Cambridge Assessment International Education

Cambridge IGCSE™

DESIGN & TECHNOLOGY **0445/52**

Paper 5 Graphic Products **October/November 2021**

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 October/November 2021 series for most Cambridge IGCSE™, Cambridge International A and AS Level components and some Cambridge O Level components.

This document consists of **6** printed pages.

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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 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.

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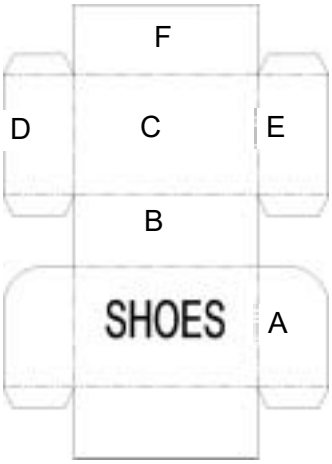
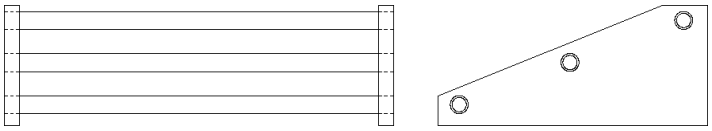
Section A

Question	Answer	Marks
A1(a)	 Outline 200 × 140 (1) Inner semi-circle R25 in correct position (1) Outer semi-circle R35 in correct position (1)	**3**
A1(b)	Any octagon drawn (1) Regular octagon (1) Regular octagon drawn to correct size and in correct position (1) Two triangles added (1) Both triangles correct to overlay (1)	**5**
A1(c)	Letter H completed (1) Letter H completed with 10mm thickness (1) Letter O completed by adding two arcs R15 – correct to overlay (1)	**3**

Question	Answer	Marks
A2(a)	Font style / embolden / colour / underline / letter spacing / italics Any of the above Do not allow: stretch, enlarge etc.	**1**
A2(b)	The **colour** of the ink changes (1) when **temperature** changes (1)	**2**

Question	Answer	Marks
A3	 Right side ‘A’ 60 × 35 (1) Corner radius R20 (1) Flap added below – 10 mm deep (1) Back side ‘B’ 90 × 35 **with no flaps** (1) Base of box ‘C’ 90 × 60 (1) Side ‘D’ 60 × 35 or same height as candidate solution (1) 10 mm deep flaps to bottom and to join ‘F’ only (no additional flaps) (1) Side ‘E’ 60 × 35 or same height as candidate solution (1) 10 mm deep flaps to bottom and to join ‘F’ only (no additional flaps) (1) Side ‘F’ 90 × 60 **with no top flap** (1) Fold lines shown correctly as dotted/dashed or to candidate solution (1)	**11**

Section B

Question	Answer	Marks
B4(a)(i)	 End view: Width 90 mm (1) Height 40 mm (1) Front vertical edge 10 mm high (1) Top horizontal edge 15 mm wide (1) Sloping top edge added to candidate solution (1)	**5**
B4(a)(ii)	Front view: Right hand end 5 mm wide, projected from end view with step line (1) Left hand end identical to right hand end and in correct position (1) Top and bottom lines of one or more dowels projected (1) Three dowels correctly projected between ends (1)	**4**
B4(a)(iii)	Any hidden detail shown by dotted lines (1) Hidden detail in correct position on both end pieces and tubes (1)	**2**
B4(b)(i)	Lightweight / easy to cut and shape / rigid (will not bend) Accept any two of the above or any other valid response. Do not accept: durable, strong, good insulator	**2**
B4(b)(ii)	To check the design works (1) before making the real thing (1) To see how it will look (1) without buying expensive materials (1) To get an idea of how it will look (1) without wasting time/money (1) Any of the above	**2**
B4(c)	Cutting the Styrofoam end pieces to shape: Hacksaw blade, hot wire cutter, template, any suitable named knife with blade longer than 15 mm (eg. Stanley, craft knife) or saw (Do not accept knife or saw on its own) Smoothing the edges of the Styrofoam end pieces: Sandpaper, sanding block, file Securing the cardboard rails into the Styrofoam end pieces: PVA glue, contact adhesive (accept appropriate trade names e.g. Gorilla glue) Do not accept double sided tape	**3**
B4(d)(i)	Suitable colour added such as brown (1) Grain patterns on at least one side (1) High quality rendering that looks like hardwood (1)	**3**
B4(d)(ii)	Silver/grey colour added (1) Dark edges gradually getting lighter to show tubular shape (1) Lines parallel to edge and showing reflection (1) High quality rendering that looks like aluminium tube (1)	**4**

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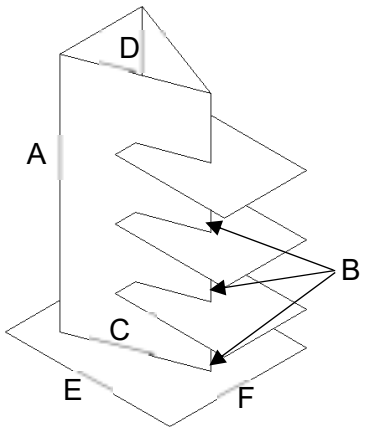
Question	Answer	Marks
B5(a)	 **Triangular prism** Vertical side ‘A’ 88 mm long (1) Vertical front edge ‘B’ projected down (1) Three clear sections ‘B’ between each shelf (1) Bottom edge of triangle ‘C’ parallel to top edge (1) Inner detail line ‘D’ added (1) **Base** Side edge ‘E’ 60 mm long (1) Front edge ‘F’ 50 mm long (1) Back edges added correct to solution (1) **Shelves** Three shelves added in isometric – three sides of each shelf shown (1) Shelves are all identical (1) 40 mm long × 30 mm wide (1) Spaced 22 mm apart (1) Slotted into triangular prism by 20 mm (1) All shelves drawn correctly as overlay (1)	**14**
B5(b)(i)	Die Cutter / Press cutter (1)	**1**
B5(b)(ii)	Draw out letters on CAD (1) Send to laser cutter / vinyl cutter / printer (1) Cut out in self-adhesive vinyl and stick on (1) Draw out text on CAD (1) Cut out a stencil on laser cutter / vinyl cutter (1) Spray paint onto stencil and remove (1) Printing out on paper and sticking on – award 1 mark only Or any other valid method	**3**
B5(c)	Method of joining edges together shown that does not use adhesive (1) Method allows edges to be temporarily held in place (flaps / tabs) (1) Method holds securely but can be undone (1)	**3**
B5(d)	Bar chart drawn horizontally or vertically (1) X and Y axis’ to appropriate scale and labelled (No. sold / shoe type (1) Two or more bars drawn to correct height (1) All bars drawn to correct height (1)	**4**