

NOVEMBER 2002

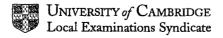
GCE Advanced Level

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

limited detail,

quality of sketches

[Total: 20]

[9]

4 - 7

0 - 3

up to 2

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examples could include:

2

(a)

		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. 		an and a second
		For two explanations	4 x 2	[8]
				[Total: 20]
3	(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: - aluminium - mild steel - appropriate wood	1	1. 1
		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

2

reference to forces / framework diagram

sketch/s

[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 l	leadir	ng to co	rrect ar	iswe	er 3 ma	ırks)	1	[3]
	(b)	diode	st	teer e	ess nois electroni t ac to o	ic signa	is;				
		Strai	n gauge:w S		stretch - r in stru		ance	chang	jes		
			anations cations		,					2 x 2 1 x 2	[6]
	(c)	(i)	digital de logic 0 o			its and	outp	uts eit	her_	2	
		(ii)	NAND			() 	0 1 0 1	1 1 1 0		
			OR			() ()) 	0 1 0 1	0 1 1 1		
			NOR			(1	0 1 0 1	1 0 0 0	9.5	
		, *	for each);	1 mark 2 mark	for syn s for tru		able			[9]

[Total: 20]

[9]

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Part C – Graphic Products

7	correct approximately approxim	ct exploded view ct isometric sketch x twice full size y of linework Il shape / proportion		2 2 1 3	
		component 1, 2 for main arm) thin line technique		9 3	
				[Total;	20]
8 .	(a)	pyramid; - accuracy (inc true length) - correct net - tabs	2 4 1		
		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.			**
		For four considerations (qualified statement	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]
(1)	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]