CAMBRIDGE
INTERNATIONAL EXAMINATIONS

NOVEMBER 2002

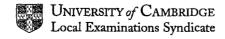
GCE Advanced Level

MARKSCHEME

MAXIMUM MARK: 120

SYLLABUS/COMPONENT:9705/3

DESIGN AND TECHNOLOGY (WRITTEN 2)



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Section A

Part A - Product Design

1 (a) appropriate material including:

- aluminium
- mild steel
- appropriate wood laminate

1

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 - 3

quality of sketches

up to 2

[9]

[Total: 20]

	Page 2	Mark Schei		Syllab
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2	(a) exar	nples could include:		
	- s	eat height; eg room teering wheel position; nead rest		
	for f	our examples	3 x 4	[12]
	(b) expl	anations could include:		
	- f - g - c	ohysiological – seat angle corce required to turn wheel; osychological – shape: colour; oom; nterior quality.		
	For	two explanations	4 x 2	[8]
			[Tota	i: 20]
3	(a) requ	irements could include:	· ·	·*;
	- \ - \$ - 1	durability; vandal proof; strength; inish; appearance; comfort.		
	For five re	quirements (qualified stateme	ents) 1 x 5	[5]
	con	ropriate design struction lity of sketch	3 1 up to 2	[6]
	- i	ropriate material including: aluminium mild steel appropriate wood	1	
	- <u>\$</u>	sons including: strength; comfort; appearance.	2	[3]
		erstanding of aesthetics	- 3	(- J
		lity 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

reference to forces / framework diagram

2

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		on leading to co	rrect answ	er 3 ma	arks)	1.	[3]
	(b)	diode	÷:	suppress nois steer electron convert ac to	ic signals;				
		Strai	n gaug	e:wires stretch - Sensor in stru		e chan	ges		
			anation cations					2 x 2 1 x 2	[6]
	(c)	(i)		ıl devices — inpu 0 or logic 1	ıts and out _l	outs eit	her_	2	
		(ii)	NAN	D	0 0 1 1	0 1 0 1	1 1 1 0	**:	
			OR		0 0 1 1	0 1 0 1	0 1 1 1		
			NOR		0 0 1 1	0 1 0 1	1 0 0 0	9 t	

for each;

1 mark for symbol 2 marks for truth table

[9]

[Total: 20]

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		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	- VO 1

Part C - Graphic Products

7	approquality overa (each	ct exploded view ct isometric sketch x twice full size y of linework ll shape / proportion component 1, 2 for main arm) thin line technique	·	2 2 1 3	
		and the second s		[Total;	201
				į i Otai,	20]
8	(a)	pyramid;accuracy (inc true length)correct nettabs	2 4 1		
		cone: - accuracy - correct net - tabs	2 5 1		[15]
	(b)	description could include:		<u></u>	:
		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 1
		For four considerations (qualified stater	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]