Cambridge Assessment International Education

Cambridge IGCSE™

DESIGN & TECHNOLOGY **0445/53**

Paper 5 Graphic Products **October/November 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 October/November 2023 series for most Cambridge IGCSE, Cambridge International A and AS Level components, and some Cambridge O Level components.

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:

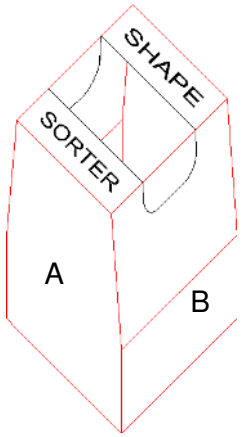
Rules must be applied consistently, e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.

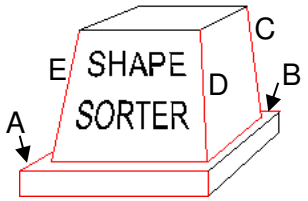
GENERIC MARKING PRINCIPLE 5: Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).
GENERIC MARKING PRINCIPLE 6: Marks awarded are based solely 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)	Any triangle drawn [1] Equilateral triangle drawn to overlay [1]	**2**	
A1(b)	Any square drawn [1] Square correct to overlay [1]	**2**	
A1(c)	Any ellipse drawn [1] Major axis 60 [1] Minor axis 42 [1] Eight points plotted (not including axes) [1] More than 8 points plotted [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
A1(d)	Any hexagon drawn [1] Any regular hexagon [1] Hexagon correct to overlay [1]	**3**	

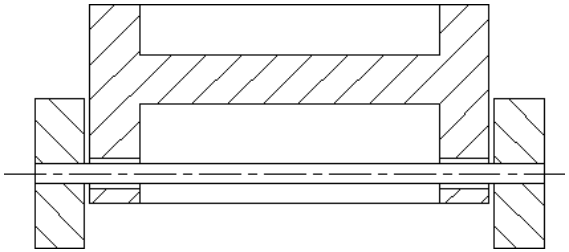
Question	Answer	Marks	Guidance
A2(a)	Right hand face correct to overlay [1] Left hand face correct to overlay / candidate solution [1] Top face correct to overlay / candidate solution [1]	**3**	
A2(b)	Left hand face correct to overlay [1] Back edge added on left side to candidate solution [1] Back edge added on right side [1]	**3**	
A2(c)	Bottom inner edge showing material thickness correct to overlay [1] Left sloping side thickness correct to overlay [1] Inner bottom corner correct to overlay / candidate solution [1]	**3**	

Question	Answer	Marks	Guidance
A3(a)	Primary colour used (Red, Blue or Yellow) [1] Different weights of shade on each face [1] High quality shading applied accurately [1]	**3**	At least 3 sides must be shaded to get 2nd mark

Question	Answer	Marks	Guidance
B4(a)	Top face: • 55 mm long [1] • 45 mm wide [1] Side A: • Base 55 mm wide [1] • Base 50 mm below top face [1] • Bottom 20 mm section different to top section [1] • Two sloping from top face to top of bottom section to candidate solution [1] Side B: • Base 55 mm wide [1] • Horizontal crease line shown [1] • Horizontal crease line shown in correct position (20 mm above base or to candidate solution) [1] • Sloping back edge parallel to front [1] Sloping and vertical inner line through window parallel to front / correct to overlay / candidate solution [1] Horizontal inner line [1]	**12**	
B4(b)(i)	Acetate / Polyester terephthalate glycol (PETG) or AOVR	**1**	Do not allow: PET, HIPS, acrylic
B4(b)(ii)	Hot glue gun / superglue / contact adhesive – allow trade names [1]	**1**	Allow double sided tape, Sellotape and other suitable trade names. Do not allow ‘tape’ on its own or ‘masking tape’, PVA

Question	Answer	Marks	Guidance
B4(b)(iii)	Plastic cut larger than the window [1] Glue around edge of window [1] High quality sketches / clear communication [1]	**3**	
B4(c)	Child friendly lettering (bold, bubble comic styles) [1] High Quality lettering [1]	**2**	
B4(d)	Front face of base – rectangle projected horizontally from existing lines 30–38 mm wide [1] Line 'A' from top left corner of base to VP [1] Back top edge of base 'B' parallel to front edge [1] Back right sloping edge 'C' to correct slope and length [1] Back right sloping edge 'D' to correct slope and length [1] Back right sloping edge 'E' to correct slope and length [1]	**6**	

Question	Answer	Marks	Guidance
B5(a)	Front view: • Both wheels projected from side and plan [1] • Vertical uprights projected from side and plan [1] • Hand rail projected from side view [1] Plan: • Outline of base projected from side and front [1] • Inside of base 5 mm smaller than outer – correct to candidate solution [1] • Two lines – Left (front) edges of upright [1] • Two back (right) edges of upright [1] • Handrail projected from side view [1] Side view: • Outline of base section projected from top and front [1] • Upright correct to candidate solution [1]	**10**	

Question	Answer	Marks	Guidance
B5(b)	Inner detail mirrored on right hand side [1] Wheels 30 mm high and 10 mm thick [1] Both wheels in correct positions [1] Axle on centre line 4 mm wide [1] Two holes in sides 6 mm wide on centre line [1] Hatching added appropriately [1]	**6**	
B5(c)(i)	Image could be searched for on the internet [1] or created in a graphics program [1] Image then copied and pasted / downloaded / saved onto computer [1]	**2**	Allow 1 mark for 'drawing image on paper and scanning'.
B5(c)(ii)	Any two from: resized / stretched / shrunk / rotated / mirrored / re-coloured / cropped or AOVR [2 × 1]	**2**	Must be a specific command not a program e.g. photoshop
B5(d)	Front face drawn 80 mm wide [1] Front face 40 mm high [1] Front face in correct position [1] Top face to overlay / candidate solution [1] Left side face to overlay / candidate solution [1]	**5**	