



# Cambridge IGCSE™

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**DESIGN & TECHNOLOGY**

**0445/53**

Paper 5 Graphic Products

**October/November 2022**

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 October/November 2022 series for most Cambridge IGCSE™, Cambridge International A and AS Level components and some Cambridge O Level components.

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This document consists of **6** 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).

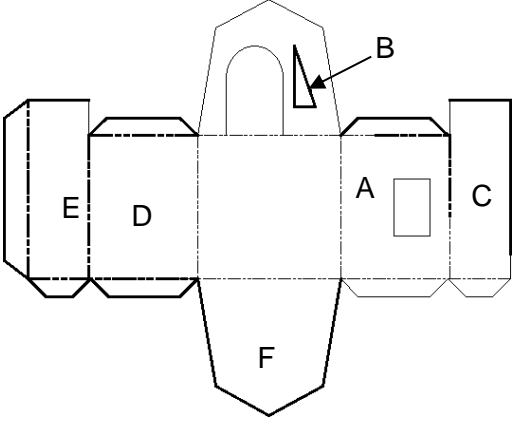
**GENERIC MARKING PRINCIPLE 6:**

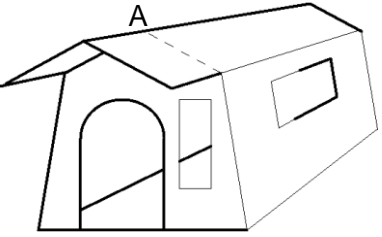
Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

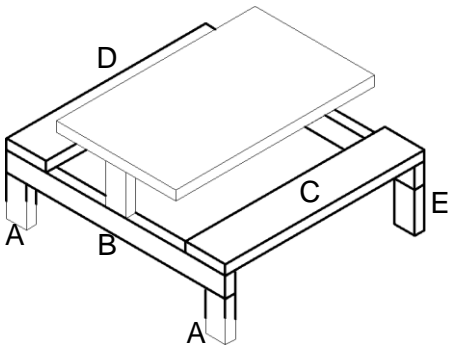
Question	Answer	Marks
A1(a)	Equilateral triangle added [1] Equilateral triangle 90 mm each side in correct position [1] Lines extend to 10 mm above apex [1]	3
A1(b)	Outer edge of wheel – circle R15 in correct position [1] Wheel arch – semicircle R20 in correct position [1] Right hand base line added to mirror left side [1] Two vertical sides correct to overlay [1] Two diagonal sides correct to candidate solution [1] Roof R150 in correct position [1] Window 25 mm wide and 10 mm from left side [1] Window height projected from existing [1] Hitch 10 × 5 correct to candidate solution [1]	9

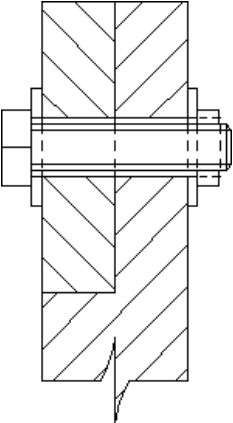
Question	Answer	Marks
A2	Any regular octagon [1] Regular octagon 220AF on given centre lines [1]	2

Question	Answer	Marks
A3(a)	Grain lines added [1] High quality rendering (knots, end grain etc.) [1]	2
A3(b)	Front leg completed to correct length [1] Left side leg projected to correct length and angle position (two lines) [1] Left leg correct thickness [1]  Right side leg projected to correct length and angle position (two lines) [1] Right leg correct thickness [1] Rear leg mirrors front leg [1]  Square centre post correct to candidate solution [1] Four sign corners projected from front elevation [1] 3 mm thickness of sign added in correct position [1]	9

Question	Answer	Marks
B4(a)	 <p>Right side 'A' correct to overlay [1] Window 'B' correct to overlay [1] Window B in correct position [1]</p> <p>Right side of roof 'C' correct to overlay [1] Left side 'D' correct to overlay [1] Left side of roof 'E' correct to overlay [1] Back 'F' correct to overlay [1]</p> <p>Top flap added to 'A' and 'D' [1] Bottom flap added to 'D' and 'E' to candidate solution [1] End flap added to outer edge of 'C' or 'E' to candidate solution [1] Dot/dashed line conventions correct [1]</p>	11
B4(b)(i)	<p>Parts can be copied /pasted [1] saving time [1] More accurate [1] so final net will fit perfectly together [1] Can be saved / emailed / [1] so quicker to share or send to people [1] Can be easily revised [1] without re-drawing whole thing saving time [1] Or AOVR</p>	2
B4(b)(ii)	<p>Vinyl cutter, laser cutter Any named type of vinyl cutter e.g. STIKA, CAMM1</p>	1
B4(b)(iii)	<p>PVA or AOVR Do not accept: any solvent-based adhesives, hot glue.</p>	1

Question	Answer	Marks
B4(c)	 <p>Horizontal front bottom line correct to overlay [1] Front door correct to overlay [1] Left side of front correct to overlay [1]</p> <p>Left window lines to VP with end added in proportion [1] Line from front ridge of roof 'A' to VP to candidate solution [1] Roof extended from front in proportion [1]</p> <p>Left side of roof projection added to candidate solution [1] Right side of roof projection added to candidate solution [1] Rear edge of roof (right side) added parallel to front edge [1] Internal line to VP correct to candidate solution [1]</p>	10

Question	Answer	Marks
B5(a)	 <p>Table top correct to overlay [1] Front legs 'A' correct to overlay [1] Front cross bar 'B' correct position and size [1] Front cross bar 'B' correct thickness [1]</p> <p>Bench 'C' correct length and position (to candidate solution) [1] Bench 'C' correct thickness [1] Bench 'D' identical to 'C' and aligns with 'C' [1]</p> <p>Back cross bar correct position and height (to candidate solution) [1] Back cross bar correct thickness [1] Back leg 'E' correct position to candidate solution [1] Back leg 'E' correct thickness [1] Front support from table to cross bar [1]</p>	12

Question	Answer	Marks
B5(b)(i)	Exploded view	1
B5(b)(ii)	 <p>           End section of leg correct to overlay [1]            Washer in correct position [1]            Washer <math>\text{Ø}20</math> and 2 mm thick to overlay [1]            Nut in correct position [1]            Top and bottom edges of nut projected from bolt head [1]            Nut 5 mm thick [1]            Some hatching added [1]            Hatching added correctly (different directions)[1]         </p>	8
B5(c)(i)	Sloping sides (draft angle) [1] Rounded corners [1] Release agent on mould [1]	2
B5(c)(ii)	Once opened cannot be re-sealed [1] so parts can get lost [1] Requires two different materials [1] so increased cost [1] Vacuum forming uses plastic [1] which is harder to recycle [1] Or AOVR Allow: Not environmentally friendly [1] with valid reason [1]	2