



Cambridge IGCSE™

DESIGN AND TECHNOLOGY

0445/51

Paper 5 Graphic Products

May/June 2022

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.

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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.

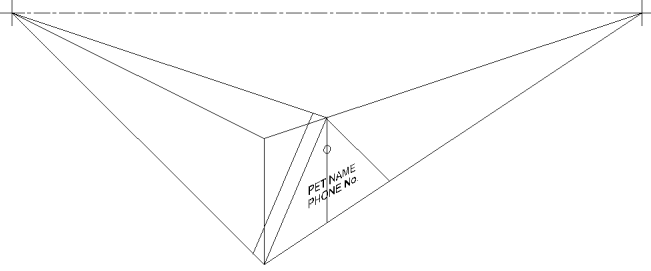
GENERIC MARKING PRINCIPLE 5:

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).

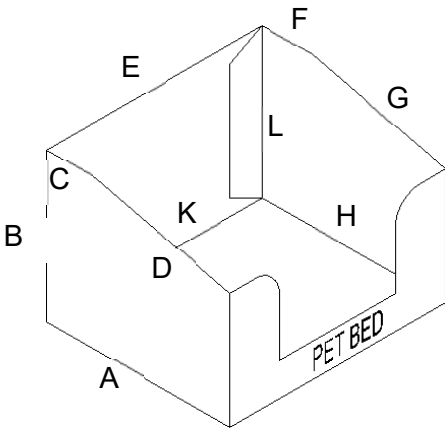
GENERIC MARKING PRINCIPLE 6:

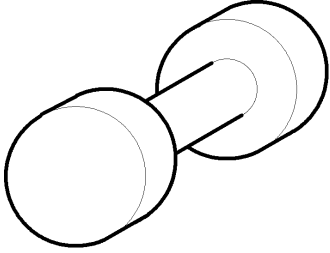
Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

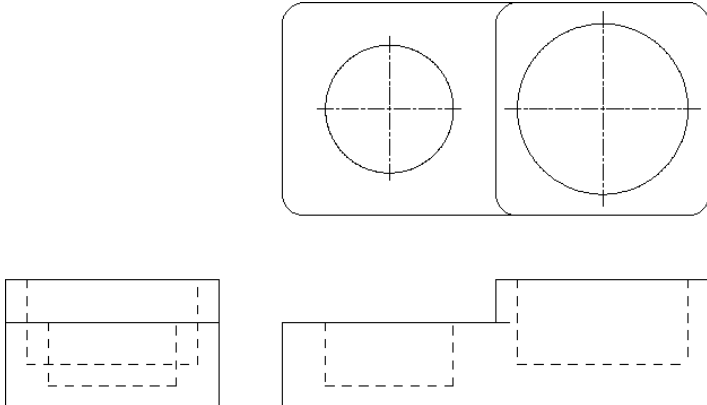
Section A


| Question | Answer | Marks |
|-----------|--|----------|
| A1(a) | Outline 210 mm wide [1] × 140 mm high [1] Front section 70 mm wide [1] One other section 70 mm wide [1] Fold lines shown as broken (dotted / dashed) [1] | 5 |
| A1(b) | Circle drawn Ø50 [1] On given centre lines [1] | 2 |
| A1(c) | Rectangle 60 mm wide × 15 mm high [1] In correct position 5 mm from base and sides [1] | 2 |
| A2(a) | Use internet / search engine to find suitable image / scan in an image [1] Copy and paste / download and insert image onto leaflet [1] | 2 |
| A2(b) | Flexography / lithography or AOVR | 1 |
| A2(c) | 2 | 1 |
| A3(a)(i) | Any hexagon drawn [1] Any regular hexagon drawn [1] Hexagon correct to overlay [1] | 3 |
| A3(a)(ii) | Any pentagon drawn [1] Any symmetrical pentagon along vertical centre line [1] Any regular pentagon [1] Pentagon correct to overlay [1] | 4 |
| A3(b) |  <p>Front bottom edge to VP2 [1] 60 mm long bottom edge [1] Right hand sloping side to candidate solution [1] Lines from top and bottom corners to VP1 [1] 6 mm thickness to left hand side [1]</p> | 5 |

Section B

| Question | Answer | Marks |
|------------|--|-------|
| B4(a) |  <p>Left side base 'A' [1] Left side vertical back edge 'B' [1] Left side top horizontal edge 'C' [1] Left side sloping edge to front 'D' [1] Top back edge 'E' [1] Right side horizontal top edge 'F' [1] Right side sloping top edge 'G' [1] Right side inner base edge 'H' [1] Back lower inside edge 'K' [1] Internal vertical corner 'L' [1] Flap in correct position [1] Flap correct size [1]</p> | 12 |
| B4(b)(i) | Rigid [1] so won't bend easily [1] Easy to cut / fold [1] so easy to assemble bed net [1] Absorbent [1] so can soak up 'accidents' [1] Or AOVR 1 mark for property, 1 mark for explanation. Do not accept: generic answers e.g. Strong, cheap etc. | 2 |
| B4(b)(ii) | PVA, Hot glue or AOVR | 1 |
| B4(b)(iii) | Any method shown [1] Method shown does not use glue or other fixing (e.g. Velcro) [1] Method shown that will hold together [1] Suitable method well communicated [1] | 4 |

| Question | Answer | Marks |
|----------|---|-------|
| B4(c) |  <p>Front disc – Outer edges only – not inner arc [1] Back disc – outer edges only – not inner arc [1] Both straight lines between discs – not end arc [1]</p> | 3 |
| B4(d) | X and Y axis' drawn correctly and labelled [1] Appropriate and evenly graduated scales [1] Information plotted correctly [1] | 3 |

| Question | Answer | Marks |
|----------|--|-------|
| B5(a) |  <p>PLAN: Two circles $\varnothing 30$ and $\varnothing 40$ on given centres [1]</p> <p>END VIEW: Horizontal line 20 mm above base [1] Small dish 30 mm wide \times 15 mm deep [1] Large dish 40 mm wide \times 20 mm deep [1] Lines for small and large dishes shown as hidden detail lines [1]</p> <p>FRONT VIEW: Overall width 100 mm wide / projected from plan view [1] Width of top bowl 50 mm wide / projected from plan view [1] Heights of top and bottom bowl projected from end view [1] Small lines showing curve [1] Large bowl projected from plan and end view / correct width & depth [1] Small bowl projected from plan and end view / correct width & depth [1] Dotted lines for hidden detail (both bowls only) [1]</p> | 12 |

| Question | Answer | Marks |
|------------|---|----------|
| B5(b) | Some attempt at drawing ellipse on given centre lines.[1] Major axis 90 mm and Minor axis 30 mm evident [1] 4 points plotted correctly [1] 8 or more points plotted correctly (excluding axis points) [1] Top ellipse correct to overlay [1] 4 points on bottom half ellipse plotted correctly [1] Bottom half ellipse correct to overlay [1] | 7 |
| B5(c)(i) | Vacuum forming or AOVR | 1 |
| B5(c)(ii) | Polystyrene / HIPS / Acrylic / PVC or AOVR | 1 |
| B5(c)(iii) |  <p>Height 40 [1] 10 mm flat sides around top edge [1] Inside 30 mm deep and 80 mm wide [1] Slopes added correct to overlay and 20 mm right hand lip added [1]</p> | 4 |