

FOR OFFICIAL USE



National
Qualifications
SPECIMEN ONLY

Mark

--

S835/75/01

Graphic Communication

Date — Not applicable

Duration — 2 hours



Fill in these boxes and read what is printed below.

Full name of centre

--

Town

--

Forename(s)

--

Surname

--

Number of seat

--

Date of birth

Day

--	--

Month

--	--

Year

--	--

Scottish candidate number

--	--	--	--	--	--	--	--	--

Total marks — 80

Attempt ALL questions.

You may use a calculator.

All dimensions are in mm.

All technical sketches and drawings use third angle projection.

You may use rulers, compasses or trammels for measuring.

In all questions you may use sketches and annotations to support your answer if you wish.

Write your answers clearly in the spaces provided in this booklet. Additional space for answers is provided at the end of this booklet. If you use this space you must clearly identify the question number you are attempting.

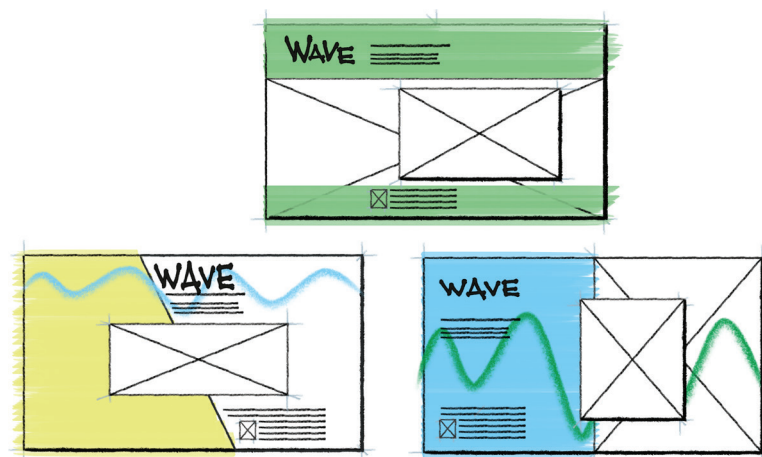
Use **blue** or **black** ink.

Before leaving the examination room you must give this booklet to the Invigilator; if you do not, you may lose all the marks for this paper.



Total marks — 80
Attempt ALL questions

1. A company is promoting a new wireless speaker using a webpage. A graphic designer has produced a series of thumbnails for the design of the webpage.



- (a) State two reasons why thumbnail sketches would be produced during the preliminary stages.

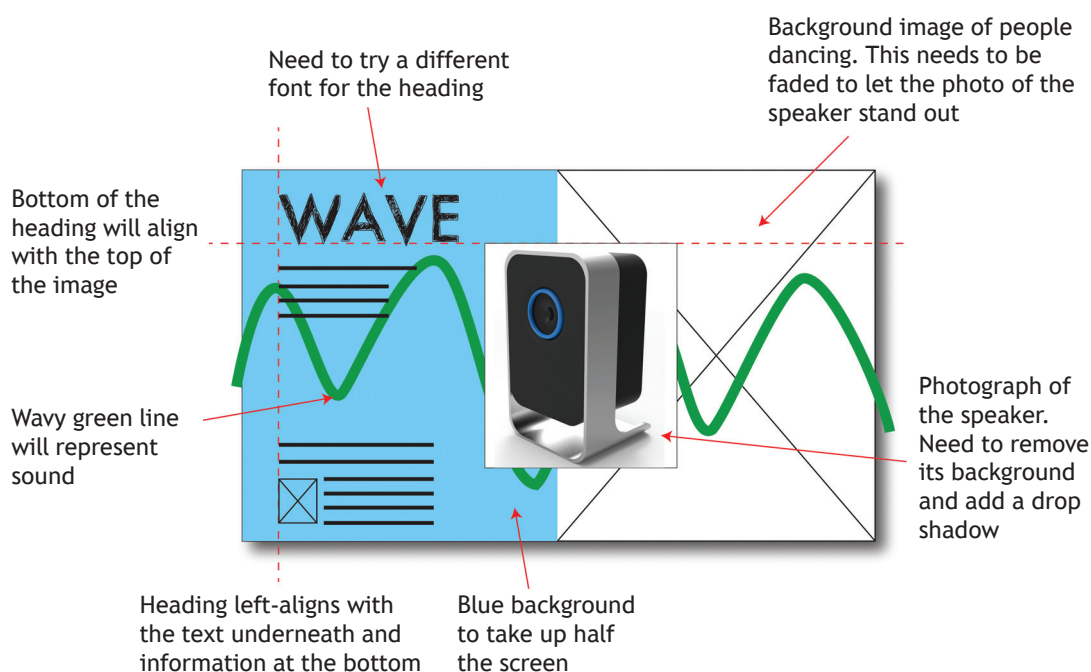
2



* S 8 3 5 7 5 0 1 0 2 *

1. (continued)

The graphic designer selected one of the thumbnails and decided to use DTP software to develop the initial idea. The thumbnail is shown below with the designer's annotations showing suggested changes.



The graphic designer used the above thumbnail annotations to develop the design using DTP software.

- (b) Explain three advantages to the graphic designer of using DTP software to produce a graphic layout.

3

[Turn over

1. (continued)

The final design for the webpage is shown below.



(c) Describe the effect to the webpage of using the green lines.

2

(d) Explain how the graphic designer has used the following design elements and principles to create visual impact in the final design.

(i) Depth

2



1. (d) (continued)

(ii) Dominance

2

(iii) Alignment

2

(e) Transparency has been applied to the image of the people dancing in the webpage shown opposite.

Describe why the graphic designer has used the desktop publishing technique “transparency” on this image.

1

(f) Describe how the desktop publishing technique “bleed” has been used in the webpage design shown opposite.

1

The company originally planned on using posters to promote its product.

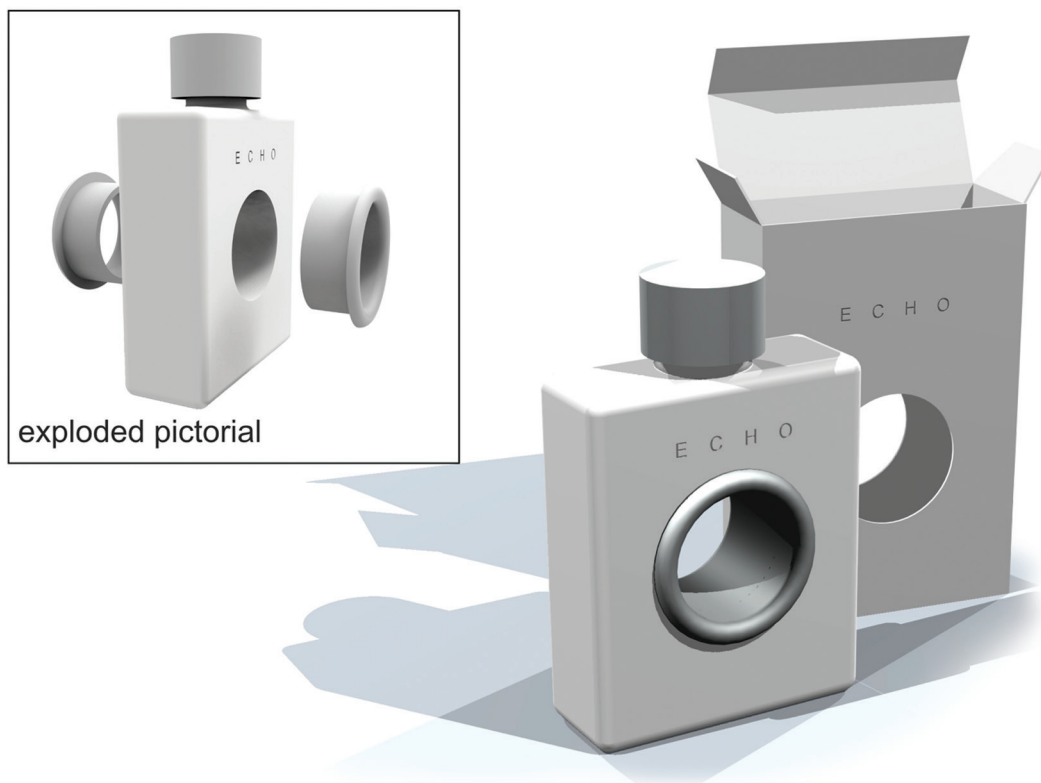
(g) Describe the **positive** impact to the environment of using a webpage rather than printed posters to promote the product.

2



2. ECHO is a new fragrance. The bottle and packaging have been designed to reflect the product name.

The centre 'O'ring consists of two interlocking parts that secure the bottle in the packaging.



The product will be mass produced and sold globally. The company wish to minimise the product's impact on the environment.

- (a) Describe two ways the designer can reduce the impact the packaging has on the environment.

2



2. (continued)

The packaging for the bottle is to be manufactured from a single sheet of card. A surface development of the packaging is shown below.

