

# CAMBRIDGE INTERNATIONAL EXAMINATIONS GCE Advanced Subsidiary Level and GCE Advanced Level

## MARK SCHEME FOR the November 2002 question papers

# 9705 Design and Technology

**9705 /1** Paper 1 (Written 1), maximum raw mark 120

**9705 /3** Paper 3 (Written 2), maximum raw mark 120

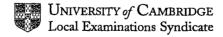
These mark schemes are published as an aid to teachers and students, to indicate the requirements of the examination. They show the basis on which Examiners were initially instructed to award marks. They do not indicate the details of the discussions that took place at an Examiners' meeting before marking 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 discussions or correspondence in connection with these mark schemes.

CIE is publishing the mark schemes for the November 2002 question papers for most IGCSE, Advanced Subsidiary (AS) Level and Advanced Level syllabuses.

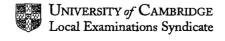




### **NOVEMBER 2002**

# **GCE Advanced Subsidiary Level**

# MARK SCHEME MAXIMUM MARK: 120 SYLLABUS/COMPONENT: 9705 /1 DESIGN AND TECHNOLOGY (WRITTEN 1)



Page 1	Mark Scheme	Syllabus Paper	٦
	AS Level Examinations – November 2002	9705 1	7

		Section A	Detail Mark	Mark on script	Total Mark
1	Any from nuts and bolts, screws, two-piece snap fittings etc.		3 x 1	3	
2		Ductile, malleable, very good electrical conductor. (any two).	2 x 1	2	
	b) I	Plasticised PVC.	1	1	
3		d description of property linked to example if possible.  erties such as – non corroding, does not tarnish, durable, natural			
		n or range of finishes available etc.	4 x 2	8	
4	(i)	Accurate sketch of gears	2		
		Good descriptive notes to explain change of angle through	1		
		90	1	4	*
		Suitable application.			
	(ii)	Accurate sketch of gears	2	,	
		Good descriptive notes to explain change of movement from	1		
		rotary to linear.			
		Suitable application.	1	4	
5	For e	each method —	•.		
	Good	description which covers the main aspects of storing,			
		essing and generation.			
	(i)	Tidal	3	3	
	(ii)	Hydroelectric	3	3	
	(iii)	Wave	3	3	
6	(i)	Time – available, start and finish times, scheduling, costing			
		etc.	3	3	
	(ii)	Facilities – space, equipment, tools etc.	3	3	
	(iii)	Materials - ease of working, health & safety issues, cost etc.	3	3	40

Page 2	Mark Scheme	Syllabus Paper
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	Section B			
7a	Part A – Acrylic (any suitable) Part B – Mahogany (any suitable)	1	2	
7b	Excellent sketching techniques shown. All details of the preparation described. All stages covered and in order. Tools and machines identified.	8-10		
	Sketching of a good standard. Suitable details of the preparation of materials given. Most stages identified and in reasonable order. Majority of tools and machines named.	4-7		
	Basic sketching techniques used. Limited details of preparation. Only a few stages considered with limited knowledge of tools and equipment.	0-3	10	
7c	Suitable method shown – possibly slots, raised insert etc. Feasibility. Adequate description of a method supported by good sketching.	1 1 2	4	
7 <b>d</b>	Suitable modification/shaping shown with clear detailed sketch. Shaping. Sketching	2 2	4	20
8a	Aluminium – advantages are – needs no finish, lightweight etc.  Limitations – difficult to join.  Mild steel – advantages are – easy to join, cost effective etc  Limitations are – heavy, needs protection etc.	1 1 1 1	4	
8b	Any suitable sensible suggestion which could be - easy to join at right angles, ability to rest top onto flat surfaces etc	2 x 2	4	
8c	Excellent sketching techniques shown. All details of the manufacture described. All stages covered and in order. Tools, machines and materials identified.	7-8	. ·	
v	Sketching of a good standard. Suitable details of the manufacture given. Most stages identified and in reasonable order. Majority of tools, machines and materials named.	3-6	* I'	
	Basic sketching techniques used. Limited details of manufacture. Only a few stages considered with limited knowledge of tools and equipment.	0-2	8	
8d	Suitable modification shown with clear detailed sketch. Pivot mechanism – function, feasibility, construction. Sketching	3 x 1	4	20
	f.			

Page 3	Mark Scheme	Syllabus	Paper
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9а	Four relevant points – e.g. ease of use, safety in use, ability to pick- up from variety of surfaces, lightweight, cost etc.	4 x 1	4	
9Ь	Excellent sketching techniques shown. Two different ideas shown. All details of the construction described. Correct materials, tools and machines identified.	7-8		
	Sketching of a good standard. Two different ideas shown Suitable details of the construction given. Majority of materials, tools and machines named.	3-6		
æ	Basic sketching techniques used. Two similar or even one idea only. Limited details of construction. Only a few details of materials, tools or equipment shown.	0-2	8	
9c	All stages considered in detail and presented in correct order	<b>7-8</b>		
	Most aspects considered in some detail and ordered.	3-6		
	Basic outline described.	0-2	8	20

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Section C 10a From: safety, interest, physical activity, colour, range of activity, maintenance, cost, durability etc. For any two of the parts of the equipment the discussion should involve reference to different materials and could involve: Safety Construction Finishing Assembly Corrosion Colour Etc Critical examination of issues - up to 3 marks Quality of explanation - up to 3 marks Supporting examples/evidence - up to 2 marks 16 20  $2 \times 8$ 11a Four suitable requirements - safe, size, interest, colour,  $4 \times 1$ construction, etc Any three advantages - colour, warmth, ease of construction, 11b finishing etc.  $3 \times 1$ Any three limitations - splinters, grain weaknesses, time to finish, weight etc.  $3 \times 1$ 11c (i) Suitable toy selected. 1 Sketch of toy. 2 Materials stated. 1 For basic outline of process using competent annotated (ii) sketches and limited awareness of moulds, machinery etc. 0 - 3For detailed outline of process showing greater

understanding of above and good annotated sketches.

4-6

6

20

Page 5	Mark Scheme	Syllabus	Paper
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12a	Wooden laminated could be – beech, birch, ash, elm etc. Metal tube could be – aluminium, steel.	2 x 1	2	
12b	Candidates should provide a discussion which focuses on the advantages and limitations of the selected materials. Key points would be:			
	would be.			
	Laminate material:		1	
	Any two advantages – grain structure, bends easily, steams well, finishing etc.	2		
	Any two limitations – splinters, grain weaknesses, time to finish, etc.	2		
	Tubular material:			
	Any two advantages – bends easily, malleable, strength, finish, easily joined.	2		
	Any two limitations – weight, needs surface finish etc.	2	8	
12c	Excellent sketching/notes shown. All details of the manufacture described. Tools and machines identified.	4-5		
	Sketching/notes of a good standard. Suitable details of the manufacture given. Majority of tools and machines named.	2-3		
	Basic sketching/notes used. Limited details of manufacture. Limited knowledge of tools and equipment.	0-1	5	
12d	Relevant description of form — curved frame, smaller cross- sections etc.			
	Critical examination of issues - up to 2 marks			•
	Quality of explanation - up to 2 marks Supporting examples/evidence - up to 1 marks	•5	5	20
	perhand countries exidence - it to 1 marks	J	J	-