

MARK SCHEME for the October/November 2008 question paper

9705 DESIGN AND TECHNOLOGY

9705/03

Paper 3 (Written 2), maximum raw mark 120

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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) injection moulding			
	- simple design to be repeated			
	- easily change identification letter/number			
	- accurate/good finish			
	die casting			
	- good finish			
	- textured			
	- waste can be re-used			
	- simple shape, easy to remove from mould			
	laminating			
	- low cost procedure			
	- variable thicknesses produced			
	- strong, can support weight			
	- easily repeated		3 x 2	[6]
				[Total: 20]
2	(a) appropriate material including:			
	- aluminium			
	- acrylic or more flexible plastic			
	- specific hardwood or softwood			
	- plywood/mdf		1	
	reasons including:			
	- takes a good finish/easy to form/join			
	- attractive			
	- able to flex		2 x 1	[3]
	(b) description to include:			
	- appropriate method			
	- shaping, joining			
	- bending			
	quality of description:			
	- fully detailed	3–6		
	- some detail	0–2		
	quality of sketches	up to 2		[8]

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

quality of explanation:

- logical, structured 4–7
- limited detail 0–3

quality of sketches up to 2 [9]

[Total: 20]

3 2 D models

example could be: template/profile/specific project 1

computer modelling

example could be: use of software e.g. ProDesktop, Autodesk, specific project 1

3D mock ups

example could be: proportional models, handle shapes 1

scaled prototype

example could be: car, working model for consumer testing prior to production 1

quality of explanation

- logical, fully detailed 3–4
- limited detail 0–2 4 x 5

[Total: 20]

Part B – Practical Design

- 4 (a)** rotary motion [1]
clear sketch indicating correct method of achieving motion [3]
clear labelling [1]

- (b)** reciprocating motion (accept linear) [1]
clear sketch indicating correct method of achieving motion [3]
clear labelling [1]

- (c)** oscillating motion [1]
clear sketch indicating correct method of achieving motion [3]
clear labelling [1]

- (d)** reciprocating motion (accept linear) [1]
clear sketch indicating correct method of achieving motion [3]
clear labelling [1]

[Total: 20]

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5	wood to wood (interior use)		
	PVA, Resin W		[1]
	appropriate example		[1]
	area cleaned		
	spread with brush/applicator		
	hold with clamps min 30 mins		
	wipe clear excess		
	full description including most of features above		[3]
	wood to wood (exterior use)		
	PVA exterior use, Cascamite		[1]
	appropriate example		[1]
	area cleaned, glue mixed		
	spread with brush/applicator		
	hold with clamps min 2 hours		
	wipe clear excess/ensure no gaps/avoid skin contact		
	full description including most of features above		[3]
	metal to metal		
	epoxy resin, araldite		[1]
	appropriate example		[1]
	area cleaned/ degreased, glue mixed		
	spread with brush/applicator		
	hold for 4 – 6 hours		
	wipe clear excess/avoid skin contact		
	full description including most of features above		[3]
	plastic to plastic		
	tensol cement, PVC weld		[1]
	appropriate example		[1]
	area cleaned, glue mixed		
	spread with brush/applicator		
	hold for min 30 mins		
	avoid skin/eye contact/well ventilated area		
	full description including most of features above		[3]
	plastic to wood		
	impact adhesive/hot glue gun		[1]
	appropriate example		[1]
	area cleaned,		
	spread with brush/applicator		
	ensure accurate positioning/immediate contact		
	avoid skin contact/heat/fumes		
	full description including most of features above		[3]
			[5 x 4]
			[Total: 20]

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- 6 (a) toughness – resistance to sudden impact [2]
ductility – ability to be drawn into wire [2]
- (b) (i) material [1]
example [1]
- (ii) material [1]
example [1]
- (c) description of impact testing system
fully detailed 3–4
limited detail 0–2 [4]
- (d) discussion could include:
manufacturing possibilities
new materials
broader product possibilities
rapid production to meet market demand
- issues raised 3
quality of discussion 3
examples introduced 2 [8]

[Total: 20]

Part C – Graphic Products

- 7 correct planometric/quality/scale [4]
detail - door/walls [2]
- bed [3]
- bedside unit [2]
- wardrobe [3]
- desk [3]
- sink unit [3]

[Total: 20]

- 8 (a) correct elevation
- handle 2
- intersection handle/head 2
- face 4
- line quality/construction 2 [10]

- (b) torch head
- correct construction 4
- shape/accuracy 3 [7]

- handle
- construction 1
- shape/accuracy 2 [3]

[Total: 20]

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- 9 draft outline:
understanding of topic
- fully detailed 3–4
- limited detail 0–2
clarity/efficiency of instruction of outline 3
layout/method of giving instruction 3

[2 x 10]

[Total: 20]