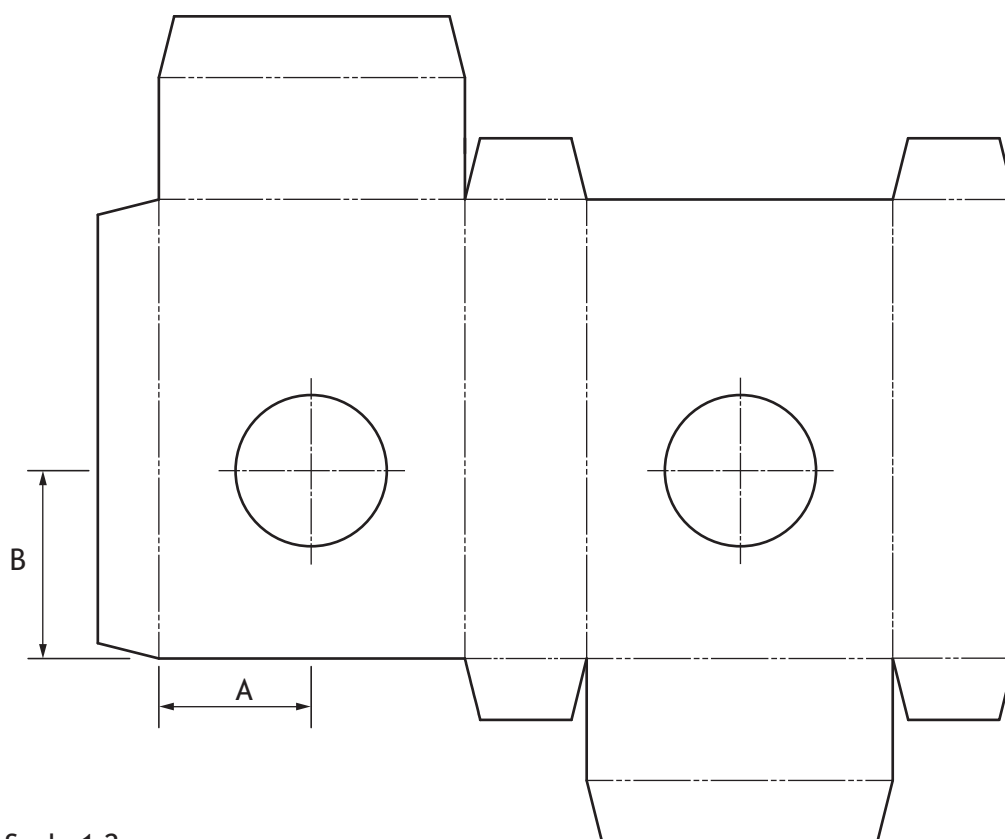
The CAD technician has been asked to identify the positioning of key features that are to be cut out.

- (b) Indicate on the surface development, below, where the text “ECHO” will be cut out.

1

You should use the CAD illustration provided on the opposite page.

Use “E” to indicate the position of the text.



Scale 1:2

- (c) Calculate, using the scale 1:2, measurements A and B (indicated on the above development).

Use a ruler to measure.

(i) Measurement A _____ mm

1

(ii) Measurement B _____ mm

1

[Turn over



2. (continued)

- (d) State one factor that would influence the choice of scale in a drawing.

1

The CAD technician is unsure which dimensioning technique to use and has applied two different methods shown in the assembled orthographic views provided in the **supplementary sheets for use with question 2(e)**.

- (e) (i) State the type of dimensioning used for the elevation.

1

- (ii) State the type of dimensioning used for the plan.

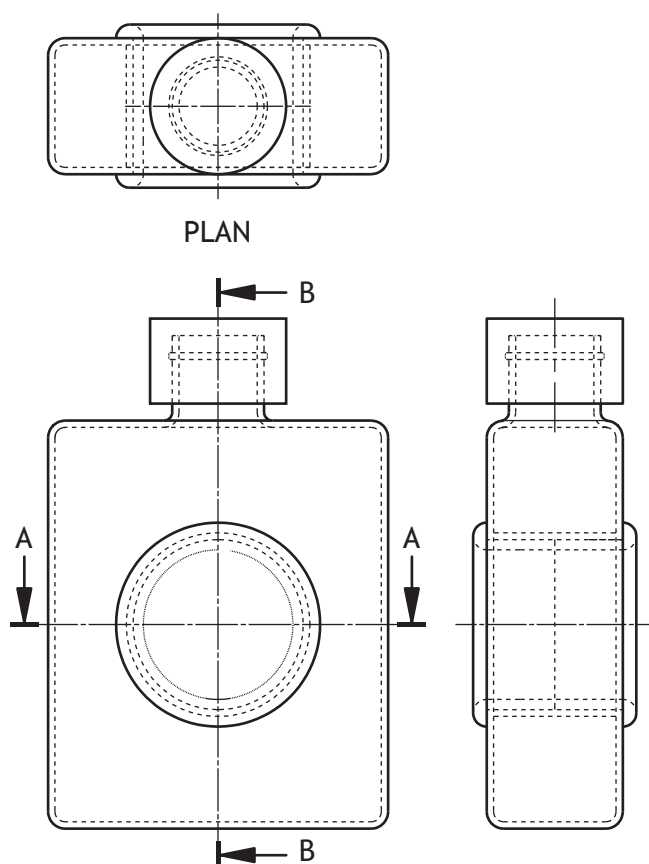
1



* S 8 3 5 7 5 0 1 0 8 *

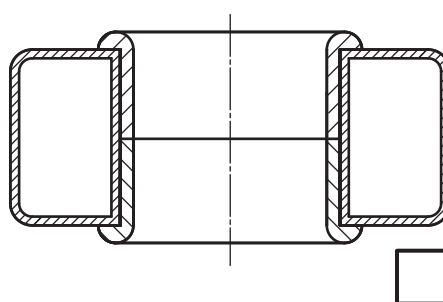
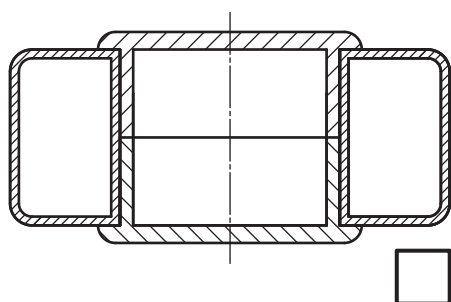
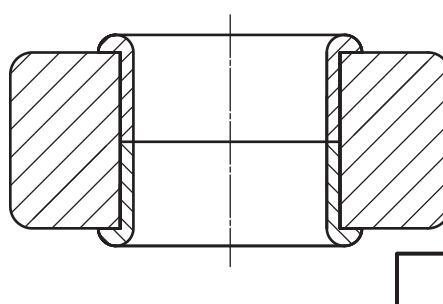
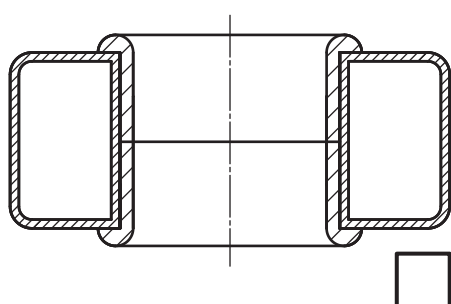
2. (continued)

Orthographic sectional views were produced to aid manufacture.



- (f) Identify the correct sectional plan A-A, indicated in the drawing above, by ticking a box below.

1

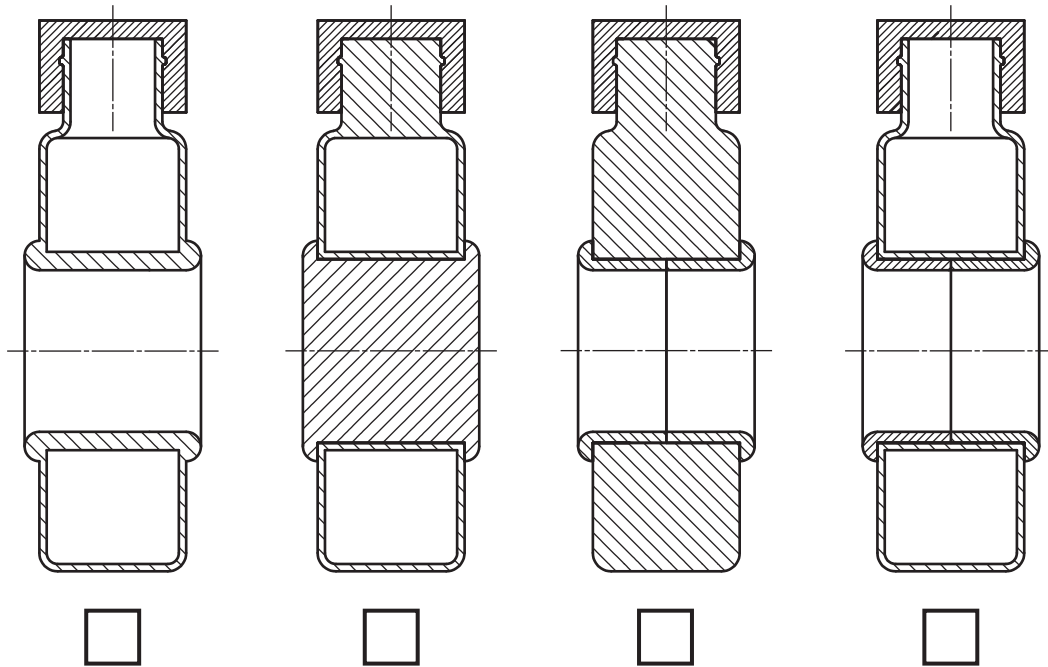


* S 8 3 5 7 5 0 1 0 9 *

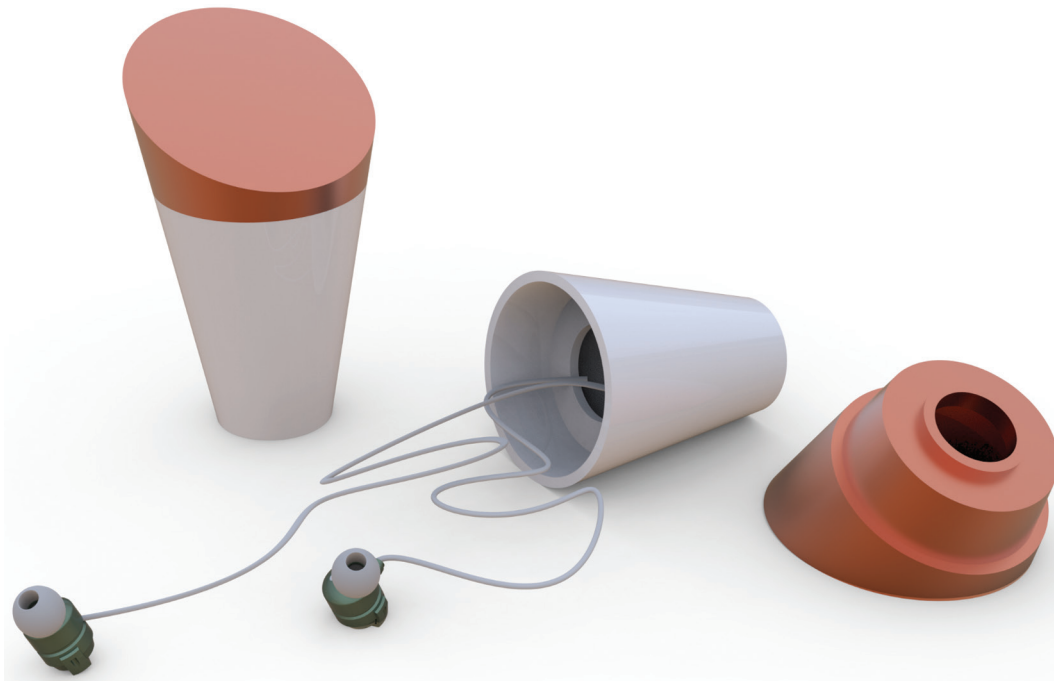
2. (continued)

- (g) Identify the correct sectional end elevation B-B, indicated in the drawing on the previous page, by ticking a box below.

