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**DESIGN AND TECHNOLOGY**

**0445/21**

Paper 2 Graphic Products

**May/June 2018**

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.

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This document consists of **7** 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).

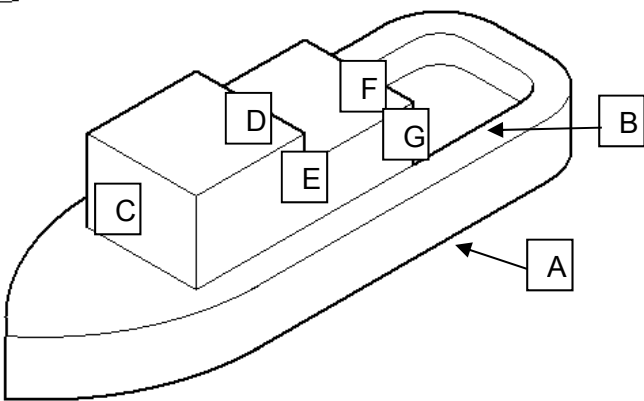
**GENERIC MARKING PRINCIPLE 6:**

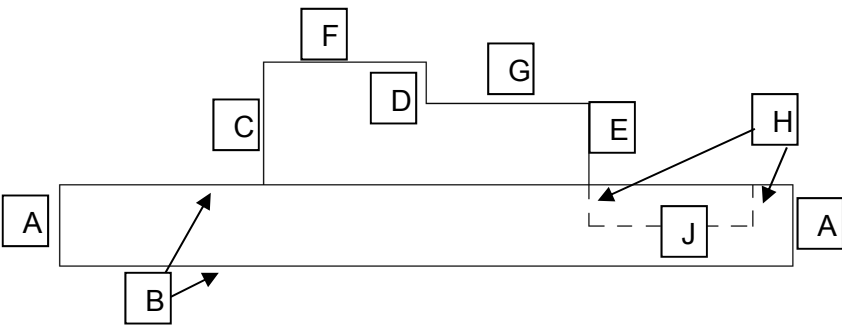
Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

Question	Answer	Marks
<b>Section A</b>		
A1(a)	Semi-circle $\varnothing 70$ (1) Semi-circle $\varnothing 90$ (1) Semi-circle $\varnothing 180$ (1) ..... 2 lines (left and right) from centre of sun at $20^\circ$ from horizontal (1) 2 lines (left and right) from centre of sun at $40^\circ$ from horizontal (1) 2 lines (left and right) from centre of sun at $80^\circ$ from horizontal (1)	<b>6</b>
A1(b)	Any Half hexagon (1) Left and Right correct angle (1) Three lines of half Hex drawn to O/L (1) Four Horizontal lines at correct spacings (1)	<b>4</b>
A1(c)	Lettering: (1) Similar style (1) Spacing (1) Height (1)	<b>3</b>

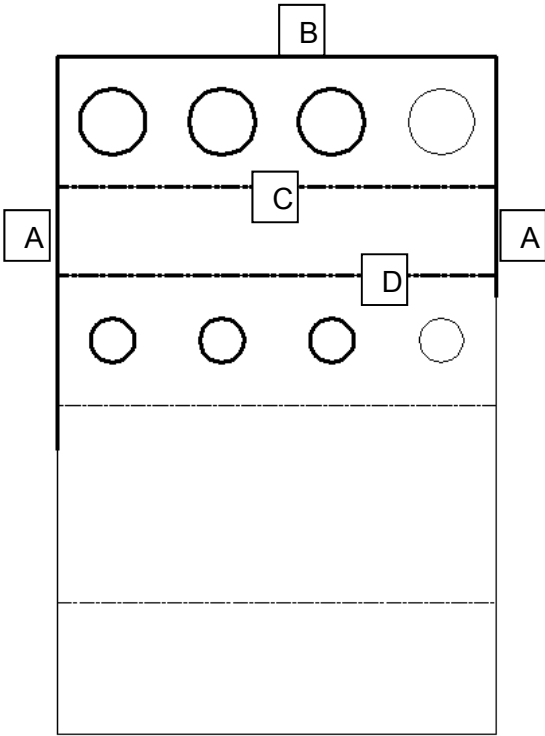
Question	Answer	Marks
A2(a)(i)	Any of the following: JPEG, JFIF, TIF, TIFF, GIF, PNG, WebP, HEIF, BAT, BPG (1)	<b>1</b>
A2(a)(ii)	Can be re-sized / re-scaled or made bigger without loss of quality (1) so the image will stay sharp / clear (1) OR (1) Smaller file size (1) so takes up less space / more can be stored (1)	<b>2</b>

