MNN. Xiremed Roers. Com

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the May/June 2010 question paper for the guidance of teachers

0445 DESIGN AND TECHNOLOGY

0445/31

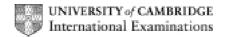
Paper 31 (Resistant Materials), maximum raw mark 50

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

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	Pa	ge 2	Mark Scheme: Teachers' version	Syllabus	Paper	
			IGCSE – May/June 2010	0445	31	
1	(a)	Correct s	shaped heads.		(2 × 1)	[2]
	(b)		antage: Phillips head is will not slip as easily, less cl out in, can be tightened more.	hance of stripping	slot,	[1]
2			blade facing correct way [can be forwards or back of ed, pins in line, blade at correct angle.	lependent on mate	erial],	[2]
3	(a)	Accurate	tongue and groove joint.		(0–2)	[2]
	(b)	Example	of use: floorboards, shed sides.			[1]
4			orking practices: visor/goggles worn, chuck guard daped, hair tied back, apron. Not gloves.	own,		[0]
	IIIai	lenai ciam	iped, Itali tied back, aproff. Not gloves.			[3]
5	(a)	Boat: pol	lyester resin, GRP.			[1]
	(b)	Light swi	itch: urea/phenol/melamine formaldehyde.			[1]
6	(a)	Accurate	e Tee hinge.		(0–2)	[2]
	(b)	Example	of use: shed/doors, gates.			[1]
7	(a)	Cut threa	aded hole: tap, tap wrench.			[1]
	(b)	Cut threa	aded rod: die, die stock or die holder.			[1]
	(c)	Purpose	of chamfer: to ease start.			[1]
8	(a)	Hammer	: claw.			[1]
	(b)	Reason	for scrapwood: prevent damage/scratches to workpi	ece, increases lev	erage.	[1]
9	Cor	mpleted sl	ketch must show countersunk head rivet on top and	underneath.	(2 × 1)	[2]
10	Acc	curate ben	nch hook.		(0–2)	[2]

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11 (a)

Part	Number required	Length	×	Width	×	Thickness	Material
	rtamber required						
Top	1	600	×	120	×	15	Veneered MDF
Base	1	600	×	200	×	15	"
Sides	2	500	×	200	×	15	íí
Door	1	590–600	×	510	×	15	íí
Shelf	1	600	×	120-140	×	15	"
Back	1	570-600	×	500-510	×	4	Plywood

Accept reverse for Back: i.e. 500 × 600

 (6×1) [6]

(b) (i) Three components: A: catch, lock, magnet. Not latch or clasp.

B: stay, chain.

C: hinge. [3]

- (ii) Accuracy of sketch of component. (0–2)
 Method of fitting. (0–2)
 Named tools/equipment. (0–2) [6]
 Accept method even if component is incorrect in (i).
- (c) Lipping: veneer or solid wood. (1)

 Method of lipping: iron-on or glue and pin shown/described. (0–2) [3]
- (d) Recognisable K-D fitting. Not screw on its own or dowel. (1)
 Accuracy of sketch showing position of fitting. (0–2) [3]
- (e) (i) Accuracy of construction. Completed sketch = 2 max. Exploded sketch = 3 max. [3]
 - (ii) Named construction: housings, dowel, mortise and tenon. Not butt. [1]

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12 (a)

Stages	Tool or item of equipment			
Marking out	Steel rule, scriber, try square. Not marker pen			
Sawing to length	Hacksaw			
Squaring sawn ends	File			
Testing for squareness	Try square			
Cleaning the joint	File or emery cloth			
Brazing the joint	Wide variety of options inc. brazing hearth, torch, brazing rod, flux.			

(6 × 1) [6]

- (b) Method of holding: hinged, bracket shown clearly. Recess 1 mark max. (0–3)
 Additional details, including: materials, fittings and fixings. (0–2) [5]
- (c) (i) Non-ferrous metal: aluminium. Not copper. [1]
 - (ii) Advantage over mild steel: lighter, easier to bend, does not require a finish. [1] Reward correct advantage even if material is incorrect in (i).
 - (iii) Ends fitted to base by 90° bends to ends of rod. (0–2) [2]
 - (iv) Support made by means of former, wooden block or anvil. (0–2)
 Held in a vice/clamped down. (1)
 Method of force: hammer and scrapwood, mallet. (1) [4]
- (d) Device: wooden strips, blocks, metal bracket, clips, slots removed from board. (0–2) Supports and secure at 30° and 45°. (0–2) Details to include: materials, fittings, fixings and sizes. (0–2) [6]

			IGCSE – May/June 2010	0445	31	
13	(a)	MDF more suitable than solid wood: more stable, will not shrink, no grain, chea				[2]
	(b)	Three co	onsiderations: draft angle, eased corners, no unde	ercuts, air holes i	n base, sm	ooth [3]
	(c)	Former s	sawn from blank using coping saw, Hegner or simila shaped using sanding disc. ce to draft by tilting sanding disc table/workpiece.	r.	(0–2) (1) (1)	[4]
	(d)	Specific	drill for flat bottomed holes: Forstner, saw tooth			[1]
	(e)	Drill a se Remove	duced: It slot with centres to drill. Peries of holes to 6 deep. It remaining waste with chisel or mortising machine. The asser/milling machine/router.		(1) (0–2) (0–2)	[5]
	(f)	Numerou Place for Lower pl Clamp pl Bring hea Wait unti Raise pla Turn on pl Leave to	lastic sheet in position. ater over plastic and heat up. il soft.	uld.		[8]
	(g)		tion must allow palette to be held using one hand. rm of finger/s, thumb grip.		(0–2)	[2]

Mark Scheme: Teachers' version

Syllabus

Paper

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