CAMBRIDGE
International Education

Cambridge IGCSE™

DESIGN AND TECHNOLOGY **0445/53**

Paper 5 Graphic Products **May/June 2024**

MARK SCHEME

Maximum Mark: 50

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.

Cambridge International will not enter into discussions about these mark schemes.

Cambridge International is publishing the mark schemes for the May/June 2024 series for most Cambridge IGCSE, Cambridge International A and AS Level and Cambridge Pre-U components, and some Cambridge O Level components.

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Generic Marking Principles

These general marking principles must be applied by all examiners when marking candidate answers. They should be applied alongside the specific content of the mark scheme or generic level descriptions for a question. Each question paper and mark scheme will also comply with these marking principles.

GENERIC MARKING PRINCIPLE 1:

Marks must be awarded in line with:

- the specific content of the mark scheme or the generic level descriptors for the question
- the specific skills defined in the mark scheme or in the generic level descriptors for the question
- the standard of response required by a candidate as exemplified by the standardisation scripts.

GENERIC MARKING PRINCIPLE 2:

Marks awarded are always **whole marks** (not half marks, or other fractions).

GENERIC MARKING PRINCIPLE 3:

Marks must be awarded **positively**:

- marks are awarded for correct/valid answers, as defined in the mark scheme. However, credit is given for valid answers which go beyond the scope of the syllabus and mark scheme, referring to your Team Leader as appropriate
- marks are awarded when candidates clearly demonstrate what they know and can do
- marks are not deducted for errors
- marks are not deducted for omissions
- answers should only be judged on the quality of spelling, punctuation and grammar when these features are specifically assessed by the question as indicated by the mark scheme. The meaning, however, should be unambiguous.

GENERIC MARKING PRINCIPLE 4:

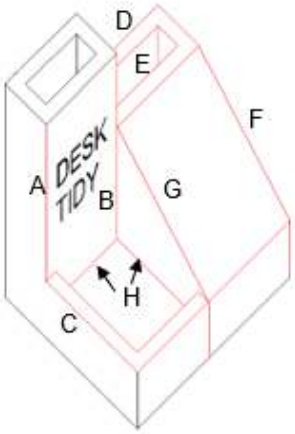
Rules must be applied consistently, e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.

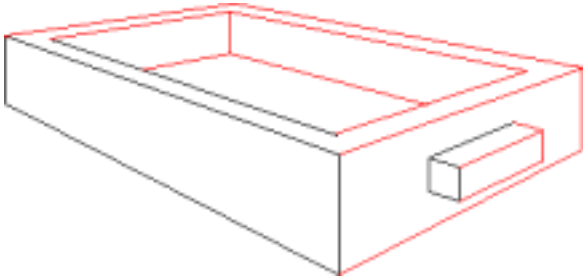
GENERIC MARKING PRINCIPLE 5: Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).
GENERIC MARKING PRINCIPLE 6: Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

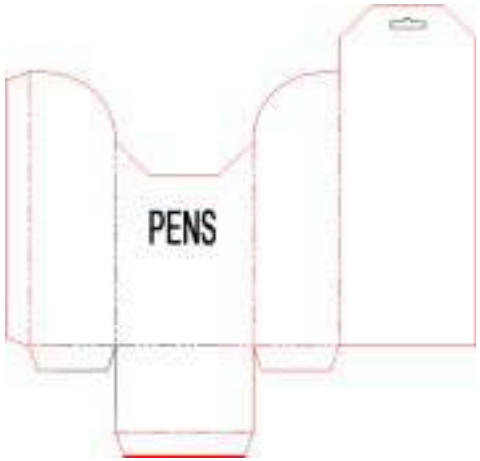
Question	Answer	Marks	Guidance
A1(a)	Outer isosceles triangle 100 × 100 [1] Inner isosceles triangle 50 × 50 [1] 15mm gap between triangles at left side and bottom [1]	**3**	
A1(b)(i)	Bottle 90 x 60 [1] Two R15 radius' to top corners [1]	**2**	
A1(b)(ii)	Nozzle 10 mm high [1] Base 30 mm long central to bottle with two diagonal lines added [1]	**2**	
A1(b)(iii)	Any hexagon drawn [1] Any regular hexagon drawn [1] Hexagon drawn correct to overlay [1]	**3**	
A1(c)(i)	Internal circle R15 on centre lines [1] External arc R20 on centre lines [1] Missing line correct to overlay [1]	**3**	
A1(c)(ii)	Long edge of blade correct to overlay [1] Short edge of blade correct to candidate solution [1]	**2**	

