CAMBRIDGE
International Education

Cambridge IGCSE™

DESIGN & TECHNOLOGY **0445/51**

Paper 5 Graphic Products **October/November 2024**

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 2024 series for most Cambridge IGCSE, Cambridge International A and AS Level components, and some Cambridge O Level components.

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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 descriptions 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:

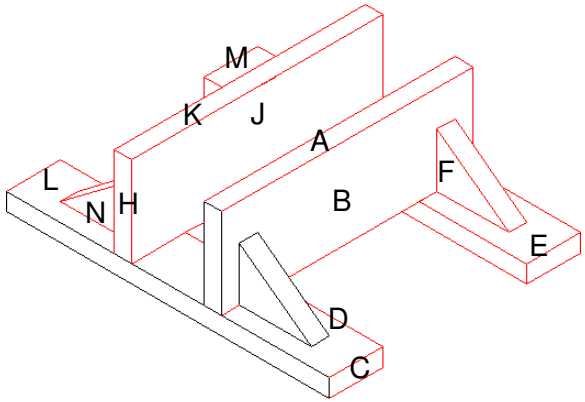
Rules must be applied consistently, e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.

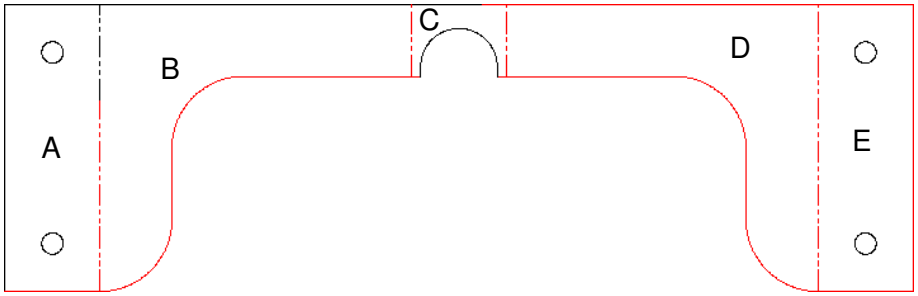
GENERIC MARKING PRINCIPLE 5: Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).
GENERIC MARKING PRINCIPLE 6: Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

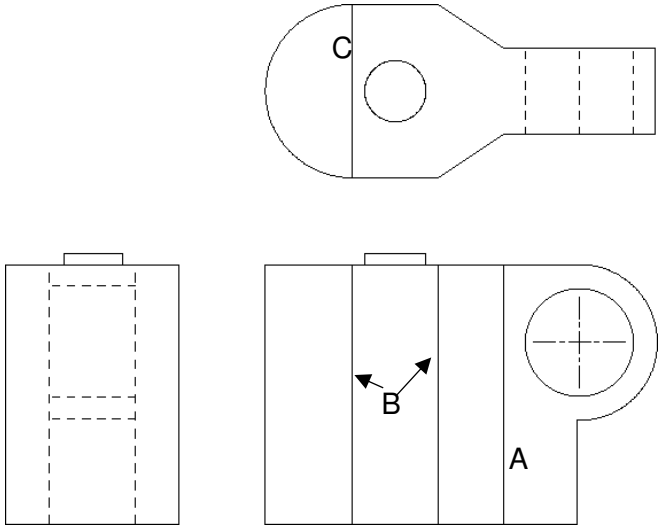
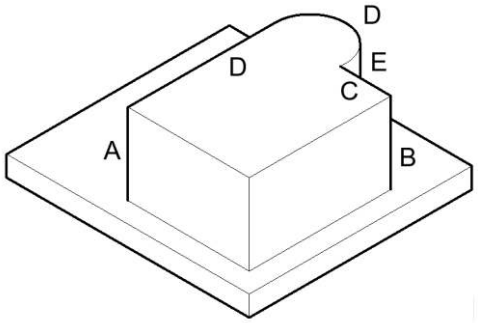
Question	Answer	Marks	Guidance
A1(a)(i)	Rear equilateral triangle 70 mm base [1] Left side of rear triangle parallel to overlay / to candidate solution [1] Top crossbar line horizontal from top point of rear triangle [1] Third side from end of crossbar to centre of pedal circle [1] Front fork line correct to overlay [1]	**5**	Line from end of crossbar to pedal centre
A1(a)(ii)	Rear wheel outer circle correct to overlay [1] Front wheel – one circle correct to overlay [1] Front wheel other circle correct to overlay [1]	**3**	
A1(a)(iii)	Seat – any right-angle triangle [1] Seat correct to overlay [1]	**2**	
A1(b)(i)	Rectangle 170 × 10 [1] In correct position [1]	**2**	
A1(b)(ii)	Outline 250 wide × 150 high [1] Positioned centrally on given centre lines [1] 45º angles to corners [1] Outline correct to overlay [1]	**4**	

