



# Cambridge IGCSE™

---

**DESIGN AND TECHNOLOGY**

**0445/53**

Paper 5 Graphic Products

**May/June 2023**

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 2023 series for most Cambridge IGCSE, Cambridge International A and AS Level and Cambridge Pre-U components, and some Cambridge O Level components.

---

This document consists of **8** printed pages.

**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).

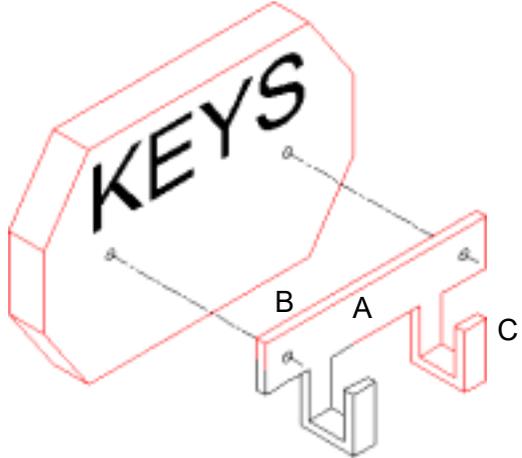
**GENERIC MARKING PRINCIPLE 6:**

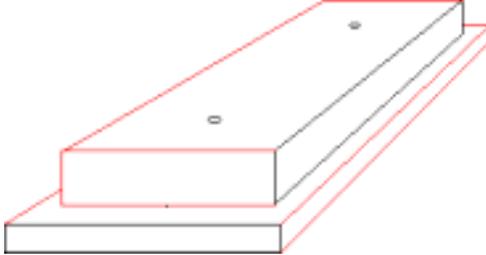
Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

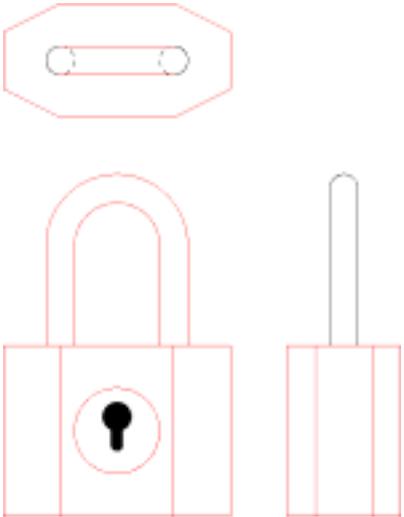
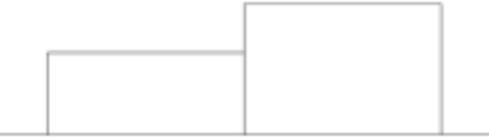
<b>Question</b>	<b>Answer</b>	<b>Marks</b>	<b>Guidance</b>
A1(a)	Key head R48 on centre lines [1] Shaft and end point drawn correct to overlay [1]	<b>2</b>	
A1(b)	Any half octagon [1] Half octagon correct to overlay [1] Half octagon in correct position (16mm from end) [1]	<b>3</b>	
A1(c)	Rectangle 28 mm × 20 mm in correct position [1]	<b>1</b>	
A1(d)	Any attempt at ellipse [1] Major axis 120, Minor axis 88 shown [1] 4 correct points plotted [1] 6 or more points plotted correctly [1] Ellipse correct to overlay [1] Shaft drawn correct to overlay [1]	<b>6</b>	
A1(e)	Rectangle 80 × 52 in correct position [1] Any hexagon [1] Any regular hexagon [1] Hexagon correct size and position to overlay [1]	<b>4</b>	