1



3. A portable container for storing earphones and other cable accessories is shown below.



[Turn over



3. (continued)

The lid was modelled using 3D CAD modelling software.

- (a) Describe, with reference to correct dimensions and 3D CAD modelling techniques, how the lid can be produced.

6

You must use the drawing provided in the supplementary sheet for use with question 3(a).

You may use sketches to support your answer.



* S 8 3 5 7 5 0 1 1 2 *

3. (continued)

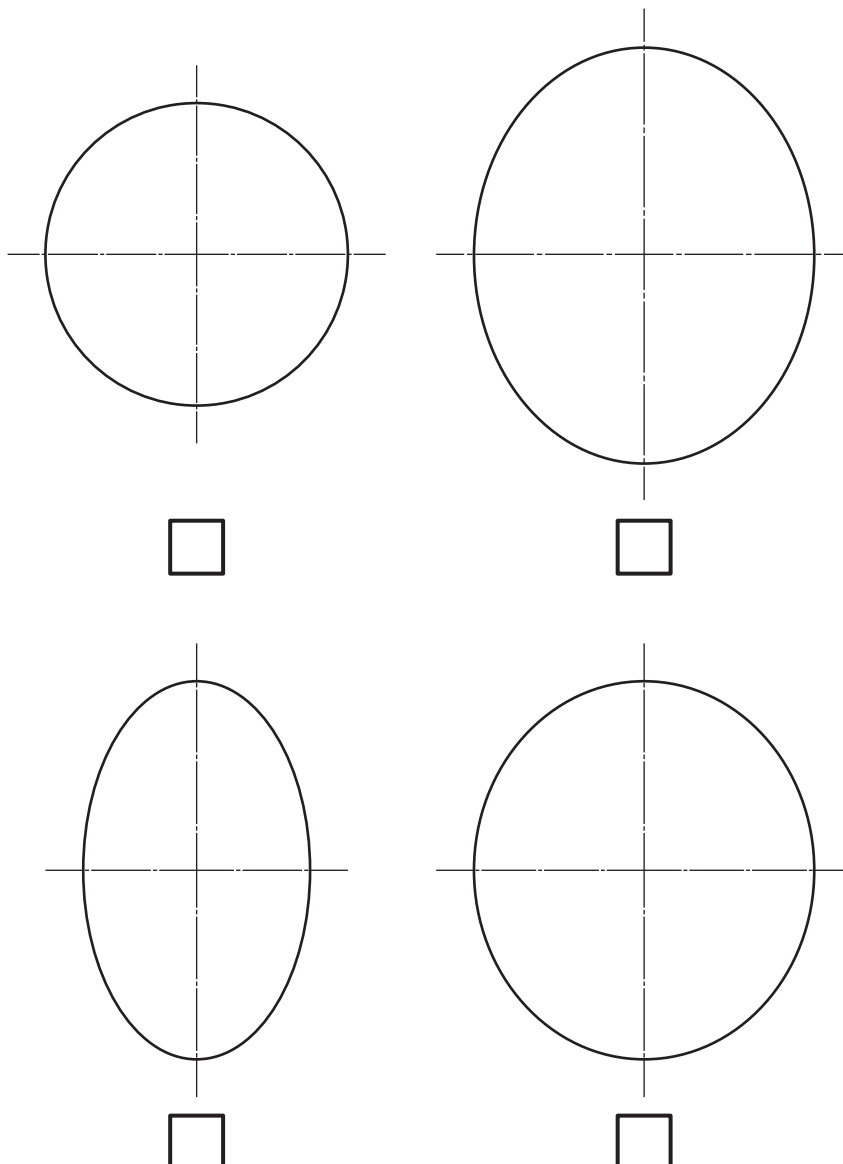
The CAD technician was asked to generate the true shape of the sloping surface “X-X” as indicated in the orthographic drawing, shown in the supplementary sheet for use with question 3(b).

- (b) Identify the correct true shape of the sloping surface “X-X” by ticking a box below.

1

You must use the drawing provided in the supplementary sheet for use with question 3(b).

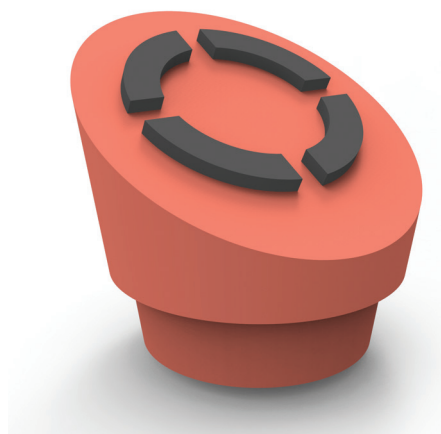
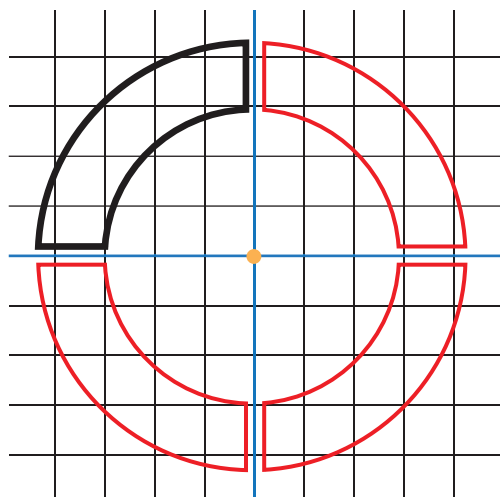
You may use a ruler, compass or trammel for measuring.



3. (continued)

The designer added details to the sloping surface of the lid. The detail consisted of four identical shapes positioned around the centre and raised from the surface.

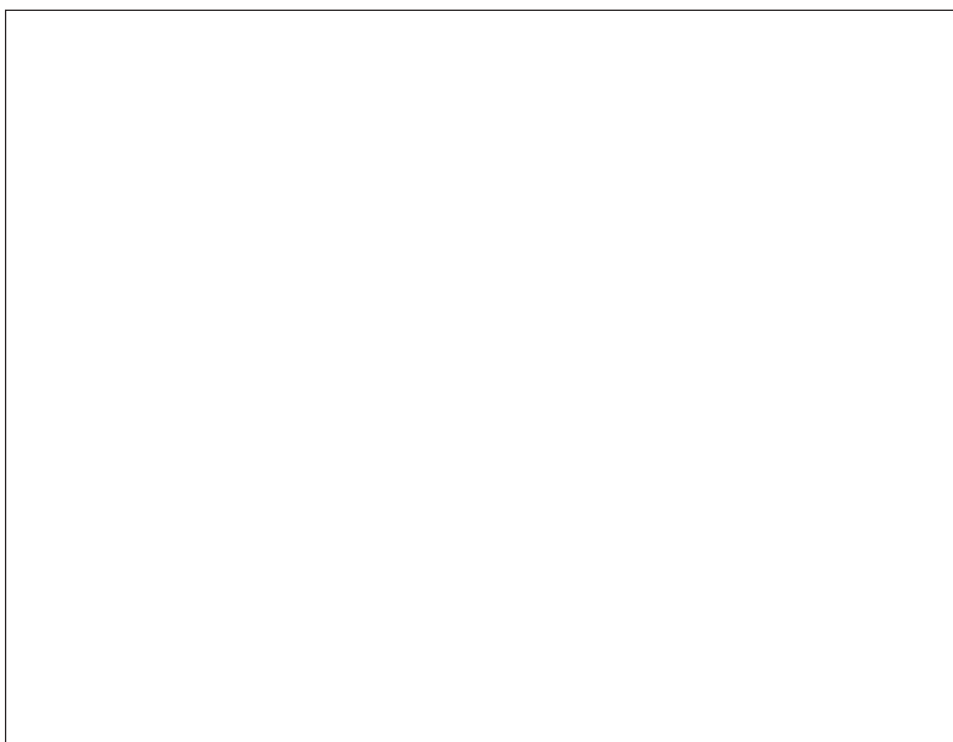
The initial sketch of one of these shapes is shown in **bold black**. The additional shapes in red were then created using 2D CAD editing commands.



- (c) Describe, with reference to **2D CAD drawing and editing** commands, how the CAD technician has drawn the initial sketch and then repeated the shape without having to redraw each shape again.