Question	Answer	Marks
A3(a)	Sketched ellipse shape for backboard behind windmill (1) Size in proportion to spinner (1)	<b>2</b>
A3(b)	Sketched ellipse shape of spacer between spinner and backboard (1) Size in proportion (1)	<b>2</b>
A3(c)	Sketched handle shape behind backboard (1) Proportionately correct thickness of handle shown (1) Ellipse sketched on top of handle in correct orientation (1)	<b>3</b>
A3(d)	Split pin drawn in correct position (1) Two ends of split pin open at $90^\circ$ (1)	<b>2</b>

Question	Answer	Marks
<b>Section B</b>		
<p>B4(a)</p>	 <p>Outer edge of whole boat – A (1)                  Lip of indent at back of boat – B (1)                  Left front corner of cabin extended – C (1)                  Back top edge of front cabin extended – D (1)                  Vertical edge in middle of cabins – E (1)                  Back top edge of rear cabin – F (1)                  Vertical back edge of rear cabin – G (1)</p>	<p><b>7</b></p>
<p>B4(b)</p>	<p>Major axis 80 mm (1)                  Minor axis 44 / 45 mm (1)                  Some construction (1)                  or clear construction (1)                  Six or fewer points plotted (1)                  or seven or more points plotted (2)                  Ellipse profile correct to overlay (1)                  Two vertical lines from base (1)</p>	<p><b>8</b></p>

Question	Answer	Marks
B4(c)	 <p>Two vertical sides of hull/base – A (1)  Horizontal top and bottom of hull – B (1)  Vertical front of cabin – C (1)  Vertical middle section of cabin – D (1)</p> <p>.....</p> <p>Vertical rear of cabin – E (1)  Horizontal top of front cabin – F (1)  Horizontal rear of back cabin – G (1)  Two vertical sides of indent – H (1)  Horizontal bottom of indent – J (1)  Dotted lines used for hidden detail of indent (1)</p>	<b>10</b>

Question	Answer	Marks
<p>B5(a)</p>	<div style="text-align: center;"> </div> <p>Top front edge drawn to VP1 – A (1)                      Middle front edge drawn to VP1 – B (1)                      Bottom front edge drawn to VP1 – C (1)                      Top back edge drawn to VP1 – D (1)                      Middle back edge drawn to VP1 – E (1)                      Bottom back edge drawn to VP1 – F (1)</p> <p>.....</p> <p>Vertical line on left end – G (1)                      Line G positioned in proportion for letter 'I' size (1)                      Line drawn to VP2 from top of G to locate bottom of back vertical edge H (1)                      Vertical line for back left edge – H (1)                      Left front corner drawn to VP2 – J (1)</p> <p>Overall drawing in good proportion and correctly lined in (1)</p>	<p style="text-align: center;"><b>12</b></p>
<p>B5(b)</p>	<p>Letter I and S added (1)                      Letter S in 2 point perspective (1)                      Letter I in 2 point perspective (1)                      In proportion with other letters, appropriate thickness and appropriately spaced – I, (1)                      S (1)</p>	<p style="text-align: center;"><b>5</b></p>

Question	Answer	Marks
B5(c)	 <p data-bbox="300 1055 1334 1323"> Two vertical sides – A (1)  Top horizontal line in correct position – B (1)  Top fold line – C (1)  Lower fold line – D (1)  4 large circles with correct <math>\varnothing</math> (1)  Correct 25 mm centre spacing (1)  4 smaller circles with correct <math>\varnothing</math> (1)  Correct 25 mm centre spacing (1) </p>	8