

**Oxford Cambridge and RSA Examinations**

**General Certificate of Secondary Education**

**DESIGN AND TECHNOLOGY (RESISTANT MATERIALS)**

PAPER 4

HIGHER TIER

**1956/4**

MARK SCHEME

**Specimen Paper 2003**

Question	Answer	Total Marks Available
1(a)	advantages – consistency of finish, quality assured, speed etc.	2
1(b)	manufactured boards may use recycled materials and therefore place demands on the world's resources.	2
1(c)	appropriate K-D fitting-modesty bloc, corner fitting- named (1 mark) sketch of fitting (2 marks)	3
1(d)	1 mark for each stage 2 – clean up edges stage 3 – spray paint stage 4 – assemble  <i>Accept other relevant stages</i>	3
		<b>Total 10</b>

2(a) (i)	variety of solid woods suitable for outdoor use e.g. teak, oak, elm, iroko <i>only accept those with specific outdoor properties</i>	1
(ii)	dowel, mortise and tenon.	1
2(b) (i)	reasons for wooden chair- traditional material, durable, heavier weight could be an advantage, blends with garden environment.	2
(ii)	reasons for plastic chair - maintenance free, lighter to move around, easy to wipe clean, resists weather	2
2(c)	anthropometric data would have been used to determine the main sizes for the chair by applying specific human body dimensions. <i>For maximum mark there must be a reference to human body dimensions.</i>	2
2(d)	accept any sensible/ relevant improvement carried out to the design of either chair	2
		<b>Total 10</b>

Question	Answer	Total Marks Available
3(a)	specification - must be non-slip, must not damage polished surface, compact design, quick to fit/remove, must not interfere with the operation of the calculator. <i>Accept any sensible point not included in the design brief.</i>	3
3(b)	meets each of the three points of the specification (4 marks) named materials (1 mark) constructions/processes used (1 mark) main sizes to relate to calculator (1 mark)	7
		<b>Total 10</b>

4(a)	manufactured board cheaper, more readily available, stable, more appropriate use as a wide board, etc.	1
4(b)	<i>1 mark each:</i> suitable plastic - polypropylene, ABS, glass fibre/ resin process - injection moulding or use of moulds for GRP work	2
4(c)	<i>three stages required from:</i> hacksaw to line, file to line, clean up joint, prepare metal to be brazed, bend metal braze joint, clean off surplus spelter.	3
4(d) (i)	method of securing bar to base includes use of screws, nuts and bolts etc. wider section of material needed to fix to trailer box. <i>0-3 marks dependent on quality of detail, clarity and practicability.</i>	3
(ii)	modification needed to provide a wider section to enable the tube to be secured to the trailer box.	1
		<b>Total 10</b>

Question	Answer	Total Marks Available
5(a)	Unsuitable because it is crude in terms of manufacture e.g. square ends to main parts, unsafe handle. <i>For maximum marks reference must be made to the overall style and to specific examples to support.</i>	2
5(b)	<i>1 mark for each:</i> reciprocating motion caused by pear or eccentric cam/crank correct mechanism located and locked to drive shaft  <i>1 mark for each:</i> rotary motion caused by bevel gears or variation of similar principle. disc located centrally on drive shaft correct mechanism correct location of follower against outer part of mechanism <i>award additional mark for clarity/detail (1 mark)</i>	5
5(c) (i)	suitable transmission- pulley or gears/chain & sprocket	1
	(ii) for maximum marks the gear/pulley on the spindle must be smaller than the gear/pulley on the drive shaft.	2
		<b>Total 10</b>

**Total mark available: 50**