Question	Answer	Marks	Guidance
A2	Plan: Outer rectangle 120 × 80 [1] Radius R50 to left hand side in correct position [1] Blade rectangle correct to overlay [1] Side view: Outer shape correct to overlay [1] Two inner vertical lines projected from plan [1] Front view: Outer rectangle correct to overlay [1] Circle correct to overlay [1]	**7**	

Question	Answer	Marks	Guidance
A3	Silver/grey colour added [1] Some change in tone shown on all three sides[1] High quality rendering that looks like metal [1]	**3**	

Question	Answer	Marks	Guidance
B4(a)	 Left hand vertical edge A 55mm high [1] Right hand vertical edge B 65mm long [1] Horizontal edge C [1] Front face correct to overlay [1] Top outer lower face D correct to overlay [1] Top inner recess E correct to candidate solution (5mm inside 'D' [1] Inner vertical line [1] Sloping front edge F to candidate solution [1] Sloping front edge G to candidate solution [1] 5mm width added to 2 near corners [1] Bottom inner lines H [1] Two end lines on corner ledge [1]	**12**	
B4(b)(i)	Can be understood by any language / children in a school [1] so people who cannot read can understand it [1] More appealing to young children [1] so more likely to want to use it [1]	**2**	1 mark for point, 1 mark for explanation
B4(b)(ii)	Design shows suitable image (pens, pencils etc.) [1] High quality sketch [1]	**2**	Allow any image relevant to desks, stationary etc.

Question	Answer	Marks	Guidance
B4(b)(iii)	Image could be drawn using CAD / desktop publishing program [1] Images could be downloaded from internet / clipart [1] Combined to create design [1] Saved as image [1]	**2**	Award marks for any two of the points given and AOVR E.g. Add colour/recolour, crop etc.
B4(c)	 Front face top and bottom edges to VP 2 [1] Vertical right hand end in proportion [1] Two back lines to VP 2 [1] Two back lines to VP 1 [1] Handle added in proportion [1] Two Inner bottom edges to VP1 and VP2 [1] Inner back vertical line [1]	**7**	

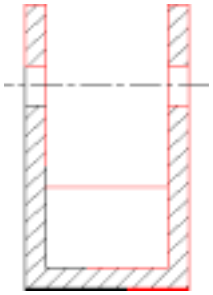
Question	Answer	Marks	Guidance
B5(a)	 Left side 80 × 25 [1] R20 Radius to top corner [1] Front face 40 wide × 60 [1] 10 × 10 sloping edges and top line to overlay [1] Right side mirror image of left side / correct to overlay [1] Back face 100 × 40 [1] 10 × 10 corner chamfers to both sides [1] Base 40 × 25 [1] Four flaps in correct positions [1] Correct use of fold line convention [1]	**10**	Do not award mark for flaps if more than four added Long dash, two short dashes

<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th><th>Guidance</th></tr>
<tr><td>B5(b)</td><td>
<table>
<tr><th>Process</th><th>Tools/items of equipment</th></tr>
<tr><td>Drawing out the development (net)</td><td>pencil, rule</td></tr>
<tr><td>Cutting out the development (net)</td><td>Craft knife / cutting mat / safety rule</td></tr>
<tr><td>Scoring the crease/ fold lines</td><td>Scoring tool, rule</td></tr>
<tr><td>Gluing the development (net) together</td><td>PVA glue</td></tr>
</table>
</td><td>3</td><td>Allow and other suitable type of knife e.g. Scalpel, Stanley knife or other trade names.

Do not allow ‘knife’ on its own, scissors, box cutter

Allow trade names e.g. Gorilla glue, titebond

Do not allow hot or cold glue gun, or ‘wood glue’</td></tr>
<tr><td>B5(c)(i)</td><td>Laser cutter / rapid prototyping machine</td><td>1</td><td></td></tr>
<tr><td>B5(ii)</td><td>Die cutter</td><td>1</td><td></td></tr>
</table>

Question	Answer	Marks	Guidance
B5(d)	 Outer 70 high × 40 mm wide [1] Inner 5mm smaller than outer [1] Top two lines added (not in centre) [1] Back edge added in correct position (centre section) [1] Dotted back edge lines through side walls [1] Both holes correct to overlay [1] Hatching added correctly [1]	**7**	
B5(e)	Two outer circles correct diameters and position [1] Hidden detail shown [1] Circle ø20 in centre position [1]	**3**	