

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

**MARK SCHEME for the November 2005 question paper**

**9705 DESIGN AND TECHNOLOGY**

**9705/01**

**Paper 1**

**maximum raw mark 120**

This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. It 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*.

The minimum marks in these components needed for various grades were previously published with these mark schemes, but are now instead included in the Report on the Examination for this session.

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

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### Section A

1	(a)	Electricity identified as correct type of energy	1	
	(b)	Two appropriate reasons identified 2x1 Appropriate explanations 2x1	4	
	(c)	Two appropriate energy sources named e.g. batteries, mains electricity, solar power 2x1	2	<b>7</b>
2		Six appropriate factors given 6x1 e.g. must be correct size to fit over window must hold stereo securely must be easy to take stereo out must be big enough to hold stereo must not have any sharp edges or corners must still allow window to open and close	6	<b>6</b>
3	(a)	Appropriate reasons given 2x1 Clear explanations 2x1	4	
	(b)	Appropriate reasons given 2 x 1 Clear explanations 2 x 1	4	<b>8</b>
4	(a)	Appropriate reasons given 2x1 Clear explanations 2x1	4	
	(b)	Appropriate component identified 0-3 marks Quality/clarity of communication 0-2 marks	5	<b>9</b>
5	(a)	Suitable wood specified 1 mark Appropriate reason for choice 1 mark	2	
	(b)	Process explained 0-3 marks Tool named 0-1 mark	4	
	(c)	Appropriate use of CAM 0-2 marks Appropriate use of CAD 0-2 marks	4	<b>10</b>

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### Section B

6	(a)	Suitable metal specified 1 mark Reasons explained 2x1	3		
	(b)	(i)	Marking out described 0-2 marks Tools/equipment clearly communicated 0-2 marks Safety precautions 0-1 mark	5	
		(ii)	As for (i)	5	
		(iii)	As for (i)	5	
(c)	Suitable finish specified 1 mark Appropriate reason for choice 1 mark	2	<b>20</b>		
7	(a)	Appropriate wood specified 1 mark Two appropriate reasons for choice 2x1	3		
	(b)	Appropriate plastic specified 1 mark Appropriate reason for choice 1 mark	2		
	(c)	(i)	Process explained 0-2 marks Tools/equipment clearly communicated 0-2 marks Safety precautions 0-1 mark	5	
		(ii)	As for (i)	5	
		(iii)	As for (i)	5	<b>20</b>
	8	(a)	Outer shape 0-1 mark Slots 0-2 marks Size 0-1 mark	4	
(b)		Appropriate plastic specified	1		
(c)		Three appropriate advantages stated 3x1 e.g. no surface finish required easier to bend available in a range of colours	3		
(d)		(i)	Drilling machine - process identified 1 mark Process described 0-3 marks Strip heater - process identified 1 mark Process described 0-3 marks	8	
		(ii)	Two safety points identified 2x1 Each point explained 2x1	4	<b>20</b>

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### Section C

<b>9</b>	<b>(a)</b>	<b>(i)</b> Correct parts identified 3x1	3		
		<b>(ii)</b> Production of motion 3x2 Effect each motion has on the cork 3x1	9		
	<b>(b)</b>	<b>(i)</b> Mechanism identified Rack (1) and Pinion (1)	2		
		<b>(ii)</b> Correct description of mechanism 0-2 marks Quality of communication 0-1 mark			
<b>(c)</b>	Potential hazards identified 0-2 marks Level of discussion 0-1 mark	3	<b>20</b>		
<b>10</b>	<b>(a)</b>	<b>(i)</b> Suitable softwood	1		
		<b>(ii)</b> Suitable thermoplastic	1		
		<b>(iii)</b> Suitable non-ferrous metal	1		
	<b>(b)</b>	<b>(i)</b> Fabrication explained 0-2 marks	2		
		<b>(ii)</b> Injection moulding explained 0-2 marks	2		
		<b>(iii)</b> Cast explained 0-2 marks	2		
	<b>(c)</b>	Quality of explanation 0-2 marks	2		
	<b>(d)</b>	Issues related to storage identified 0-3 marks Issues related to maintenance 0-3 marks Depth of discussion 0-3 marks	9	<b>20</b>	
	<b>11</b>	<b>(a)</b>	<b>(i)</b> Suitable manufactured board 1 mark Suitable finish 1 mark	2	
			<b>(ii)</b> Suitable metal 1 mark Suitable finish 1 mark	2	
<b>(b)</b>		Quality of explanation 0-2 marks	2		
<b>(c)</b>		Quality of explanation 0-2 marks	2		
<b>(d)</b>		Advantages clearly explained 2x2	4		
<b>(e)</b>		Quality of explanation 0-2 marks	2		
<b>(f)</b>		Ergonomic factors identified 0-4 marks Depth of discussion 0-2 marks	6	<b>20</b>	