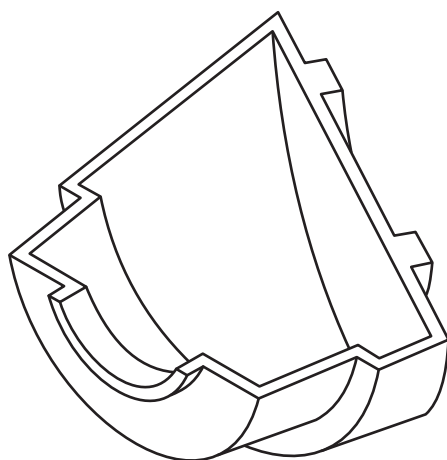
4

You may use sketches to support your answer.

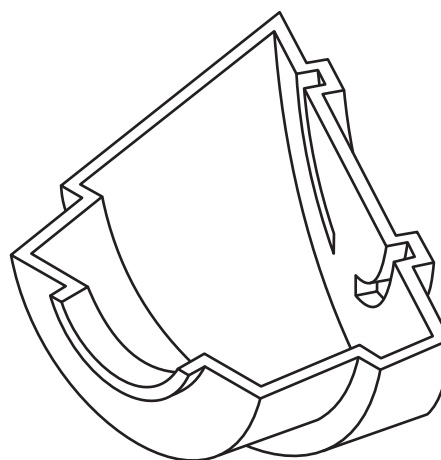


3. (continued)

The CAD technician extruded the detail on the sloping surface of the lid but also wanted this feature to be shelled along with the other features.



Before



After

- (d) Explain how the model could be updated to include the additional shell details.

2

[Turn over



* S 8 3 5 7 5 0 1 1 5 *

3. (continued)

MARKS

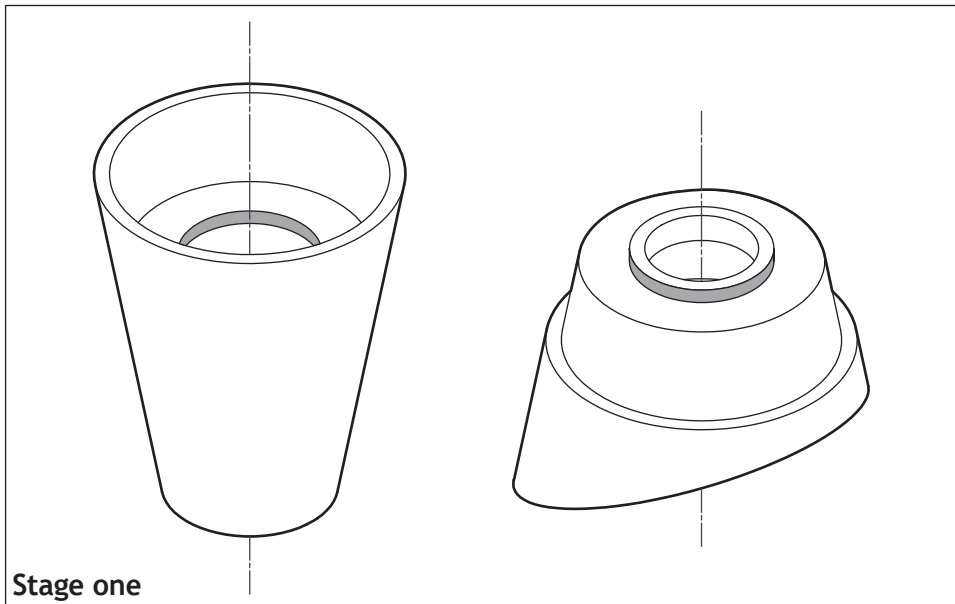
DO NOT
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The lid and main body of the product were assembled using 3D CAD modelling software.

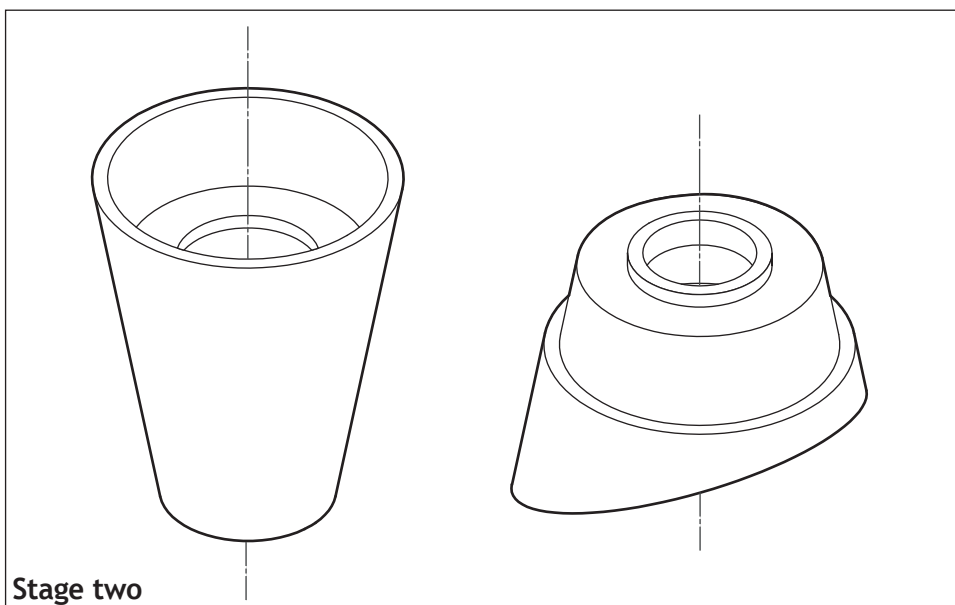
- (e) Indicate by **shading** the relevant **surfaces** and state using 3D CAD terms how you would insert the lid into the body.

3

Stage one has been shaded for you.



Constraint used



Constraint used



4. A company has designed a range of eco lodges as part of its new holiday park accommodation. The graphic designer produced a flyer detailing the range. The final design is shown below.

Graphics for a construction project fall into 3 main types: *Preliminary, Production and Promotional*.

- (a) (i) State, from the list given above, the **type** of graphic shown below. 1

- (ii) Describe the purpose of this type of graphic. 1



- (b) Name the desk top publishing techniques indicated on the final design shown above.

- (i) _____ 1

- (ii) _____ 1

- (iii) _____ 1

- (iv) _____ 1

- (v) _____ 1



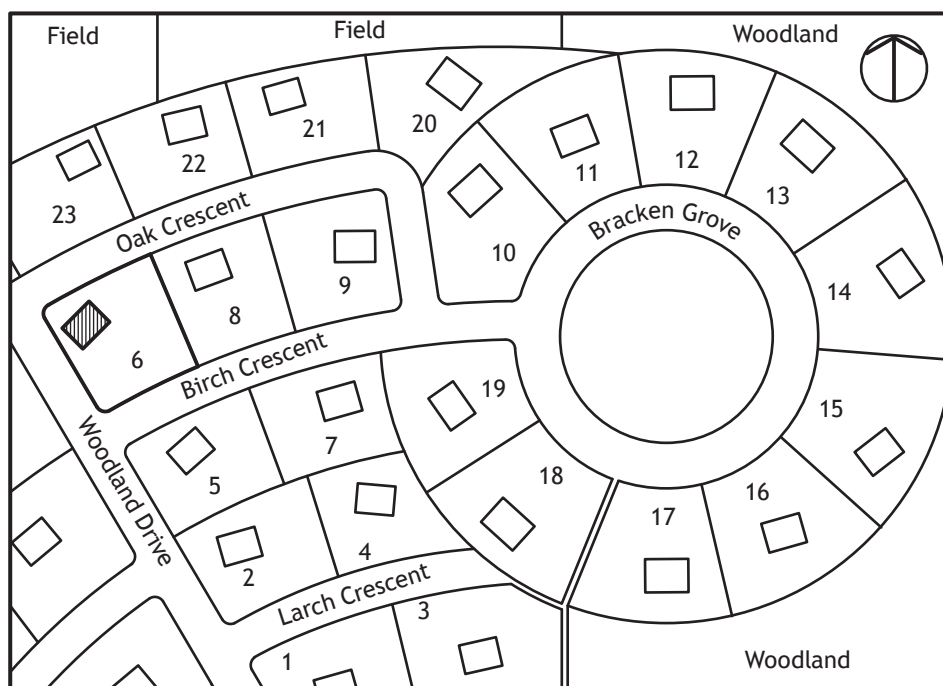
4. (continued)

A 3D rendered illustration of the lodge was required for the flyer. The company had this illustration produced by a CAD technician in another country.

- (c) Describe two advantages that **remote working** offers to the company.

2

A plan of the holiday park was drawn up as part of the construction project.



- (d) (i) State the name of the plan type shown.

1

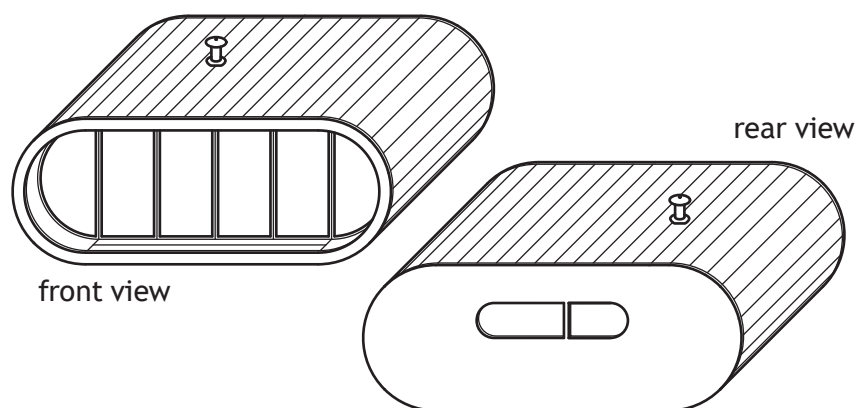
- (ii) State a scale that is commonly used for this plan type.

1



4. (continued)

The CAD technician produced pictorial line drawings of the front and rear of the lodge.



- (e) (i) State the type of pictorial line drawings shown above.

1

- (ii) Explain why this type of view would be used.

