MARK SCHEME for the October/November 2011 question paper
for the guidance of teachers

9705 DESIGN AND TECHNOLOGY

9705/12 Paper 1, maximum raw mark 120

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.

Mark schemes must be read in conjunction with the question papers and the report on the examination.

- Cambridge will not enter into discussions or correspondence in connection with these mark schemes.

Cambridge is publishing the mark schemes for the October/November 2011 question papers for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.
<table>
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<th>Question</th>
<th>Description</th>
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| 1 (a) (i) | Input motion – Rotary  
Output motion – Reciprocating |
| (b) (i) | Cutting out material described  
Smoothing edges described  
Details of tools, equipment and safety precautions (if necessary) |
| (ii) | Making process described  
Details of tools, equipment and safety precautions (if necessary) |
| (iii) | Making process described  
Details of tools, equipment and safety precautions (if necessary) |
| Total: 20 |
| 2 (a) | Suitable sheet material named  
e.g. acrylic, polystyrene, aluminium, stainless steel.  
Suitable reason for choice given e.g. surface finish is not required |
| (b) (i) | Bending process described  
Details of tools, equipment and safety precautions (if necessary) |
| (ii) | Cutting out material described  
Smoothing edges of material described  
Details of tools, equipment and safety precautions (if necessary) |
| (iii) | Joining process described  
Details of tools, equipment and safety precautions (if necessary) |
<p>| Total: 20 |</p>
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**3 (a)** Sketch showing two outer layers and corrugations  
Notes explaining construction  
(1)                               
(1)  
[2]

(b) (i) Correct shape (rectangle joined to triangle)  
Windows  
4 tabs on edges  
(1)                               
(1)  
[3]

(ii) Correct shape (rectangle joined to triangle)  
Circular door and triangular window  
4 tabs on edges  
(1)                               
(1)  
[3]

(c) (i) Cutting out process described  
Details of tools, equipment and safety precautions (if necessary)  
(0–3)                               
(0–3)  
[6]

(ii) Parts shown joined together  
Double thickness of tabs shown  
Use of elastic bands described  
(1)                               
(1)                               
(0–4)  
[6]

[Total: 20]

4 (a) Copyright symbol  
Material cannot be copied without permission  
(1)                               
(1)  
[2]

(b) Problem 1 described  
Problem 2 described  
e.g. Problems related to left hand pop-up creasing when page is folded and right hand pop-up sticking out of book when page is folded.  
(0–2)                               
(0–2)  
4

(c) Explanation of how problem 1 could be overcome  
Explanation of how problem 2 could be overcome  
e.g. Making left hand pop-up parallel to surfaces of page.  
Reducing horizontal distance of right hand pop-up to 30mm or increase page size to 200mm.  
(0–3)                               
(0–3)  
[6]

(d) Situation has been analysed and relevant issues/points identified.  
Explanation of why issues/points are considered relevant  
Specific examples/evidence used to support conclusions  
(0–3)                               
(0–3)                               
(0–2)  
[8]

[Total: 20]
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### 5

(a) Appropriate explanation  
  e.g. Wrist strap. Not so easy to drop torch, leaves hands free when carrying torch, easier to carry, easier to hang  

(b) Problem 1 described  
  Problem 2 described  
  e.g. Problems related to it not being easy to wind up or carry the radio  

(c) Explanation of how problem 1 could be overcome  
  Explanation of how problem 2 could be overcome  
  e.g. Improving winding mechanism, adding carrying handle or strap  

(d) Situation has been analysed and relevant issues/points identified.  
  Explanation of why issues/points are considered relevant  
  Specific examples/evidence used to support conclusions  

**[Total: 20]**

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### 6

(a) Appropriate explanation  
  e.g. Acts as hinge, stops chair collapsing when in use  

(b) Problem 1 described  
  Problem 2 described  
  e.g. Problems related to poor stability, lack of folding 'mechanism', chair will collapse  

(c) Explanation of how problem 1 could be overcome  
  Explanation of how problem 2 could be overcome  
  e.g. Method of folding added, additional rails added  

(d) Situation has been analysed and relevant issues/points identified.  
  Explanation of why issues/points are considered relevant  
  Specific examples/evidence used to support conclusions  

**[Total: 20]**
7 (a) One pre-conceived idea presented
   OR
   The development and selection of a range of ideas into a single design proposal which would appear to work but lacks some technical detail
   OR
   The development and selection of a range of ideas into a single design proposal that includes sufficient technical detail to show that the proposed solution would clearly work
   Clarity and quality of sketching and explanatory notes
   Evaluation (reasons for selection) [16]

   (b) As for part (a) [16]

   (c) As for part (a) [16]

   (d) As for part (a) [16]

   (e) The drawing will exhibit a reasonable standard of outcome and show some of the required design features
   OR
   The drawing will exhibit a good standard of outcome and show most of the design features required to make the product function as intended
   OR
   The drawing will be completed to a high standard of outcome and fully show the design features required to make the product function as intended
   Some use made of colour and tone to enhance the visual impact of the drawing
   OR
   Good use has been made of colour and tone to enhance the visual impact of the drawing
   OR
   Very good use has been made of colour, tone and material representation to enhance the visual impact of the drawing [5–6] [16]

[Total: 80]

Questions 8 and 9 as for Question 7