- broad range 4 - 6
- limited 0 - 3

quality of explanation: up to 8 marks
- detailed, logical 6 - 8
- some detail 3 - 5
- limited 0 - 2

supporting examples/evidence up to 4 marks

[Total: 20]
Part B – Practical Design

4  (a)  - does not resist impact  1
     - resists oxidation/degradation  1

(b)  e.g.
     - glass     1
     - teak/aluminium   1

(c)  quality of description:
     - clear, logical, detailed  3 - 5
     - limited detail       0 - 3

details of samples   2
measurement           1

quality of sketches   2  [10]

(d)  explanation could include:
     - selection of appropriate materials for particular function
     - comparisons/cost effective

quality of explanation:
     - logical, detailed  3 - 5
     - limited detail       0 - 2

example/s             1  [6]

[Total: 20]

5  (a)  e.g. Paint
     state 1  describe 2  [2]

(b)  description of process:
     - fully detailed  4 - 6
     - some detail       0 - 3

quality of sketches   up to 2  [8]

(c)  (i)  key differences in process e.g.
     - temperature required
     - power/heat method
     - filler material
     - safety precautions  3 x 2  [6]

(ii) advantages explained e.g.
     - strength
     - speed

quality of explanation   up to 4 marks  [Total: 20]
6  (a)  anti clockwise  

(b)  \[
\frac{20 \times 20 \times 40}{10 \times 10 \times 10} = \frac{2 \times 2 \times 4}{1 \times 1 \times 1}
\]

VR = 16

(b)  example  

description  

(d)  e.g. nylon

- can be injection moulded
- lightweight
- good frictional qualities
- low noise
- easily damaged

brass

- good frictional qualities
- expensive
- does not corrode
- noisy

steel

- can corrode
- will last
- heavy
- noisy

(e)  advantages and disadvantages for each material
Part C – Graphic Products

7  correct isometric 3  
circles/arcs 4  
approx twice full size 2  
quality of linework 2  
overall shape/proportion 6 [17]  
enhancement 3 [3]  

[Total: 20]

8  (a)  complete elevation construction 3  
    accuracy 3  
(b)  net roof construction 4  
    accuracy 2  
    net flue construction 5  
    accuracy 3  

[Total: 20]

9  (a)  (i)  fully detailed 3 - 4 
    limited, some detail 0 - 2 [4]  
(ii)  fully detailed 3 - 6 
    limited, some detail 0 - 2 [6]  
(b)  quality of explanation: 
    fully detailed, clear 5 - 8  
    limited 0 - 4  
    quality of sketches up to 2 [10]  

[Total: 20]
Section B

Assessment Criteria

Analysis 5
Specification 5
Range of ideas 5
Annotation related to specification 5
Marketability 5
Selection of ideas 5
Communication (ideas) 5
Development of ideas 5
Reasoning 5
Materials 3
Construction/detail 7
Communication (development) 5
Proposed solution 10
Dimensions/details 5
Evaluation 5

[Total 80]