1

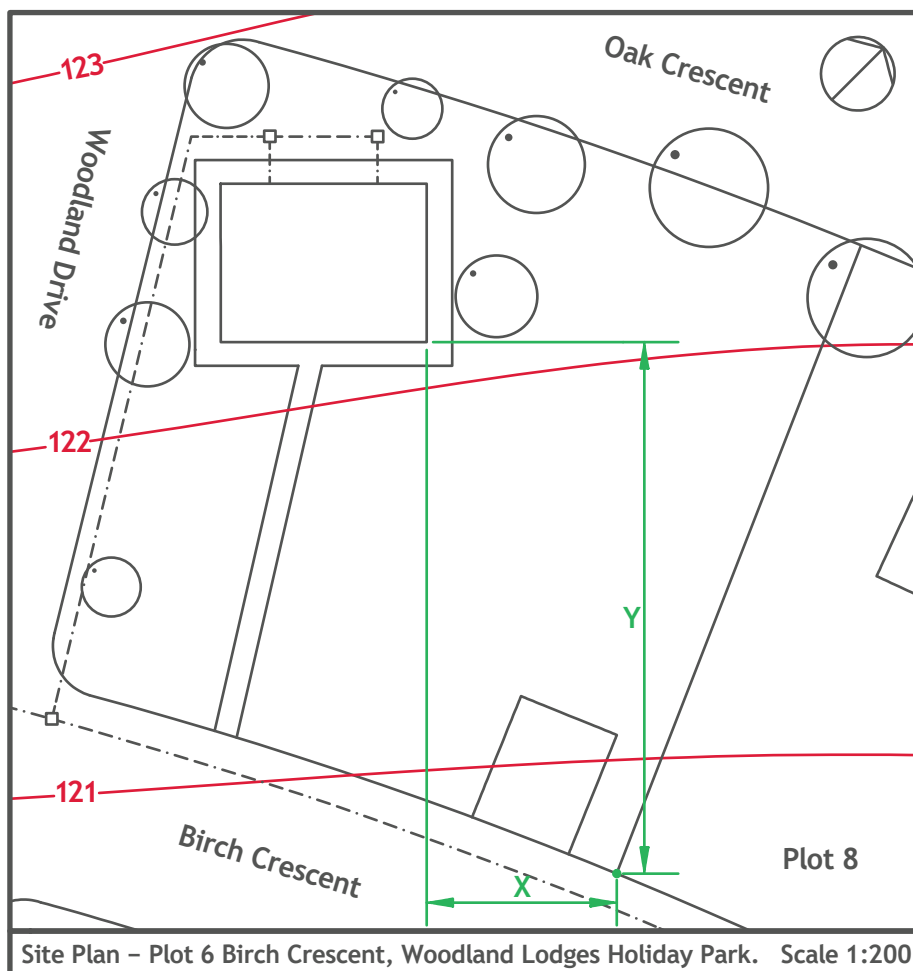
[Turn over



* S 8 3 5 7 5 0 1 1 9 *

4. (continued)

The CAD technician produced a site plan as part of the construction project and wishes to calculate the position of the lodge in relation to the plot boundary. The front of the lodge faces onto Birch Crescent.



(f) Calculate, using the scale shown, the following distances.

(i) Distance X _____ Metres

1

(ii) Distance Y _____ Metres

1

(g) Identify the features drawn in red on the site plan.

1

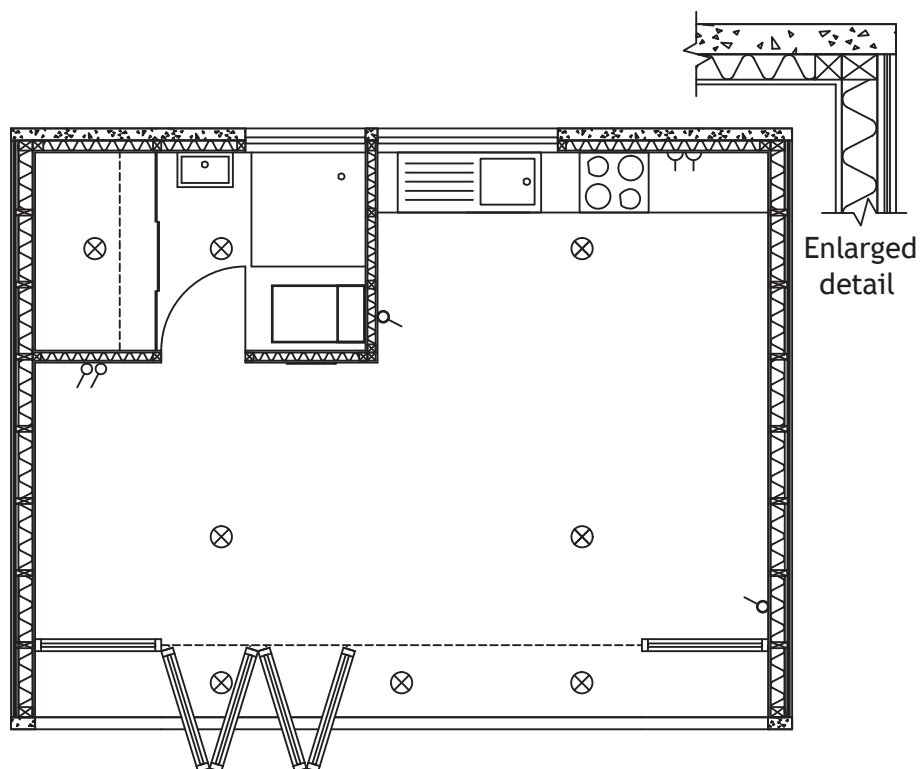
(h) State the direction that the front of the lodge faces.

1



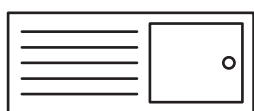
4. (continued)

The CAD technician produced a floor plan and enlarged detail of the lodge.

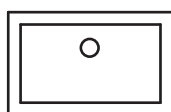


(i) Name the building drawing symbols shown below.

4









[Turn over

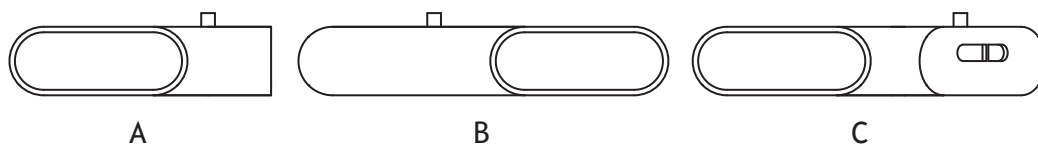


* S 8 3 5 7 5 0 1 2 1 *

4. (continued)

In addition to its standard lodge, the company offers a premium range of lodges. These use modular components that allow the owners to create their own unique layout.

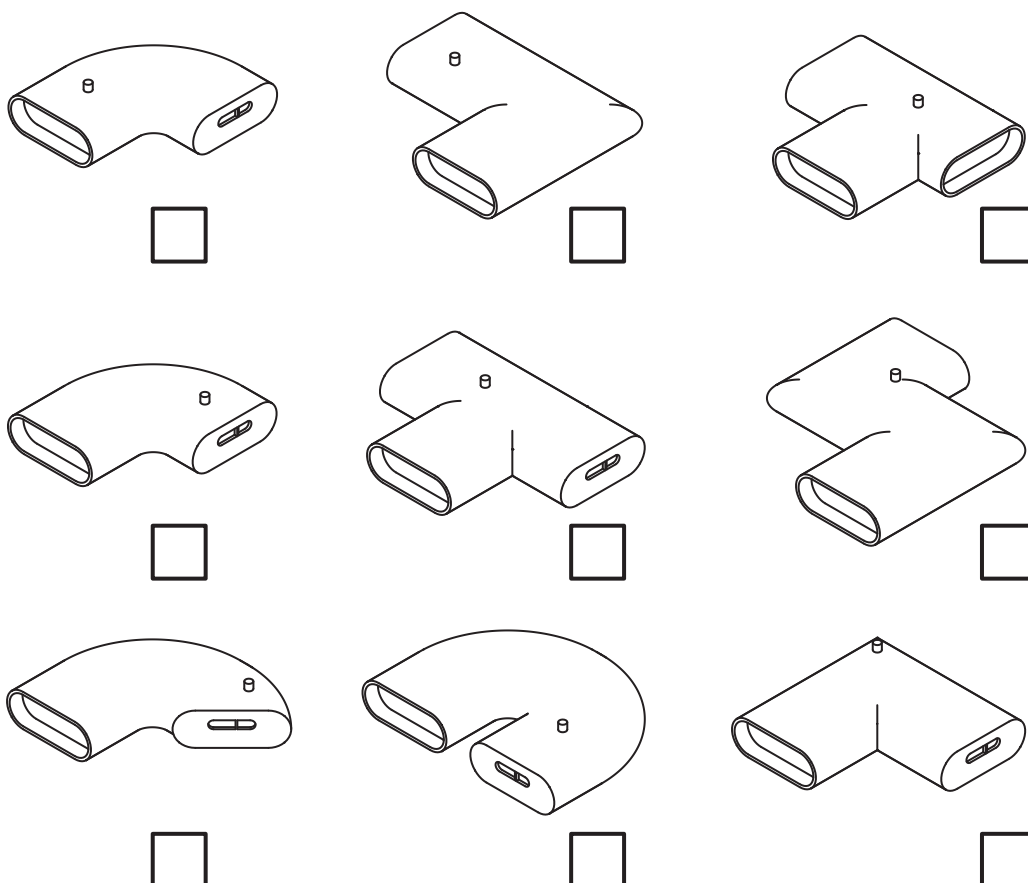
Elevations for three different lodge designs, A, B, and C are shown below.



