Cambridge IGCSE™

DESIGN & TECHNOLOGY	**0445/51**
Paper 5 Graphic Products	**October/November 2023**
MARK SCHEME	
Maximum Mark: 50	

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 October/November 2023 series for most Cambridge IGCSE, Cambridge International A and AS Level components, and some Cambridge O Level components.

This document consists of **7** 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.

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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).
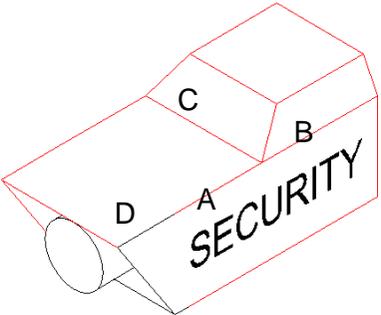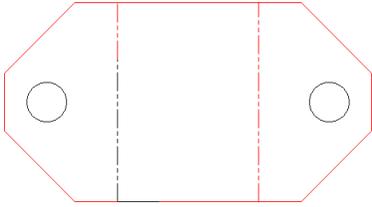

GENERIC MARKING PRINCIPLE 6:

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.
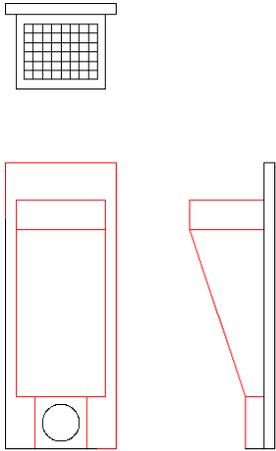

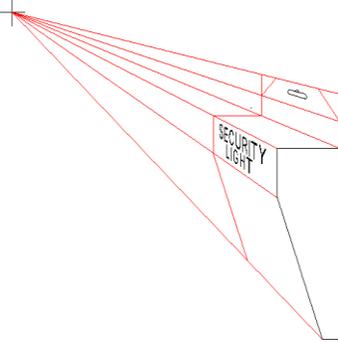| Question	Answer	Marks	Guidance
A1(a)	Outer square 160 × 160	1	
A1(b)	Any half hexagon [1] Any half hexagon symmetrical on horizontal centre lines [1] Half hexagon correct to overlay [1]	3	
A1(c)	Rectangle 90 × 40 correct to overlay [1] Rectangle 20 × 10 correct to overlay [1] Lense end 40 mm wide [1] 15 mm thick [1]	4	
A1(d)	Horizontal arm 10 mm wide correct to overlay (5 mm each side of CL) [1] Vertical arm 10 mm wide correct to overlay (5 mm each side of CL) [1] Semi-circle or part circle R15 [1] Semi-circle correct to overlay [1]	4	
A1(e)	Both letters added with some thickness [1] Both letters added to correct size and proportions [1]	2	

Question	Answer	Marks	Guidance
A2(a)	Any backboard added behind sign [1] Backboard in isometric [1] Backboard isometric 200 × 200 [1] Backboard in correct position [1] Backboard 10 mm thickness [1]	5	
A2(b)	Sheet added in front of sign [1] Sheet drawn in isometric [1] Sheet 200 × 200 [1] Sheet in correct position (correct to overlay) [1]	4	

Question	Answer	Marks	Guidance
A3(a)	Lithography / Flexography / Digital printing [1]	1	Do not accept: photocopying, laser printing
A3(b)	Acetate / HIPS / Acrylic Or AOVR [1]	1	Allow: polycarbonate sheet, plexiglass

Question	Answer	Marks	Guidance
B4(a)	Right side correct length [1] Right side correct height [1] Line 'A' correct to overlay [1] Line 'B' correct to candidate solution (same length as line 'A') [1] Line 'C' correct to candidate solution [1] Line 'D' correct to candidate solution [1] Rear platform 10 mm high [1] Rear platform width 5 mm smaller than base on each side [1] Rear platform top face length 30 mm [1] Two sloping lines to front of platform [1] Rear sloping line [1] Rear platform correct to overlay [1]	12	
B4(b)	Any ellipse [1] Major axis 60 mm [1] Minor axis 36 mm (or 18 mm half axis) [1] 8 points marked [1] More than 8 points marked [1] Ellipse correct to overlay [1]	6	Allow different ellipse drawing methods: e.g. • Concentric circle method • 4 circle method • Oblong method • Trammel method – the paper / card trammel should be attached to the paper
B4(c)	Any three stages described from: • Letters **drawn or written** on computer program [1] • Computer **file sent** to CAM machine (vinyl cutter) [1] • Vinyl **placed in machine** and centered / **set up** [1] • Lettering **cut out** on the self adhesive vinyl [1]	3	

Question	Answer	Marks	Guidance
B4(d)	Middle rectangular section 70 × 50 [1] Left side 40 mm wide [1] 45° lines to corners correct to candidate solution [1] Right side mirror image of left [1]	4	

Question	Answer	Marks	Guidance
B5(a)	Front view: • Outer rectangle 75 mm high [1] • Outer rectangle 30 mm wide [1] • Width of light section projected from plan 24 mm wide [1] • Top edge of light projection 10 mm from top of back board [1] • Lower edge of light projection 10 mm below top edge [1] • Bottom edge of light 16 mm above the base [1] • Two vertical lines 8 mm from each side either side of circle [1] Side view: • 3 horizontal edges projected to left side of backboard from front view [1] • Width of top projected from plan [1] • Width of bottom section added to [1] • Sloping front edge to candidate solution [1]	11	

Question	Answer	Marks	Guidance
B5(b)	6 lines pointing towards VP [1] Vertical line to back upstand [1] Horizontal line to back top edge [1] Vertical back front edge [1] Sloping back edge parallel to existing front edge [1] Correct height of backboard [1] Sloping corners to back board in proportion [1]	7	
B5(c)	Symbol has a cross / circle with line through [1] Image of a bin [1] No words used on sign [1]	3	Allow the word 'recycling' if shown on the drawing of the bin.
B5(d)	Flammable [1] or inflammable [1]	1	Allow correct description of flammable (can catch fire easily)
B5(e)	Is there any movement? [1] Yes **and** No added to decision box in correct positions [1] 2 minutes in WAIT / DELAY box [1]	3	Allow 'movement ?' (must be a question) Allow equivalent time e.g. 120 seconds