



# Cambridge IGCSE™

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**DESIGN AND TECHNOLOGY**

**0445/52**

Paper 5 Graphic Products

**May/June 2023**

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.

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

Cambridge International is publishing the mark schemes for the May/June 2023 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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This document consists of **9** printed pages.

**PUBLISHED****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 descriptors 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).

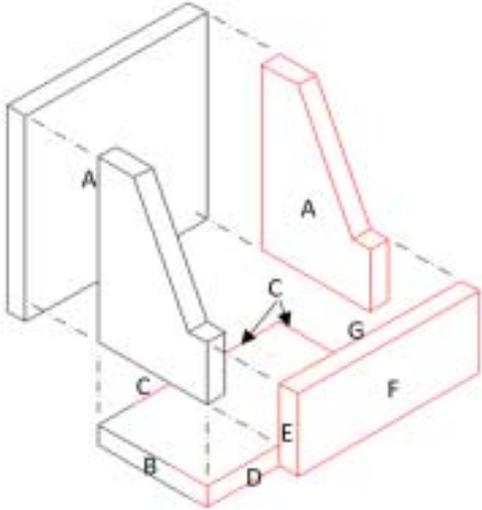
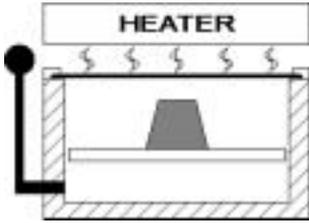
**GENERIC MARKING PRINCIPLE 6:**

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.

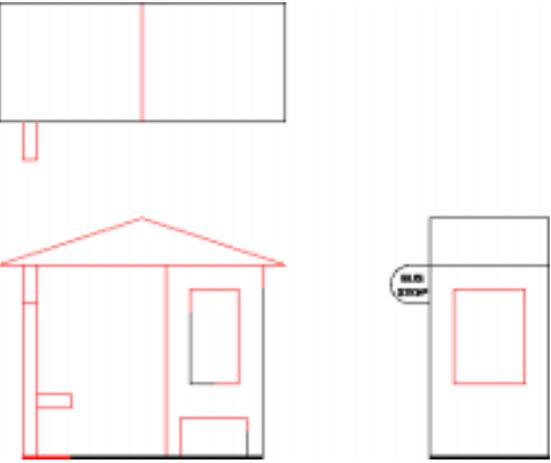
Question	Answer	Marks	Guidance
A1(a)(i)	Rectangle $140 \times 10$ [1] In correct position [1]	2	
A1(a)(ii)	Two vertical lines level with outer edge of wheels 70 mm long [1] Horizontal roof line 100mm long at correct height on centre line [1] Two diagonal lines to candidate solution [1]	3	
A1(a)(iii)	Windscreen correct to overlay [1] Two arcs R20 on given centres [1]	2	
A1(a)(iv)	Any half octagon [1] Any regular half octagon [1] Octagon correct to overlay [1]	3	
A1(a)(v)	Any two triangles [1] Two triangles correct to overlay [1]	2	Both triangles must be drawn
A1(b)(i)	Any hexagon [1] Any regular hexagon [1] Hexagon correct to overlay [1]	3	
A1(b)(ii)	Post 8mm wide on centre line [1]	1	

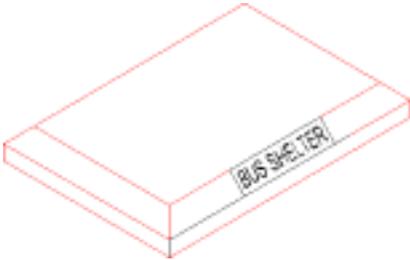
<b>Question</b>	<b>Answer</b>	<b>Marks</b>	<b>Guidance</b>
A2(a)	Front page correct to overlay [1] Middle page correct width and same height as front [1] Back page correct width and same height as front [1] Two Dotted/dashed fold lines shown using correct convention [1]	<b>4</b>	Must be dot / dot / dash
A2(b)(i)	Offset printing / lithography / flexography / gravure / xerography / risograph [1]	<b>1</b>	
A2(b)(ii)	Die cutter / box cutter [1]	<b>1</b>	

