UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS International General Certificate of Secondary Education

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for the guidance of teachers

0445 DESIGN AND TECHNOLOGY

0445/33

Paper 33 (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.

Mark schemes must be read in conjunction with the question papers and the report on the examination.

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CIE is publishing the mark schemes for the May/June 2010 question papers for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.

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Page 2	Mark Scheme: Teachers'	version	Syllabus	in the second	
	IGCSE – May/June 20		0445	TaCa,	X
	Sectio	A no			Bri
Air seasoning: Kiln seasoning	more evenly dried out, less risk o : quicker, can be controlled.	f defects.			Secon
Blockboard.	Plywood.				[2]
Completed dra Positioned acr	wing showing: blade attached to s	stock.		(1) (1)	[2]
	-			. ,	
(a) Plastics s hygienic, a	uitable: hardwearing and durable attractive, water resistant, non-tox	e, colourful, intrica ic.	te details possib	le, lightwe (2 × 1)	ight, [2]
(b) Injection r	noulding/blow moulding.				[1]
Completed dra Completed dra	wing to show bevel on side. wing to show bevel on end.			(1) (1)	[2]
(a) Cause of	cracks workhardening.				[1]
(b) Prevention	n: anneal the steel periodically wh	ile bending, heat t	o soften.		[1]
Suitable file [.]	A ∵round/rat tail				
	B: warding C: three square/triangular			(3 x 1)	[3]
				(0 ~ 1)	[0]
Square tube.	Hexagonal bar/rod.				[2]
Spacers/wash	ars shown between bracket and a	astor		(2 x 1)	
Nut threaded of	into end of axle or riveted at each	end.		(2 × 1) (2 × 1)	[4]
	Page 2 Air seasoning: Air seasoning: Slockboard. Blockboard. Completed dra Positioned acrossitioned acrossite acrossite acrossite acrossitioned acrossite acrossite acrossite	Page 2 Mark Scheme: Teachers' IGCSE – May/June 2 Section Air seasoning: more evenly dried out, less risk of Kiln seasoning: quicker, can be controlled. Blockboard. Plywood. Completed drawing showing: blade attached to a Positioned across grain. (a) Plastics suitable: hardwearing and durable hygienic, attractive, water resistant, non-tox (b) Injection moulding/blow moulding. Completed drawing to show bevel on side. Completed drawing to show bevel on end. (a) Cause of cracks workhardening. (b) Prevention: anneal the steel periodically wh Suitable file: A: round/rat tail B: warding C: three square/triangular. Square tube. Hexagonal bar/rod. Spacers/washers shown between bracket and c	Page 2 Mark Scheme: Teachers' version IGCSE – May/June 2010 Section A Air seasoning: more evenly dried out, less risk of defects. Glin seasoning: quicker, can be controlled. Blockboard. Plywood. Completed drawing showing: blade attached to stock. Positioned across grain. (a) Plastics suitable: hardwearing and durable, colourful, intrica hygienic, attractive, water resistant, non-toxic. (b) Injection moulding/blow moulding. Completed drawing to show bevel on side. Completed drawing to show bevel on end. (a) Cause of cracks workhardening. (b) Prevention: anneal the steel periodically while bending, heat to Suitable file: A: round/rat tail B: warding C: three square/triangular. Square tube. Hexagonal bar/rod. Spacers/washers shown between bracket and castor. Nut threaded onto end of axle or riveted at each end.	Page 2 Mark Scheme: Teachers' version Syllabus IGCSE - May/June 2010 0445 Section A Air seasoning: more evenly dried out, less risk of defects. Kiln seasoning: quicker, can be controlled. Blockboard. Plywood. Completed drawing showing: blade attached to stock. Positioned across grain. (a) Plastics suitable: hardwearing and durable, colourful, intricate details possible hygienic, attractive, water resistant, non-toxic. (b) Injection moulding/blow moulding. Completed drawing to show bevel on side. Completed drawing to show bevel on end. (a) Cause of cracks workhardening. (b) Prevention: anneal the steel periodically while bending, heat to soften. Suitable file: A: round/rat tail B: warding Caure tube. Hexagonal bar/rod. Spacers/washers shown between bracket and castor. Yut threaded onto end of axle or riveted at each end.	Page 2 Mark Scheme: Teachers' version Syllabus IGCSE - May/June 2010 0445 Section A Air seasoning: more evenly dried out, less risk of defects. Kiln seasoning: quicker, can be controlled. Blockboard. Plywood. Completed drawing showing: blade attached to stock. (1) Positioned across grain. (1) a) Plastics suitable: hardwearing and durable, colourful, intricate details possible, lightwe hygienic, attractive, water resistant, non-toxic. (2 × 1) b) Injection moulding/blow moulding. (1) Completed drawing to show bevel on side. (1) (2) (1) (1) (3) Cause of cracks workhardening. (1) (4) Prevention: anneal the steel periodically while bending, heat to soften. (3 × 1) Suitable file: A: round/rat tail B: warding C: three square/triangular. (3 × 1) Square tube. Hexagonal bar/rod. (2 × 1) Spacers/washers shown between bracket and castor. (2 × 1) Yut threaded onto end of axle or riveted at each end. (2 × 1)