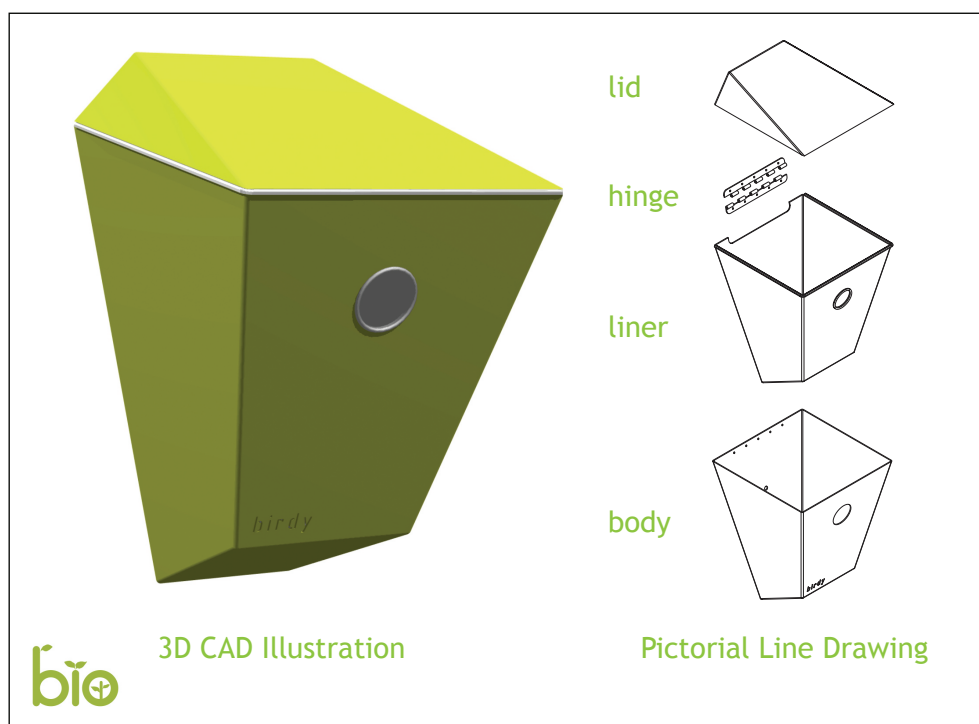
- (j) Identify the correct pictorial view for each of the elevations above by marking **A**, **B** or **C** in the appropriate box below. You should select only one pictorial for each of the elevations.

3

There is only one correct answer for each elevation.



5. A new type of bird box is produced by an environmentally conscious retailer. The lid and body are made from sheet metal. A CAD technician produced the rendered 3D CAD illustration and the pictorial line drawing shown below.



- (a) State two reasons why the CAD technician would have produced the rendered 3D CAD illustration shown above.

2

- (b) State the type of pictorial line drawing shown above.

1

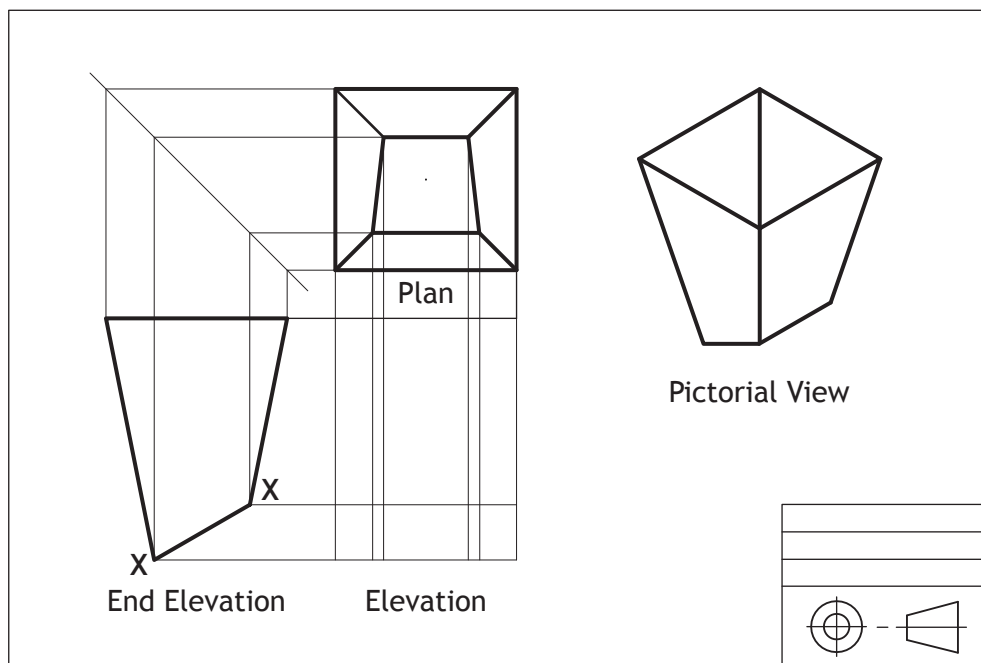
- (c) Describe one advantage that the pictorial line drawing has over the 3D CAD illustration.

1

[Turn over

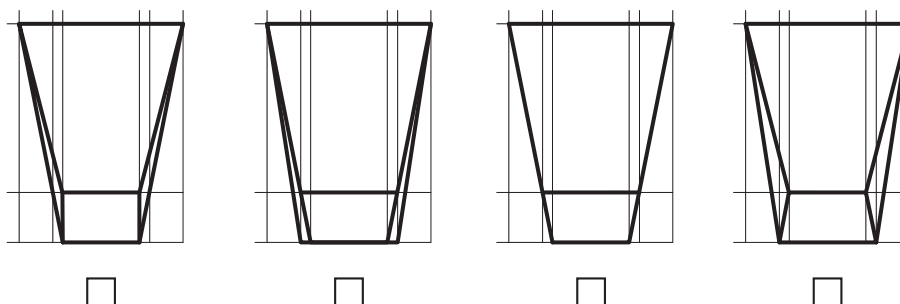
5. (continued)

The CAD technician initially created the 3D CAD illustration of the bird box. In preparing for manufacture the CAD technician has been asked to create the orthographic views shown below.



- (d) Identify the correct elevation by ticking a box below. Ignore wall thickness.

1



- (e) State two pieces of information you would find in a title block shown above other than the 3rd angle projection symbol.

2

5. (continued)

Three line types that will be used to complete the 2D CAD drawings to British Standard conventions are shown below.

(f) State the uses of the following line types:

(i) A continuous thick line.

1

(ii) A chain thin double dashed line.

1

(iii) A chain thin line.

1

Prior to manufacture, the CAD technician was asked to produce layouts for cutting the lid and body out of a single sheet of metal.

(g) Explain, in terms of environmental impact, why careful consideration of the layout of multiple parts is important.

1

[Turn over



5. (continued)

A graphic designer was asked to create a 'point of sale' graphic that will be used in retail outlets to promote the bird box. The graphic designer was asked to communicate the environmental qualities of the brand. The finished graphic is shown below.



- (h) Describe two ways that the designer has graphically communicated the environmental qualities of the brand.

2

[END OF SPECIMEN QUESTION PAPER]



MARKS

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ADDITIONAL SPACE FOR ANSWERS



* S 8 3 5 7 5 0 1 2 7 *

ADDITIONAL SPACE FOR ANSWERS

Acknowledgement of Copyright

Question 1 (c) Reference to Bluetooth and the Bluetooth Figure Mark are used in a web page mock-up of a fictional product. Reproduced by kind permission of Bluetooth SIG, Inc.



* S 8 3 5 7 5 0 1 2 8 *



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Graphic Communication Supplementary Sheets

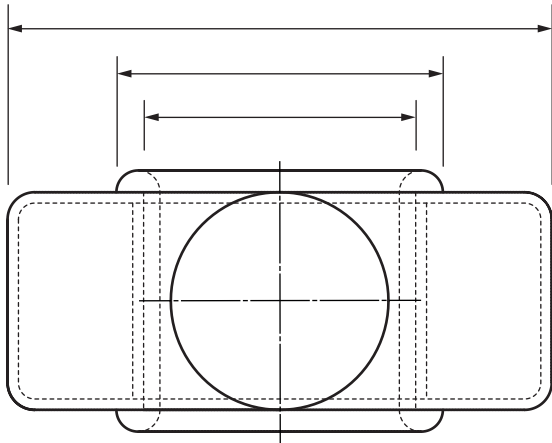
Date — Not applicable

Duration — 2 hours

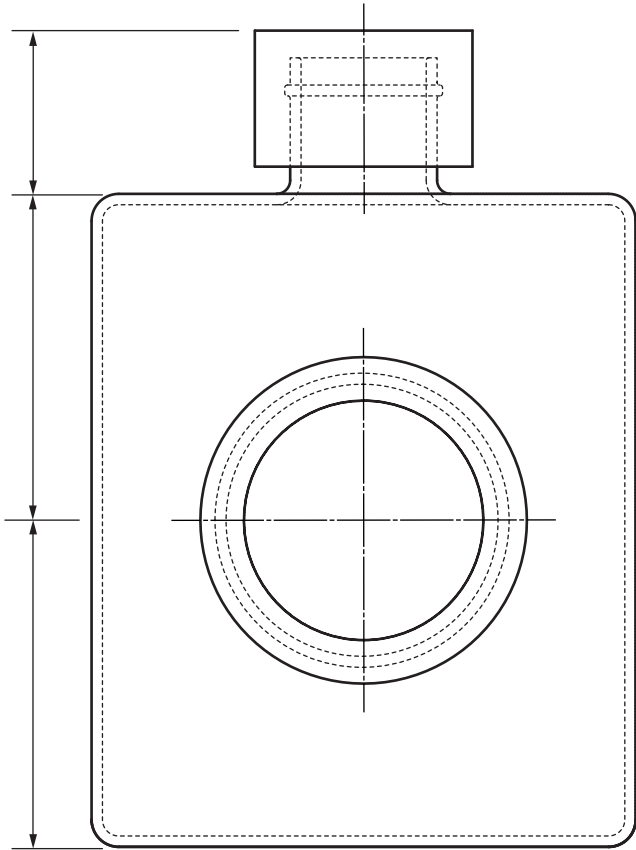
Supplementary sheets for use with questions 2 and 3.



