UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

GCE Advanced Subsidiary and Advanced Level

MARK SCHEME for the November 2004 question paper

9705 DESIGN AND TECHNOLOGY

9705/03 **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*.

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Grade thresholds taken for Syllabus 9705/03 (Design and Technology) in the November 2004 examination.

	maximum mark available	minimum mark required for grade:		
		A	B	E
Component 3	120	84	77	47

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.

November 2004

GCE A AND AS LEVEL

MARK SCHEME

MAXIMUM MARK: 120

SYLLABUS/COMPONENT: 9705/03

DESIGN AND TECHNOLOGY

Written 2

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Section A

Part A – Product Design

1 **(a)** example 1 x 5

(b) explanation 3 x 5 [Total: 20]

2 Discussion should refer to:
- aesthetics;
- unit costs;
- processes.

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]

3 appropriate material 1 x 2
knowledge and detail of method 3 x 2
understanding of improvement of properties 6 x 2 [Total: 20]

Part B – Practical Design

4 **(a)** ductility – ability to be drawn into wire 2
elasticity – return to original shape after load removed 2

(b) **(i)** example 1
product 1

(ii) example 1
product 1

(c) for each
- test outline 3 x 1
- sample support 1 x 1
- simple measurement 1 x 1
- quality of sketch 1 x 1

[Total: 20]

5 For each product:

description of mechanism	-name	1	
	-outline	3	
	-sketch	1	4 x 5

[Total: 20]

6 **(a)** **(i)** thermistor 1

(ii) LDR 1

(b) description of application 2 x 2

(c) circuit diagram 4 x 2

(d) explanation of purpose of components 3 x 2

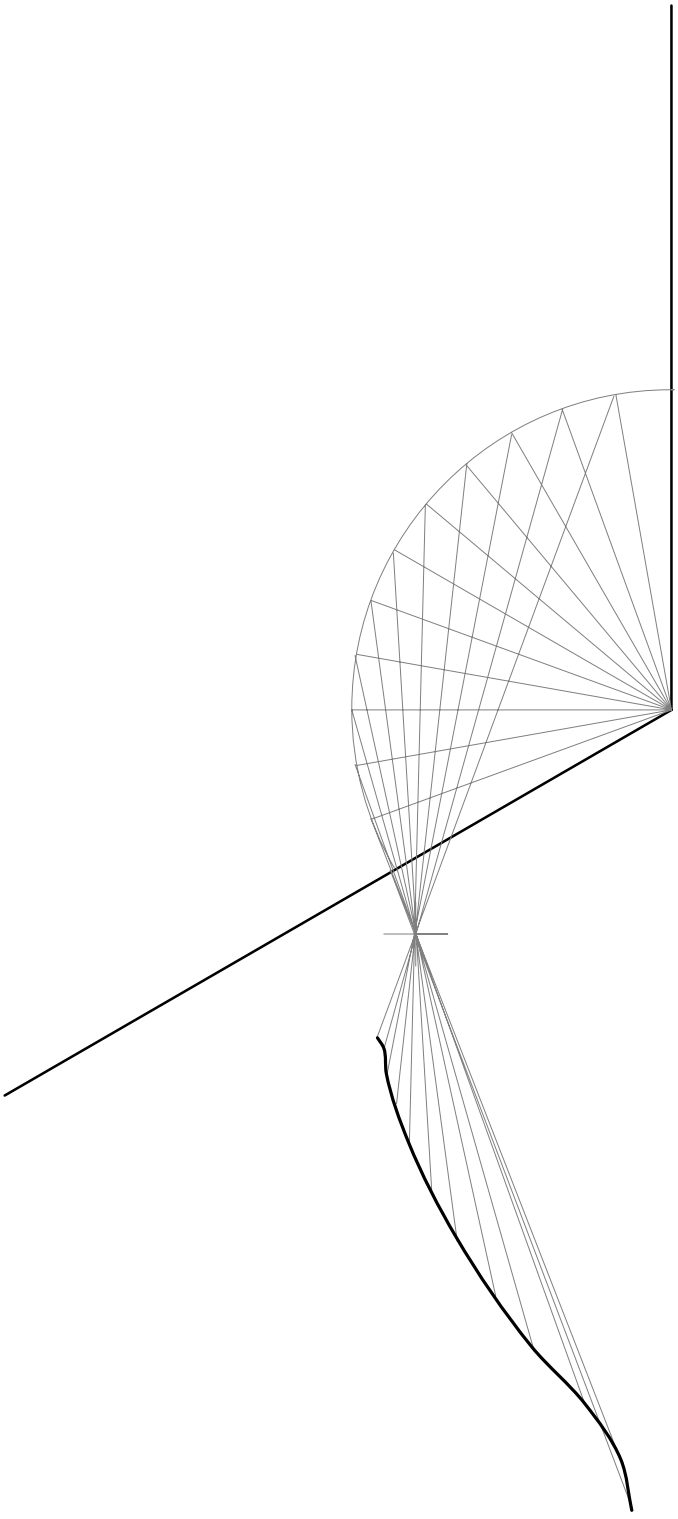
[Total: 20]

Part C – Graphic Products

7 line diagram [2] appropriate scale [2] 4
loci construction 5
subdivision 2
complete loci 5
overall accuracy 4

[Total: 20]

candidates select own scale – outline 1: 10



8 Discussion could include:

(a) aeroplane:

- planning position of seating, utilities etc;
- aerodynamic testing;
- promotional modelling.

(b) Torch:

- positioning of components;
- ergonomic testing, comfort, ease of use, balance;
- proportions

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]

9 **(a)**

full size	1
pictorial	2
quality of linework	2
overall shape/proportion	2
rendered wood	2
rendered plastic	2
rendered aluminium	1

(b)

approximate shape	2
detailed development inc tabs	3
window	1
overall accuracy	2

[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]