

Cambridge International Examinations

Cambridge International General Certificate of Secondary Education

DESIGN AND TECHNOLOGY

0445/33

Paper 3 Resistant Materials

October/November 2016

MARK SCHEME
Maximum Mark: 50

Published

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Page 2			Mark Scheme	Syllabus	Pape	
		Ca	mbridge IGCSE – October/November 2016	0445	33	
			Section A			
			, [mild]steel, aluminium (1)			
		c gears: nylon oor hinge: bras	ss, aluminium, stainless steel (1)			[3
. <i>i</i>	Award	d 0-2 depende	nt upon accuracy of sketch (0–2)			[2
	(a) B	ench hook, sa	wing board (1)			[1
			ting wood held up against the bench hook endent upon accuracy of sketch (0–2)			[2
. ,	Award	d 0–2 depende	ent upon accuracy of sketch (0-2)			[2
; ((a) E	xtrusion				[1
	(b) A	nodise, paint,	lacquer, powder coat/dip coat, electroplating (2×1)			[2
(Copin	g saw: cutting	cale general woodworking processes (1) curves in thin wood (1) etal sections (1)			[3
' 2	2 stag	ges include:	set distance between spurs [with chisel], set distance from stock to first spur/pin lock stock	(2	! × 1)	[2

10 (a) Laminating

(a) Plastic: injection moulding (1)

(b) Metal: die-casting, pressed (1)

2 faults: end splits, splits/cracks along the grain, warping, shrinkage

8

9

(b) A: former, mould B: [sash/F] cramp (2×1) [2]

[2]

[2]

[1]

(2 × 1)

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Section B

11	(a)	2 benefits: cheaper than pre-assembled products, can be transported home, compact, satisfaction of self-assembly.	[2]
	(b)	Drill hole for saw blade, insert saw blade and reconnect, saw out waste, file edge smooth and flat. Power router. (3×1)	
		Technical accuracy (0–1)	[4]
	(c)	Methods include use of added strips or blocks [above or below] (0–2) Appropriate method of permanent fixing (0–2)	[4]
	(d)	(i) Min. 6mm–12mm max.(1)	[1]
		(ii) Spacing must not set dowels closer than 15mm from ends and be centrally positioned (0–2)	[2]
	(e)	Material: steel or brass (1) Length: minimum 19mm – maximum 35mm (1) Type of head: countersunk (1) Number required: minimum 2 – maximum 4 (1) Technical accuracy of sketch (0–2)	[6]
	(f)	 (i) Explanation: B is made from 2 pieces of wood joined together and is stronger (1) A is made from a single piece with the grain weaker (1) 	[2]
		 (ii) Explanation: A would be made from a single piece of wood that would need to be cut out to shape (1) The piece cut out would produce waste. (1) 	[2]
	(g)	2 properties: must be hardwearing, attractive, stainproof, heatproof, waterproof (2×1)	[2]
12	(a)	2 properties: range of colours, inherent colour, easily formed, easily worked, cleaned easily, self-finished, attractive (2×1)	[2]
	(b)	2 items of research: sizes of items to be stored, number of items, location (2×1)	[2]
	(c)	2 reasons: easier to drill while flat, quicker, more accurate, safer (2×1)	[2]
	(d)	Use of saw to cut shape (1) Use of file to make smooth (1) Correct names of appropriate saw and file (1)	[3]

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	Ap Me	e of strip heater or line bender (1) propriate former (1) ethod of retention (1) chnical accuracy (1)		[4]
	sh	Pencils prevented from sliding: use of holes in base or additional shelf added with holes drilled for pencils to locate (0–2) Method of storing paper clips: some form of container (0–2)		
	(g) (i)	(i) 1 benefit: hardwood is hardwearing, attractive, gives base weight/stabili		[1]
	(ii)	Suitable thickness: minimum 10mm – maximum 20mm		[1]
	(iii)	Hardwood held in vice (1) Use of plane to remove waste (1) Technical accuracy of sketch/named tools and equipment (1) Power router (0–3)		[3]
	(iv)	Method of joining must include use of screws not adhesive Award 0–3 dependent on accuracy of spacing, number of screws a notes	ind added e	explanatory [3]
13	(a) 2 r	easons: aluminium can be shaped easily, does not corrode, lightweig	ght (2	2 × 1) [2]
	(b) (i)	2 marking out tools: scriber, rule, try square, odd legs	(2	2 × 1) [2]
	(ii)	Shape cut out using combination of: tinsnips, guillotine, hacksaw Award 0–3 dependent on appropriately named tools and their use.		[3]
	(iii)	Aluminium sheet held securely in vice or clamped to bench (1) Appropriate use of former (1) Method of force: mallet or hammer and scrap wood (1) Technical accuracy (1)		[4]
	(c) (i)	Description includes: holes drilled in roof and back of feeder (1) Rivet is pushed into rivet gun (1) Rivet is pushed into pre-drilled holes and trigger squeezed (1)		[3]
	(ii)	Pop riveting is quicker than traditional riveting, easier, less distortion	n	[1]

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(d) (i)	Award 0–3 for a practical container: appropriate size (1) appropriate shape (1) suitable method of attachment to feeder (1)		[3]	
(ii)	Mould must conform to design in previous part. Draft angles (1) Rounded corners/edges (1) Appropriate depth (1)		[3]	
(iii)	polystyrene, ABS, acrylic		[1]	
(e) Practical solution includes the use of some form of 'hook' (1)				
Ма	terials and fittings used (0–2)		[3]	

Syllabus

Paper

Mark Scheme

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