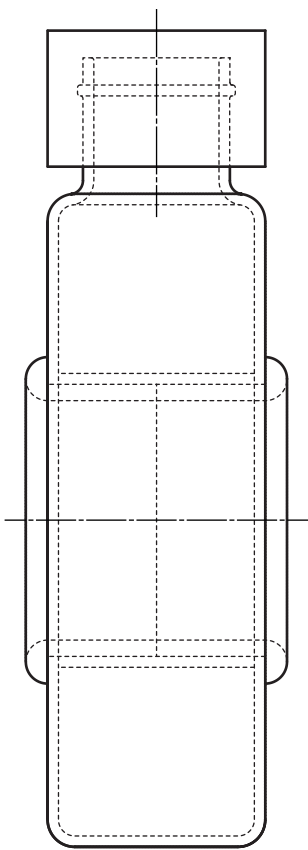
* S 8 3 5 7 5 1 1 *



PLAN

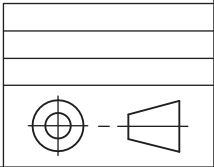


ELEVATION



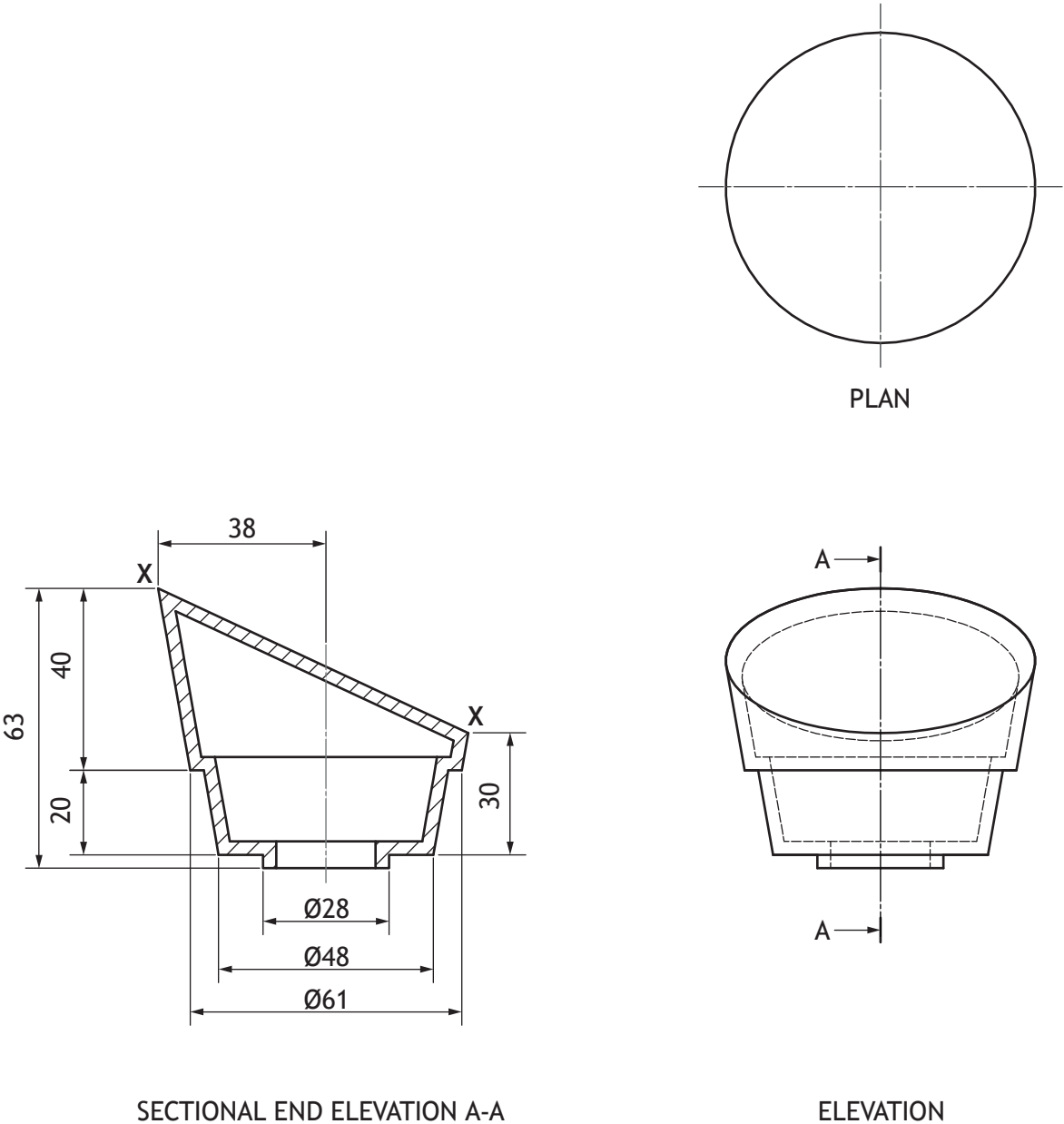
END ELEVATION

Not to scale

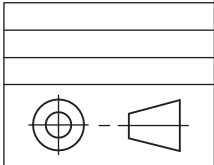


Supplementary sheet for use with questions 3 (a) and (b)

The orthographic drawing for the lid is shown below.



NOTE:
WALL THICKNESS 3MM
HIDDEN DETAIL OMITTED FROM
PLAN FOR CLARITY





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Graphic Communication

Marking Instructions

These marking instructions have been provided to show how SQA would mark this specimen question paper.

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General marking principles for National 5 Graphic Communication

This information is provided to help you understand the general principles you must apply when marking candidate responses to questions in this paper. These principles must be read in conjunction with the detailed marking instructions, which identify the key features required in candidate responses.

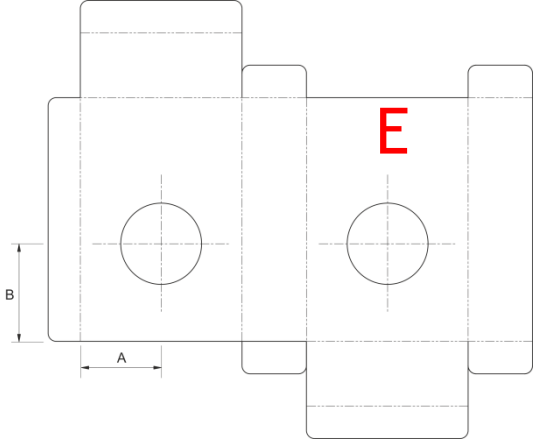
- (a) Marks for each candidate response must always be assigned in line with these general marking principles and the detailed marking instructions for this assessment.
- (b) Marking should always be positive. This means that, for each candidate response, marks are accumulated for the demonstration of relevant skills, knowledge and understanding: they are not deducted from a maximum on the basis of errors or omissions.

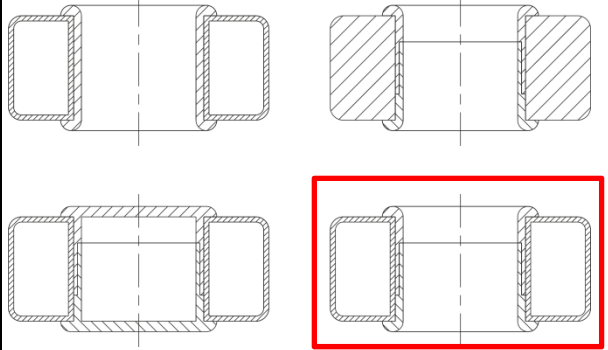
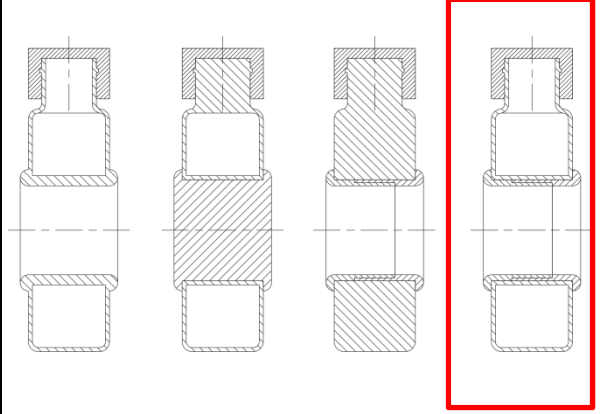
Detailed marking instructions for each question

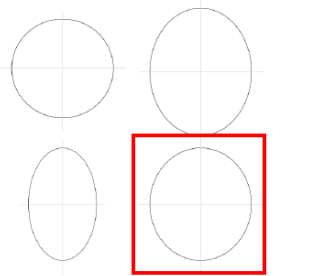
Question			Expected response	Max mark	Additional guidance
1.	(a)		<ul style="list-style-type: none"> • Generate ideas quickly • Generate a range of ideas • Allow for evaluation of ideas • Ideas can be shared with the client 	2	
	(b)		<ul style="list-style-type: none"> • Layer function can be used to overlap elements • Ease of editing • Images can be manipulated • Variety of fonts are available to try • Grid/guide tools can be used to enable accurate alignment of elements • Speed of production • Layouts and files can be sent long distances via email, remote working share with client • Wide range of colour schemes available • Access to a wide range of media • Layout would be more accurate <p>Or any other relevant advantage that is related to the context</p>	3	<p>Do not accept:</p> <ul style="list-style-type: none"> • Easier to produce • Environmental type responses
	(c)		<ul style="list-style-type: none"> • Creates unity • Green colour has a calming effect • Harmonises with the blue • Sound wave line relates to the product • Contrasting wave against horizontal lines creates visual impact • Depth created by wave line • Depth created by gaps in straight lines • Use of line leads the eye across whole page 	2	