<b>Question</b>	<b>Answer</b>	<b>Marks</b>	<b>Guidance</b>
A3	Stop 2 – 18 mm to the right of stop 1 [1] Stop 3 – 38 mm to the right of stop 2 [1] Stop 4 – 44 mm to the right of stop 3 [1]	<b>3</b>	

Question	Answer	Marks	Guidance
4(a)	<p>Side piece: Side face 'A' profile correctly projected at 30° from existing [1] In correct position (level with edge of back face) [1] Correct thickness added [1]</p> <p>Base: Side 'B' correct to overlay [1] Front face 'D' added to correct thickness [1] Remaining back edges 'C' correct to overlay [1]</p> <p>Front piece: Side 'E' top edge projected from front edge of existing side [1] Bottom edge projected from backboard [1] Side 'E' to correct thickness [1] Front face 'F' drawn same width as backboard [1] Top face 'G' added to correct thickness [1]</p>	11	
4(b)	<p>Blue/grey diagonal shine/reflection lines added [1] Corners and edges seen through the clear plastic added [1] High quality communication that looks like clear acrylic [1]</p>	3	
4(c)	<p>Polystyrene / HIPS / acrylic / PVC / PETG / APET / polyethylene terephthalate / polycarbonate [1] Or AOVR</p>	1	
4(d)(i)	<p>Stage 2: Plastic sheet above mould [1] Clamps added [1] Heater or heat waves shown from above [1]</p>	3	

Question	Answer	Marks	Guidance
4(d)(ii)	Stage 3: Description includes: Handle pressed down / bed raised [1] Turn on vacuum / Air sucked out [1] Plastic shaped around mould [1]	<b>3</b>	
4(e)(i)	Trimming: gerbil / profile router [1]  Accept trade names e.g. vac trim  Smoothing – Sandpaper / glasspaper / sanding block / file / sanding disc / wet & dry paper / abrasive paper [1]  Or AOVR 2 × 1	<b>2</b>	Allow hegner saw / scroll saw / abrafile  Do not allow any other saws e.g. coping saw
4(e)(ii)	Modification shown [1] Modification that will make it more stable [1]	<b>2</b>	Must be a modification to the existing vacuum formed holder - not a re-design of the holder.  Must show the vacuum formed holder from part (c) not the acrylic holder from part (a)

Question	Answer	Marks	Guidance
B5(a)	<p>Side view: Window 20 high <math>\times</math> 15 wide [1] Window in correct position [1]</p> <p>Front view: Wall outline 50 <math>\times</math> 40 [1] Front face 20 mm wide [1] Bottom cut out 14 <math>\times</math> 8 or correct to candidate solution (6 mm less than front face width) [1] Left hand wall thickness 3 mm [1] Bench seat 10 <math>\times</math> 3 [1] Bench seat 10 mm high [1] Bus stop sign bottom edge projected from side view [1] Roof correct to overlay [1]</p> <p>Plan: Ridge line of roof [1] Bus stop projected from side and front view [1]</p>	<b>12</b>	
B5(b)(i)	<p>Method shows foamboard being cut [1]</p> <p>Method shows V-cut / 45° cut [1]</p> <p>Outer card layer not cut through shown or annotated [1]</p>	<b>3</b>	
B5(b)(ii)	<p>PVA glue [1]</p> <p>Do not accept double sided tape</p>	<b>1</b>	

Question	Answer	Marks	Guidance
B5(c)(i)	Front vertical face below name plate $80 \times 5$ [1] Side vertical face $55 \times 5$ [1] Front sloping side level with name plate and side projected [1] Left and right sloping edges correct to overlay [1] Both back edges correct to candidate solution [1]	<b>5</b>	
B5(d)(i)	Any three stages from list below given: Unwanted parts 'weeded' out with scalpel [1] Transfer tape applied to front of lettering [1] Lettering lifted off backing paper on transfer tape [1] Lettering positioned onto base and pressed /rubbed over [1] Transfer tape carefully removed [1]	<b>3</b>	
B5(d)(ii)	Marker pen / ballpoint pen [1] Spray paint / stencil / template [1]	<b>1</b>	Do not allow 'pencil' or 'pen' on their own  Do not allow stickers