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**DESIGN AND TECHNOLOGY**

**0445/12**

Paper 1 Product Design

**May/June 2017**

MARK SCHEME

Maximum Mark: 50

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**Published**

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 should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

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This document consists of **3** printed pages.

Question	Answer	Marks
1(a)	Accept any <b>four</b> additional suitable points – easy to access, hygienic, easy to clean, keep items separate, waterproof, heatproof, matches hotel/room environment, lightweight, easy to carry, electrical safety, Accept other valid responses. <span style="float: right;">1×4</span> No repeats of design brief.	<b>4</b>
1(b)	Accept drawings of any <b>two</b> suitable methods – heatproof / waterproof materials, laminated with plastic, covers surface in glass / plastic, ceramic / metal tiles, plastic coating, paint / varnish, Accept other valid responses. <span style="float: right;">2×2</span>	<b>4</b>

Question	Answer	Marks
2(a)	Accept any <b>four</b> additional suitable points – impact in reception area, appropriate size, colourful, counter top or floor standing, easy to assemble, details of walks, Accept other valid responses. <span style="float: right;">1×4</span> No repeats of design brief	<b>4</b>
2(b)	Accept drawings of any <b>two</b> methods of attraction – motor/pendulum/cam movement, sound, lights, video, bold lettering, Accept other valid responses. <span style="float: right;">2×2</span>	<b>4</b>

Question	Answer	Marks
3(a)	Accept any <b>four</b> additional suitable points – weight issues, balance, size/shape, method of holding cases, no damage to cases, ease of use, appropriate for hotel environment, Accept other valid responses. <span style="float: right;">1×4</span> No repeats of design brief.	<b>4</b>
3(b)	Accept drawings of any <b>two</b> lifting mechanisms – pulleys, gears, rack and pinion, winch, track systems, pneumatics, ramp, belt, Accept other valid responses. <span style="float: right;">2×2</span>	<b>4</b>

Question	Answer	Marks
1, 2 and 3(c)	Any suitable ideas. At least <b>three different</b> ideas for maximum marks. Pro rata if fewer.	
	<p><b>Communication</b> Simple drawings displaying a low standard or limited range of techniques. 0–2 Clear drawings displaying a good standard and a range of techniques – shading, colour, annotation. 3–4 High quality drawings using a wide range of techniques with clear annotation and detail. 5–6</p>	<b>6</b>
(d)	<p><b>Suitability</b> Simplistic designs showing outlines only. 0–2 Rather more detail, sensible solutions that could work. 3–4 Accurate solutions, good fitness for purpose, construction detail. 5–6</p>	<b>6</b>
	Evaluation of each of the ideas. At least 3 evaluations up to 2 marks each.	<b>6</b>
	Selection and justification. 1+1	<b>2</b>
(e)	<p><b>Quality of drawing</b> Poor line quality, proportions, little detail 1 Good line work, use of colour, proportions, some detail. 2–3 High standard throughout with a range of techniques that show clearly all detail. 4</p>	<b>4</b>
	<p><b>Dimensions</b> 2 or 3 overall dimensions only 1 Additional detail dimensions 1</p>	<b>2</b>
	<p><b>Construction detail</b> A simplistic approach showing little or no detail of construction to be used. 0–2 Most construction detail may be obvious from overall views or from some annotation. 3–4 All construction detail will be clear with good annotation and additional detail drawings as necessary. 5–6</p>	<b>6</b>
(f)	Suitable <b>specific</b> materials stated. 1+1	<b>4</b>
	Appropriate reasons for choice. 1+1	
(g)	Suitable method described. 1	<b>6</b>
	<p>Good detailed description of: Processes 0–3 Tools 0–2</p>	