

NOVEMBER 2002

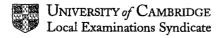
GCE Advanced Level

MARKSCHEME

MAXIMUM MARK: 120

SYLLABUS/COMPONENT:9705/3

DESIGN AND TECHNOLOGY (WRITTEN 2)



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Section A

Part A - Product Design

1 appropriate material including: (a) aluminium mild steel appropriate wood laminate Reasons including: strength comfort 2 [3] (b) description to include: appropriate method; shaping; forming; drilling. 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 - 3quality of sketches up to 2 [9]

[Total: 20]

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(a)	examples could include:		
	seat height;leg roomsteering wheel position;head rest		
	for four examples	3 x 4	. [12]
(b)	explanations could include:		
	 physiological – seat angle force required to turn wheel; psychological – shape: colour; room; interior quality. 		æ
	For two explanations	4 x 2	[8]
			[Total: 20]
(a)	requirements could include:		**;
	 durability; vandal proof; strength; finish; appearance; comfort. 		
For f	ive requirements (qualified statement	s) 1 x 5	[5]
(b)	appropriate design construction quality of sketch	3 1 up to 2	[6]
(c)	appropriate material including:aluminiummild steelappropriate wood	1	No.
	Reasons including: - strength; - comfort; - appearance.	2	[3]
(d)	understanding of aesthetics	3	(~)
	quality of explanation	3	[6]
			[Total: 20]

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Part B - Practical Design

4 (a) description of process

- fully detailed

3 - 5

- some detail.

0 - 2

quality of sketches

up to 2 7 x 2

[14]

(b) die casting:

- complex shape;

- quality finish;

- can be repeated;

extrusion:

little wastage;

- once set up, vast production runs;

- reliable dimensions;

blow moulding:

once set up, vast production runs;

- complex shape;

- speed of production.

3 x 2

[6]

[Total: 20]

5 (a) explanation: monocoque - shell structure

frame - components

2

examples: egg;

pylon

2

(b) graphic method (create parallelogram) 1 x 2

Correct answer 10.8 N, 10.4 N (+or- .3)

1 x 2

[4]

[4]

(c) understanding may include:

- capital letters for spaces between forces;

lower case on vector diagrams

2

2

reference to forces / framework diagram

sketch/s

2 [6]

(d) tray:

ribs, fold over top

bookshelf:

brace

bolted structure:

gusset plate

2 x 3 [6]

[Total: 20]

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6	(a)		R1 X R2 R1 + r2					1	
		<u>220</u> 32						1	
		6.87 (or c	5KΩ alculation lea	iding to corre	ect answ	er 3 ma	arks)	1	[3]
	(b)	diode	stee	press noise a er electronic s vert ac to dc	signals;				
		Strai	n gauge:wire Sen	es stretch – r sor in structi		e chan	ges		
			anations ications	,				2 x 2 1 x 2	[6]
	(c)	(i)	digital devi logic 0 or k	ces – inputs ogic 1	and out	outs eit	her	2	
		(ii)	NAND		0	0	1	***	
		` '			0	1	1		
			·		1	0	1		
					1	1	0		
		*	OR		0	0	0		
					Ō	1	1		
					1	0	1.		
					1	1	1		
			NOR		0	0	1		
					Ö	1	0	9.5	
					1	Ö	Ö		
					1	1	0		
		. *	for each;	1 mark fo	r symbol	ļ			
				2 marks f					[9]

[Total: 20]

[9]

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Part C - Graphic Products

7	approx quality overal (each	ct exploded view ct isometric sketch x twice full size y of linework Il shape / proportion component 1, 2 for main arm) I thin line technique	·	2 2 1 3 9 3	,
				[Total;	20]
8 .	(a)	pyramid; - accuracy (inc true length) - correct net - tabs	2 4 1	, a	
		cone: - accuracy - correct net - tabs	2 5 1		[15]
	(b)	description could include:			;
		templates;cutters/creasers;assembling.			
		Quality of description up to 5 marks		 .	[5]
				[Total	20]
9	(a)	considerations could include; - language; - shock value? - Print volume; - Audience.			4.
		For four considerations (qualified statem	nents)	1 x 4	[4]
	(b)	appropriate symbol quality monochrome		4 3 1	[8]
	(c)	appropriate unit dimension folding/disassembly communication		3 1 2 2	[8]
				[Total	: 20]

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Section B

Questions 10, 11, 12

(A)	Analysis		5	[5]
(S)	Specification		5	[5]
(I)	Ideas	range annotation related to specification marketability selection / rejection of ideas communication	5 5 5 5 5	[25]
(D)	Development	clear development of selected idea/s reasoning materials construction communication	5 5 3 7 5	[25]
(P)	Proposed Solution details / dimensions		10 5	[15]
(E)	Evaluation		5	[5]
(T)	Total			[80]