10 3 stages include: turn on pump to produce fluidisation of plastic powder, heat up metal, dip into plastic, allow to cool, return to oven to reheat for smooth gloss finish. (3 × 1) [3]

										m		
	Ра	ige 3	3	Ν	lark Schen	ne: Teac	hers' ver	sion	Syllabu	s	· 0	
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						S	Section E	}			13	76
	(a)	2 b	enefits	to man	ufacturer: le	ess laboui	r, less sto	rage reqd. lo	ower costs, q	uicker	manufact (2 × 1)	1990
	(b)	1 b	enefit	to purch	aser: lower	cost, per	sonal sat	isfaction, can	i collect.			[1]
	(c)	Ma Rei Ma Nai	rk out move v ke flat med to	waste ′clean uj ols	0						(1) (1) (1) (1)	[4]
	(d)	Avo	oid scr	ews hitti	ng each oth	er/avoid	wood gra	in splitting.			(2 × 1)	[2]
	(e)	1–	pilot h	ole.	2 – clearan	ce hole.	3 – co	untersunk ho	le.		(3 × 1)	[3]
	(f)	(i)	Reas	ons for t	hree board	s: width o	of table to	p cannot be r	made from o	ne boa	ard.	[1]
		(ii)	Board Avoid	ds arran I splitting	ged to coun g.	iter move	ment cau	ised by shrinl	kage.		(1) (1)	[2]
		(iii)	Cram	ips used	: 3 cramps evenly s 2 on top/	s paced ′1 undern	eath or v	ice versa.			(1) (1) (1)	[3]
		(iv)	Scra	o wood:	distributes r	more eve	n pressu	e, prevents c	damage to w	ood.	(2 × 1)	[2]
	(g)	(i)	Prepa proce	ared for ess, wipe	finish: glas down betw	spaper a veen grac	llong the les.	grain, differe	ent grades c	of glas	spaper, re (3 × 1)	epeat [3]
		(ii)	Suita Reas	ble finisl on: harc	n: polyureth lwearing/sta	ane varni ain, heat r	ish, paint œsistant.	, varnish, lace	quer, oil.			[1] [1]
2	(a)	Mil Rea Acc	d steel ason: f cept va	airly eas Ilid reas	sy to work, t on even if c	akes vari hoice in (ety of fini i) is incor	shes, relative rect.	ely cheap/ple	entiful.		[1] [1]
	(b)	Thr	ree ma	rking ou	t tools: scril	oer, rule,	try squar	e, combinatic	on square, oo	dd leg	calipers. (3 × 1)	[3]
	(c)	Me Me Aco	thod o thod o curacy	f cutting f holding of name	shown: use while cuttined tools.	e of tin sn ng: use of	ips, guillo f vice, sci	tine, hacksav ap wood, fol	ws. ding bars.		(0–2) (0–2) (0–2)	[6]

Pa	ige 4	1	Mark Scheme: Teachers' version	Syllabus	· S. V			
			IGCSE – May/June 2010	0445	200			
(d)	Us Foi Ace	Use of wooden block/former.(0-Force applied by means of hammer and scrap wood or mallet.(0-1)Accuracy of named tools.(0-2)						
(e)	(i)	Suit	table finish: paint/dipcoating.			[1]		
	(ii)	(ii) Preparation: clean with emery cloth, edges filed, surfaces degreased. (2 × 1)						
(f)	(i)	(i) Modification must include some form of slot to accommodate shank of scre Award 0-3 dependent upon accuracy/clarity of practical design.						
	(ii)	 (ii) Modification must include some form of stand. Award 0–3 dependent upon accuracy/clarity of practical design. 						
(a)	(i)	Cor	mpleted net: 2 bend lines (2 × 1) and position for slot (1)			[3]		
	(ii)	2 m	narking out tools: scriber, chinagraph pencil, felt marker, r	ule, try square.	(2 × 1)	[2]		
	(iii)	Bac	cking paper: protect from scratches, gives surface to ma	rk out on.		[1]		
(b)	2 p	2 properties of acrylic: ready coloured, attractive, easily formed. (2 × 1)						
(c)	4 s Sa Sa File Na	4 stages: drill holes. Saw blade to be inserted. Saw out shape of slot. File to line. Named tools.		(1) (1) (1) (1) (0-2)	[6]			
(d)	Ed and	ge fir d poli	nishing stages include: draw file/scraper/wet and dry c ishing compound/polishing wheel/Perspex polish or equ	lifferent grades/ ivalent.	/polishing (3 × 1)	mop [3]		
(e)	Reason for clamping: to prevent snagging, plastic will spin up the drill and then may cra					[2]		

(f)	Acrylic bent to shape. Main stages include:		
• •	Heat plastic using strip heater/line bender.	(0–2)	
	Use of former.	(0-2)	
	Retention while bending/cooling.	(0–2)	[6]