UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

GCE Advanced Subsidiary and Advanced Level

MARK SCHEME for the June 2005 question paper

9705 DESIGN AND TECHNOLOGY

9705/03 **Paper 3 (Written 2), maximum raw mark 120**

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

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Grade thresholds taken for Syllabus 9705 (Design and Technology) in the June examination.

	maximum mark available	minimum mark required for grade:		
		A	B	E
Component 3	120	91	79	48

The thresholds (minimum marks) for Grades C and D are normally set by dividing the mark range between the B and the E thresholds into three. For example, if the difference between the B and the E threshold is 24 marks, the C threshold is set 8 marks below the B threshold and the D threshold is set another 8 marks down. If dividing the interval by three results in a fraction of a mark, then the threshold is normally rounded down.

June 2005

GCE A AND AS LEVEL

MARK SCHEME

MAXIMUM MARK: 120

SYLLABUS/COMPONENT: 9705/03

DESIGN AND TECHNOLOGY

Written 2

Section A

Part A – Product Design

1 **(a)** description of process:
- fully detailed 3 - 5
- some detail 0 - 2

quality of sketches up to 2 7 x 2 [14]

(b) extrusion
- consistent section
- long lengths produced

casting
- complex one off shapes
- little wastage/extra machining

turning
- quality/accuracy of finish
- small batches produced

3 x 2 [6]

[Total: 20]

2 **(a)** appropriate material including:
- aluminium
- acrylic
- hardwood 1

reasons including:
- takes a good finish
- easy to clean/attractive 1 x 2 [3]

(b) description to include:
- appropriate method
- shaping, drilling
- bending

quality of description:
- fully detailed 3 - 6
- some detail 0 - 2

quality of sketches up to 2 [8]

(c) explanation could include:
- change in process
- change in materials
- use of templates, jigs, formers
- simplification of design

quality of explanation:
- logical, structured 4 - 7
- limited detail 0 - 3

quality of sketches up to 2 [9]

[Total: 20]

3 Discussion could include:

Consumers
- market pull/research
- fashion/trends
- product trialling

Manufacturers
- producer led
- new materials/technologies
- cost

New technologies
- materials
- processes
- 'must have' gadgets

Overall comprehension and interpretation	2
examination of issues:	up to 6 marks
- broad range	4 - 6
- limited	0 - 3
quality of explanation:	up to 8 marks
- detailed, logical	6 - 8
- some detail	3 - 5
- limited	0 - 2
supporting examples/evidence	up to 4 marks

[Total: 20]

Part B – Practical Design

4 **(a)** - does not resist impact 1
- resists oxidation/degradation 1

(b) e.g.
- glass 1
- teak/aluminium 1

(c) quality of description:
- clear, logical, detailed 3 - 5
- limited detail 0 - 3

details of samples 2

measurement 1

quality of sketches 2 [10]

(d) explanation could include:
- selection of appropriate materials for particular function
- comparisons/cost effective

quality of explanation:
- logical, detailed 3 - 5
- limited detail 0 - 2

example/s 1 [6]

[Total: 20]

5 **(a)** e.g. Paint
state 1 describe 2 [2]

(b) description of process:
- fully detailed 4 - 6
- some detail 0 - 3

quality of sketches up to 2 [8]

(c) **(i)** key differences in process e.g.
- temperature required
- power/heat method
- filler material
- safety precautions 3 x 2 [6]

(ii) advantages explained e.g.
- strength
- speed

quality of explanation up to 4 marks

[Total: 20]

6	**(a)**	anti clockwise	1	[1]
	(b)	$\frac{20}{10} \times \frac{20}{10} \times \frac{40}{10} = \frac{2}{1} \times \frac{2}{1} \times \frac{4}{1}$	2	
		VR = 16	1	[3]
	(b)	example description	1 x 2 2 x 3	[6]
	(d)	e.g. <u>nylon</u> - can be injection moulded - lightweight - good frictional qualities - low noise - easily damaged	2	
		<u>brass</u> - good frictional qualities - expensive - does not corrode - noisy	2	
		<u>steel</u> - can corrode - will last - heavy - noisy	2	
	(e)	advantages and disadvantages for each material	4	[10]

[Total: 20]

Part C – Graphic Products

7		correct isometric	3	
		circles/arcs	4	
		approx twice full size	2	
		quality of linework	2	
		overall shape/proportion	6	[17]
		enhancement	3	[3]
				[Total: 20]
8	**(a)**	complete elevation		
		construction	3	
		accuracy	3	
	(b)	net roof		
		construction	4	
		accuracy	2	
		net flue		
		construction	5	
		accuracy	3	
				[Total: 20]
9	**(a) (i)**	fully detailed	3 - 4	
		limited, some detail	0 - 2	[4]
	(ii)	fully detailed	3 - 6	
		limited, some detail	0 - 2	[6]
	(b)	quality of explanation:		
		fully detailed, clear	5 - 8	
		limited	0 - 4	
		quality of sketches	up to 2	[10]
				[Total: 20]

Section B

Assessment Criteria

Analysis	5
Specification	5
Range of ideas	5
Annotation related to specification	5
Marketability	5
Selection of ideas	5
Communication (ideas)	5
Development of ideas	5
Reasoning	5
Materials	3
Construction/detail	7
Communication (development)	5
Proposed solution	10
Dimensions/details	5
Evaluation	5

[Total 80]