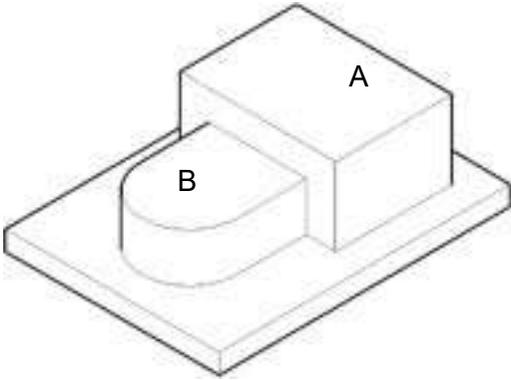
Question	Answer	Marks	Guidance
A2(a)	Front edge of middle piece drawn 100 high [1] Front edge of middle piece drawn 68 wide [1] 10 mm thickness added [1]	3	
A2(b)	Back piece 120 mm high [1] Top flat surface 20 mm wide in correct position [1] Both sloping front edges added from corners to flat surface (to candidate solution) [1] 10mm thickness added [1]	4	

Question	Answer	Marks	Guidance
A3	Image represents a car or car related item (e.g. steering wheel) [1] Symbol is clear and simple (not overly detailed or complex) [1]	2	

Question	Answer	Marks	Guidance
B4(a)	Front rectangular face 'A' of hook correct to overlay 100 × 20 [1] Top and left hand end of rectangle 'B' [1] Right hand side hook 'C' shape projected from existing [1] Hook 5 mm width and 2 mm thick [1] Hook in correct position [1]  Backboard 70 mm wide × 46 mm high [1] Vertical sides 16 mm [1] Top and bottom edges 50 mm wide [1] Sloping edges added correct to candidate solution [1] Drawn in correct position relative to the two holes [1] 8 mm thickness added correctly to two sides [1] 8 mm thickness added correctly to all 4 visible sides [1]	12	

Question	Answer	Marks	Guidance
B4(b)(i)	Lettering drawn/designed on computer/program to correct size/font [1] Outer edge of lettering set to cut lines [1] Sent to and cut out on laser cutter / plotter [1]	3	Allow named programs such as Photoshop, 2D Design etc.  Allow trade names of CAM equipment e.g. CAMM2
B4(b)(ii)	Quicker than painting by hand [1] because stencil is just positioned then sprayed [1] / Less skill needed [1]  Consistent lettering [1] every time as stencil never changes [1] / stencil can be re-used [1]  No brush strokes [1] so even coverage [1]	2	Do not accept 'easier' or 'quicker' without justification.
B4(c)	Front face correct to overlay [1] Right side of base correct to overlay [1] Horizontal back edges of base and top [1] Top left back edge to VP [1] Left bottom edge of base to VP [1]	5	
B4(d)	Circle with 3 segments from the centre [1] One segment drawn and labelled correctly [1] Three segments drawn and labelled correctly [1]	3	

Question	Answer	Marks	Guidance
B5(a)	<p>Front view: Outer rectangle 40 × 30 in correct position [1] Two vertical edge lines correct to overlay [1] Four vertical lines projected from plan / correct to overlay [1] Internal and external radius' correct to overlay / candidate solution [1] Circle correct to overlay [1]</p> <p>Side view: Rectangle projected from front view [1] Two vertical edge lines correct to overlay [1]</p> <p>Plan: Left and right hand sides projected from front view [1] Top and bottom edges projected from side view / correct to overlay [1] Sloping edges correctly projected from front view [1] Sloping edges correctly projected from side view [1] Horizontal lines to overlay [1]</p>	12	
B5(b)	<p>Some attempt at adding a lid [1]</p> <p>Suitable lid with tuck in flap / overlap [1]</p> <p>Lid has some locking tab [1]</p> <p>High quality communication [1]</p>	4	
B5(c)	<p>Section 25 mm high [1] Section 40 mm high [1] Both sections 60 mm wide [1] Sections in correct orientation with vertical centre line [1]</p>	4	

Question	Answer	Marks	Guidance
B5(d)(i)	Outer edges <b>only</b> of base (6 lines) thick (inner lines thin) [1] 4 outer lines <b>only</b> on edge of large block 'A' thick [1] 2 lines (vertical and curved top edge) <b>only</b> of small block 'B' thick [1]	<b>3</b>	
B5(d)(ii)	Add slope / draft angle [1] to the vertical sides [1] Round off [1] corners / vertical edges [1] Use release agent [1] to prevent sticking [1]	<b>2</b>	