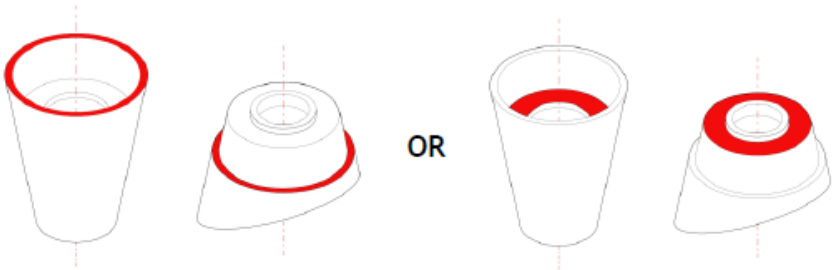
Question			Expected response	Max mark	Additional guidance
	(d)	(i)	Depth: <ul style="list-style-type: none"> Overlapping of various elements Faded background image appears further away Drop shadow on the pictorial gives illusion of depth 	2	Candidates should provide two distinct examples OR One example with a detailed explanation
		(ii)	Dominance: <ul style="list-style-type: none"> Focal point is created by large exploded view Bold and capitalised text Faded image recedes and makes the exploded view more dominant (2 marks for identification and justification) Smaller images are scaled down to make the focal point more dominant (2 marks for identification and justification) 	2	Candidates should provide two distinct examples OR One example with a detailed explanation
		(iii)	Alignment: <ul style="list-style-type: none"> Vertical alignment of heading with other written content makes the layout feel organised and structured (2 marks for identification and justification) Horizontal/central alignment of heading with small icons and/or horizontal green line also makes the page appear structured and organised (2 marks for identification and justification) Horizontal alignment of Bluetooth logo with green line/text Top of green wave aligned with bottom of speaker Bottom of speaker aligned with bottom of green wave Alignment of text elements on left hand side of page 	2	Candidates should provide two distinct examples OR One example with a detailed explanation Any response must make the relationship between separate items
	(e)		<ul style="list-style-type: none"> Transparency has been used to make sure the background graphic does not distract from the main focus of the promotional item To make the speaker stand out more 	1	
	(f)		<ul style="list-style-type: none"> The line/image/wave runs off the edge of the advert The image overlaps the side/edge of the advert/webpage 	1	

Question			Expected response	Max mark	Additional guidance
	(g)		<ul style="list-style-type: none"> • No ink would be used • No paper would be used • No surplus of posters would be wasted • No transport required to take posters around the country/world • Only consumers interested in the product would use a webpage <p>Any other relevant environmental benefit</p>	2	Two marks should be awarded where candidates have provided a very detailed and in-depth response on one point

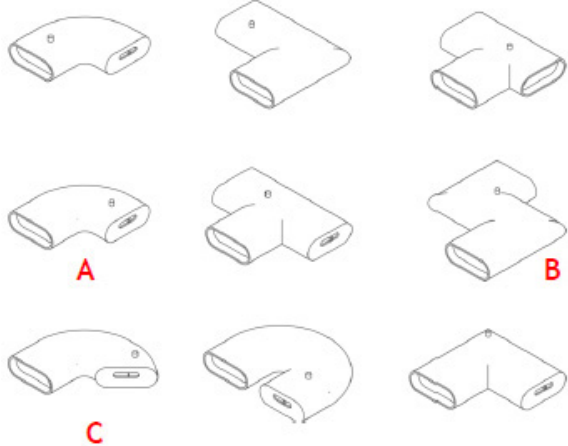
Question			Expected response	Max mark	Additional guidance
2.	(a)		<ul style="list-style-type: none"> • Make packaging from recyclable/biodegradable materials • Make packaging from recycled materials • Reduce the amount of material used for packaging • Environmentally friendly inks • Limit amount of ink being used • Reusable packaging • Highlight recyclability of materials • Efficient layout of multiple parts when manufacturing 	2	
	(b)			1	
	(c)	(i)	40mm	1	
		(ii)	50mm	1	
	(d)		<ul style="list-style-type: none"> • Size of media • Size of object • Level of detail • Drawing type 	1	
	(e)	(i)	Chain dimensioning	1	
		(ii)	Parallel dimensioning	1	

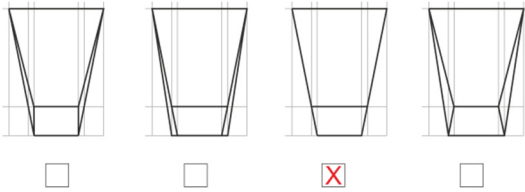
Question			Expected response	Max mark	Additional guidance
	(f)			1	
	(g)			1	

Question		Expected response	Max mark	Additional guidance
3.	(a)	<p>Revolve approach:</p> <ol style="list-style-type: none"> 1. Initial profile (1 mark) correctly dimensioned (1 mark) 2. Revolve (1 mark) 3. Dimensioned and correctly positioned angled profile (1 mark) 4. Subtraction of all appropriate material (1 mark) 5. Shell, 3mm wall thickness and remove correct face (underside) (1 mark) <p>Extrusion approach:</p> <ol style="list-style-type: none"> 1. $\varnothing 28$ circle, extrude 3mm (1 mark) 2. $\varnothing 48$ circle, taper extrude 20mm (1 mark) 3. $\varnothing 61$ circle, taper extrude 40mm (1 mark) 4. Dimensioned and correctly positioned profile (1 mark) 5. Subtraction of all appropriate material (1 mark) 6. Shell, 3mm wall thickness and remove correct face (underside) (1 mark) <p>NB Taper angle not required</p> <p>Loft approach:</p> <ol style="list-style-type: none"> 1. $\varnothing 28$ circle, extrude 3mm (1 mark) 2. $\varnothing 48$ loft to $\varnothing 55$, 20 mm between profiles (1 mark) 3. $\varnothing 61$ loft to $\varnothing 76$, 40mm between profiles. (1 mark) 4. Dimensioned and correctly positioned profile (1 mark) 5. Subtraction of all appropriate material (1 mark) 6. Shell, 3mm wall thickness and remove correct face (underside) (1 mark) 	6	
	(b)		1	

Question		Expected response	Max mark	Additional guidance
	(c)	Draw 2 arcs - 1 mark (must use term 'arc') - 1 mark Vertical & horizontal lines to join up profile - 1 mark Mirror & axis (single profile) (top) - 1 mark Mirror & axis (two profiles) (bottom) - 1 mark	4	
	(d)	Modelling Tree edit that moves shell (1 mark) command after the extrude command in the modelling tree, (1 mark)	2	
	(e)	Centre axis - 1 mark Shading of appropriate surface - 1 mark  <p>OR</p> Mate - 1 mark	3	

Question			Expected response	Max mark	Additional guidance
4.	(a)	(i)	Promotional	1	
		(ii)	<ul style="list-style-type: none"> Used to promote the product, company, service Provide potential customers with an idea of what the finished construction project will look like They can appear 'less technical' than production drawings They tend to be more easily understood than production drawings 	1	
	(b)	(i)	Reverse	1	
		(ii)	Transparency	1	
		(iii)	Sub-heading	1	
		(iv)	Body text/column	1	
		(v)	Footer	1	
	(c)		<ul style="list-style-type: none"> Easy to send electronically to relevant people Easy to collaborate with more people in different locations Allows 24 hour working globally Option to work at different locations other than their own office Reduction in need to travel 	2	
	(d)	(i)	Location plan	1	
		(ii)	1:1250	1	
	(e)	(i)	Oblique OR cabinet oblique	1	
		(ii)	<ul style="list-style-type: none"> It is the preferred option when there are circles or radii involved in the front view - as is the case with the lodge Ability to show an accurate elevation but also giving the impression of 3D form 	1	

Question			Expected response	Max mark	Additional guidance
	(f)	(i)	$X = 5 \text{ Metres}$	1	
		(ii)	$Y = 14 \text{ Metres}$	1	
	(g)		Contour Lines	1	
	(h)		South East	1	
	(i)		Sinktop Switch Wash basin Lamp	4	
	(j)			3	

Question			Expected response	Max mark	Additional guidance
5.	(a)		Any 2 answers from the following: <ul style="list-style-type: none"> • The graphic can be used for promotional/marketing reasons • The graphic can aid discussions with the client prior to manufacture • This type of graphic is more universally understood • This type of graphic is more easily understood by non-technical people • Provides a realistic representation of the product 	2	Do not accept: 'How the product looks'
	(b)		Exploded isometric view.	1	
	(c)		Any one from: <ul style="list-style-type: none"> • This type of graphic is more informative than the 3D CAD illustration • It lets the viewer see how the product is assembled • It lets the viewer see all the component parts of the product 	1	
	(d)			1	
	(e)		Any two from: <ul style="list-style-type: none"> • Project title • Name of draughtsperson • Start date/completion date or print date • Scale • Drawing number/sheet number • Dimensional tolerances • Dimensional units used • Document/drawing type 	2	

Question			Expected response	Max mark	Additional guidance
	(f)	(i)	Visible outlines and edges	1	Accept 'outline'
		(ii)	Bend lines/fold lines	1	
		(iii)	Centre lines	1	
	(g)		Any answer which details a reduction of waste materials or environmental concerns	1	
	(h)		Any two from: <ul style="list-style-type: none"> • Use of natural textures such as the grass • Green colour scheme is instantly recognisable with eco products • Colour green is recognisable as being linked to nature, outdoors and similar connotations • Brown 'natural' background/printed on brown 'natural' paper • Printed on brown paper • Logo directly references nature/natural environment • Amount of ink used has been kept to a minimum (lots of white space/line drawing uses less) 	2	Mark should only be awarded for reference to slogan if it is regarding colour choice

[END OF SPECIMEN MARKING INSTRUCTIONS]

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Change since last published:

Addition to front cover: 'You may use a calculator.'