

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS  
GCE Advanced Subsidiary Level and GCE Advanced Level

**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.

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- 1 (a) (i) Input motion – Rotary (1)  
Output motion – Reciprocating (1) [2]
- (b) (i) Cutting out material described (0–2)  
Smoothing edges described (0–2)  
Details of tools, equipment and safety precautions (if necessary) (0–2) [6]
- (ii) Making process described (0–3)  
Details of tools, equipment and safety precautions (if necessary) (0–3) [6]
- (iii) Making process described (0–3)  
Details of tools, equipment and safety precautions (if necessary) (0–3) [6]
- [Total: 20]**
- 2 (a) (a) Suitable sheet material named (1)  
e.g. acrylic, polystyrene, aluminium, stainless steel. (1)  
Suitable reason for choice given e.g. surface finish is not required (1) [2]
- (b) (i) Bending process described (0–3)  
Details of tools, equipment and safety precautions (if necessary) (0–3) [6]
- (ii) Cutting out material described (0–2)  
Smoothing edges of material described (0–2)  
Details of tools, equipment and safety precautions (if necessary) (0–2) [6]
- (iii) Joining process described (0–3)  
Details of tools, equipment and safety precautions (if necessary) (0–3) [6]
- [Total: 20]**

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- 3 (a)** Sketch showing two outer layers and corrugations (1)  
Notes explaining construction (1) [2]
- (b) (i)** Correct shape (rectangle joined to triangle) (1)  
Windows (1)  
4 tabs on edges (1) [3]
- (ii)** Correct shape (rectangle joined to triangle) (1)  
Circular door and triangular window (1)  
4 tabs on edges (1) [3]
- (c) (i)** Cutting out process described (0–3)  
Details of tools, equipment and safety precautions (if necessary) (0–3) [6]
- (ii)** Parts shown joined together (1)  
Double thickness of tabs shown (1)  
Use of elastic bands described (0–4) [6]
- [Total: 20]**
- 4 (a)** Copyright symbol (1)  
Material cannot be copied without permission (1) [2]
- (b)** Problem 1 described (0–2)  
Problem 2 described (0–2)  
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. 4
- (c)** Explanation of how problem 1 could be overcome (0–3)  
Explanation of how problem 2 could be overcome (0–3)  
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. [6]
- (d)** Situation has been analysed and relevant issues/points identified. (0–3)  
Explanation of why issues/points are considered relevant (0–3)  
Specific examples/evidence used to support conclusions (0–2) [8]
- [Total: 20]**

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- 5**
- (a)** Appropriate explanation (0–2)  
 e.g. Wrist strap. Not so easy to drop torch, leaves hands free when carrying torch, easier to carry, easier to hang [2]
- (b)** Problem 1 described (0–2)  
 Problem 2 described (0–2)  
 e.g. Problems related to it not being easy to wind up or carry the radio [4]
- (c)** Explanation of how problem 1 could be overcome (0–3)  
 Explanation of how problem 2 could be overcome (0–3)  
 e.g. Improving winding mechanism, adding carrying handle or strap [6]
- (d)** Situation has been analysed and relevant issues/points identified. (0–3)  
 Explanation of why issues/points are considered relevant (0–3)  
 Specific examples/evidence used to support conclusions (0–2) [8]
- [Total: 20]**
- 6**
- (a)** Appropriate explanation (0–2)  
 e.g. Acts as hinge, stops chair collapsing when in use [2]
- (b)** Problem 1 described (0–2)  
 Problem 2 described (0–2)  
 e.g. Problems related to poor stability, lack of folding 'mechanism', chair will collapse [4]
- (c)** Explanation of how problem 1 could be overcome (0–3)  
 Explanation of how problem 2 could be overcome (0–3)  
 e.g. Method of folding added, additional rails added [6]
- (d)** Situation has been analysed and relevant issues/points identified. (0–3)  
 Explanation of why issues/points are considered relevant (0–3)  
 Specific examples/evidence used to support conclusions (0–2) [8]
- [Total: 20]**

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- 7 (a) One pre-conceived idea presented (0–3)  
**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 (4–7)  
**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 (8–10)  
 Clarity and quality of sketching and explanatory notes (0–3)  
 Evaluation (reasons for selection) (0–3) [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 (0–3)  
**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 (4–7)  
**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 (8–10)
- Some use made of colour and tone to enhance the visual impact of the drawing (0–2)  
**OR**  
 Good use has been made of colour and tone to enhance the visual impact of the drawing (3–4)  
**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