

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

## MARK SCHEME for the October/November 2007 question paper

### 9705 DESIGN AND TECHNOLOGY

9705/01

Paper 1 (Written 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.

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.

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1	(a)	Suitable sheet material named	(1)		
		e.g. acrylic, polystyrene, stainless steel, aluminium			
		Suitable reason for choice given	(1)		
		e.g. does not require a surface finish		[2]	
	(b)	(i)	Cutting and finishing described	(0–3)	
			Details of tools, equipment and safety precautions (if necessary)	(0–3)	[6]
		(ii)	Appropriate method of attachment described	(0–3)	
			Details of tools, equipment and safety precautions (if necessary)	(0–3)	[6]
		(iii)	Thread cutting described	(0–3)	
			Details of tools, equipment and safety precautions (if necessary)	(0–3)	[6]
				[Total: 20]	
2	(a)	Suitable material named	(1)		
		e.g. acrylic, polystyrene, MDF, plywood, hardboard			
		Suitable reason for choice given	(1)	[2]	
		e.g. good surface finish, available in thin sheets			
	(b)	(i)	Marking out of comb joint described	(0–3)	
			Details of tools, equipment and safety precautions (if appropriate)	(0–3)	[6]
		(ii)	Making the comb joint described	(0–3)	
			Details of tools, equipment and safety precautions (if necessary)	(0–3)	[6]
			Making the groove described	(0–3)	
			Details of tools, equipment and safety precautions (if necessary)	(0–3)	[6]
				[Total: 20]	
3	(a)	Suitable card named	(1)		
		e.g. whiteboard, cardboard			
		Suitable reason for choice given	(1)	[2]	
		e.g. good surface to print on			
	(b)	Appropriate scale used	(1)		
		Base and two sides shown	(1)		
		Top with cut-out window shown	(1)		
		Glue tab shown	(1)	[4]	
	(c)	CAD drawing described	(0–4)		
		Details of equipment (including software)	(0–3)	[7]	
(d)	Vacuum forming described	(0–4)			
	Details of tools, equipment and safety precautions	(0–3)	[7]		
				[Total: 20]	

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- 4 (a) Appropriate explanation (0–2) [2]  
e.g. Related to safe and correct use of product in accordance with manufacturer's instructions
- (b) Problem 1 described (0–2)  
Problem 2 described (0–2)  
e.g. Problems related to shade getting hot and electrical safety – insulation of metal parts [4]
- (c) Explanation of how problem 1 could be overcome (0–3)  
Explanation of how problem 2 could be overcome (0–3) [6]  
e.g. solutions related to reducing heat, smaller bulb  
more holes in shade, improving insulation, possible use of alternative materials.
- (d) Situation has been analysed and relevant issues/points identified (0–3)  
Explanation of why issues/points are considered relevant (0–3)  
Specific example or evidence used to support answer (0–2) [8]
- 5 (a) Appropriate explanation (0–2) [2]  
e.g. Related to fixing brake to bicycle and allowing the arms of the brake to pivot
- (b) Problem 1 described (0–2)  
Problem 2 described (0–2) [4]  
e.g. Related to brake blocks wearing down and cable stretching
- (c) Explanation of how problem 1 could be overcome (0–3)  
Explanation of how problem 2 could be overcome (0–3)  
e.g. Solutions related to how the design of the brake allows for parts to be adjusted and replaced
- (d) Situation has been analysed and relevant issues/points identified (0–3)  
Explanation of why issues/points are considered relevant (0–3)  
Specific example or evidence used to support answer (0–2) [8]
- [Total: 20]**
- 6 (a) Appropriate explanation (0–2) [2]  
e.g. Related to making it easier to open top by pushing finger into cut out
- (b) Problem 1 described (0–2)  
Problem 2 described (0–2) [4]  
e.g. Problems related to top not closing very well, contents not being very secure, dust etc. can easily get inside box

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- (c) Explanation of how problem 1 could be overcome (0–3)  
 Explanation of how problem 2 could be overcome (0–3) [6]  
 e.g. Solutions related to increasing size of tuck in flap, putting slits in the ends of the flap, adding two fold over flaps to the sides of the box to keep contents more secure/clean
- (d) Situation has been analysed and relevant issues/points identified (0–3)  
 Explanation of why issues/points are considered relevant (0–3)  
 Specific example or evidence used to support answer (0–2) [8]

[Total: 20]

- 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)

[Total: 80]

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- 8** (a) As for **Question 7** part (a) [16]
- (b) As for **Question 7** part (a) [16]
- (c) As for **Question 7** part (a) [16]
- (d) Appropriate size/proportions and scale used for the development (net/s) (0–2)  
 showing  
 Sides, ends and base (0–3)  
 Top and handle (0–4)  
 Internal partitions (0–4)  
 Glue tabs, fold lines and any other fixing methods (0–3) [16]
- (e) As for **Question 7** part (e) [16]
- [Total: 80]**

**9** Marking of this question will be the same as for **Question 7**.