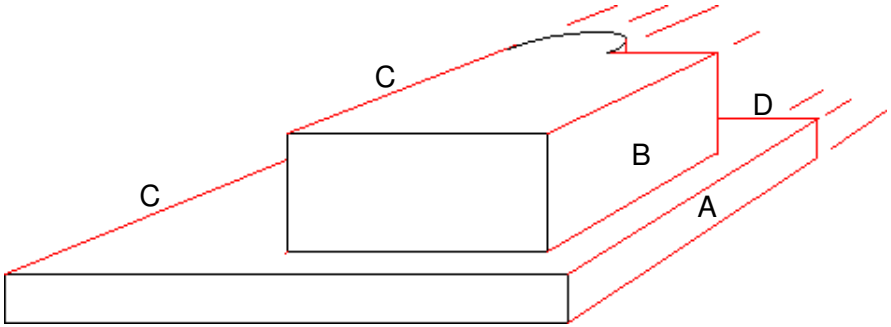
Question	Answer	Marks	Guidance
A2	Rectangle drawn 250 × 150 [1] Rectangle drawn at 45º [1] Rectangle in correct position (correct to overlay) [1] Long edge 10 mm deep with vertical edges [1] Short edge 10 mm deep with vertical edges [1]	**5**	

Question	Answer	Marks	Guidance
A3(a)(i)	Acrylic, Polystyrene sheet (HIPS), Polyvinyl chloride acetate (PVC), Polyethylene terephthalate glycol, (PET or PETG), PP, PLA, ABS	**1**	Accept any other valid response. Do not accept: acetate, vinyl, on its own (too thin and flimsy) or Styrofoam Accept acronyms Accept corrugated plastic (corriflute)
A3(a)(ii)	Digital Ink Jet printing / Screen printing / Flexography / Gravure UV Lithography printing / Pad printing / Sublimation printing	**1**	Do not accept heat press / hot press, 3D printer
A3(b)	Suitable modification added e.g. Strikethrough, cross out etc. [1] High quality communication / suitable outline added [1]	**2**	

Question	Answer	Marks	Guidance
B4(a)	 Top face A correct to overlay [1] Side face B correct to A length (candidate solution) and correct depth [1] Leg end face C correct to overlay [1] Leg top face D correct to overlay / candidate solution [1] Right hand leg E drawn correctly projected from front leg [1] Right hand triangle F drawn correctly projected from front triangle [1] End face H correct size and position to overlay [1] Inner face J correct to candidate solution [1] Top face K correct to candidate solution [1] Leg L correct to overlay / candidate solution [1] Leg M correct to candidate solution [1] Triangle N correct to overlay [1] 5 mm thickness added correct to candidate solution / overlay [1]	**13**	
B4(b)(i)	1:2	**1**	Accept ‘half size’ or ‘half scale’, ‘1–2’, ‘1 to 2’.

Question	Answer	Marks	Guidance
B4(b)(ii)	Craft knife, hacksaw blade, tenon saw, hot wire cutter, band saw [1] File, sand paper, sanding block [1] PVA glue, double sided tape [1]	**3**	Accept any other valid response. Accept any suitable named knife e.g. Stanley knife, scalpel, exacto knife Do not accept box cutter or 'knife' / 'saw' on its own Accept any named abrasive paper Do not accept wood glue, 'gorilla glue' or other trade names.
B4(b)(iii)	Able to see what product will look like in real life [1] without wasting materials [1] See potential mistakes before real product is made [1]	**2**	Accept any other valid response.
B4(c)	 Face A correct to overlay [1] Face B correct to overlay [1] Centre section C correct to overlay [1] Face D mirror image of face B [1] Face E mirror image of face A [1] Correct line convention used [1]	**6**	

Question	Answer	Marks	Guidance
B5(a)	**Side view:** Outer rectangle 72 wide × 60 high [1] Handle correct to overlay (semi-circle) [1] Line 'A' in correct position [1] Two vertical lines 'B' in correct positions [1] Top button correct to overlay [1] **Plan:** Back handle (thin section) correct to overlay [1] Front section correct width [1] Front semi-circle correct to overlay / candidate solution [1] Vertical line 'C' and corners projected from side view [1] **Front View:** Outer Rectangle correct to overlay / candidate solution [1] Vertical inner hidden detail lines correct to overlay / candidate solution [1]	**11**	
B5(b)(i)	Blue shading [1] Varying shade tones / reflection [1] High quality rendering [1]	**3**	
B5(b)(ii)	Outer edges of base thick and inner 3 lines thin [1] Vertical edges A and B thick and base lines + vertical thin [1] Line C thick and both top edges thin [1] Back line D and circle section D thick and small section thin [1] Line E thick [1]	**5**	

Question	Answer	Marks	Guidance
B5(c)	 Side A top and bottom lines to VP [1] Side B top and bottom lines to VP [1] Vertical end lines on A and B and in proportion [1] Two left hand lines C to VP [1] Horizontal back edge line D parallel front face of base [1] Horizontal back edge line parallel to front face of top section and small vertical line [1]	**6**	