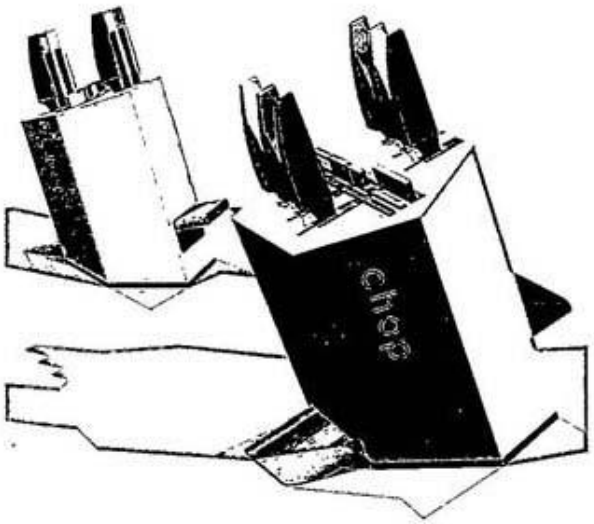
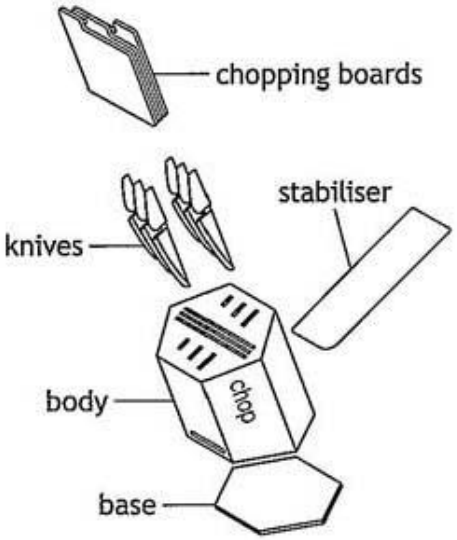
Candidate 3 evidence

Total marks — 80

Attempt ALL questions

1. A knife and chopping board storage system is shown below. The body is made from sheet metal. A CAD technician produced the rendered 3D CAD illustration and the pictorial line drawing shown below.





A 3D CAD model rather than a physical model of the storage system was created during the development stage.

(a) State two reasons why a 3D CAD model was more suitable than a physical model. 2

- You can edit it, when it's needed to be suited.
- It's a faster, more accurate way to produce a model.

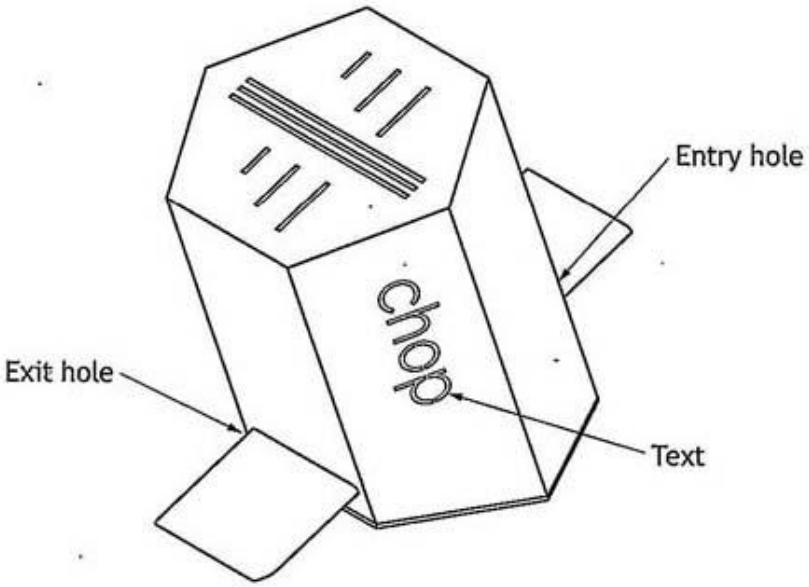
To produce the CAD model the CAD technician was given information about the storage system. One dimension stated: A/F 300mm.

(b) State the meaning of A/F. 1

British standard

1. **(continued)**

The CAD technician has been asked to produce an appropriate surface development for the storage system and identify where key features will be placed.

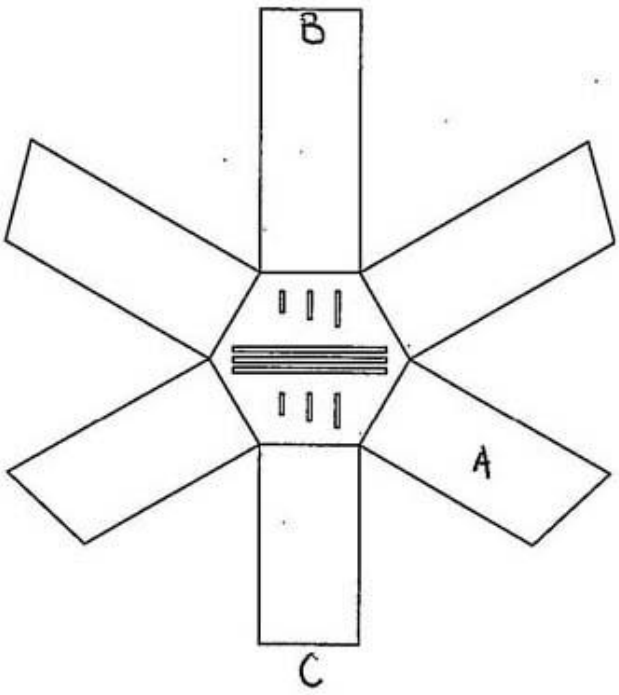


(c) Indicate, on the graphic below, where the Text, Entry hole and Exit hole would be located. 3

Use **A** to indicate on the panel where the Text would be located.

Use **B** to indicate on the panel where the Entry hole would be located.

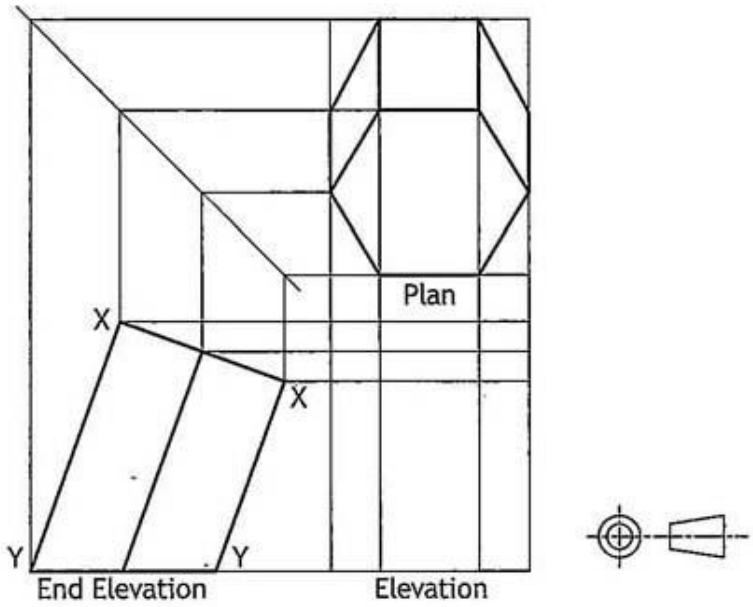
Use **C** to indicate on the panel where the Exit hole would be located.



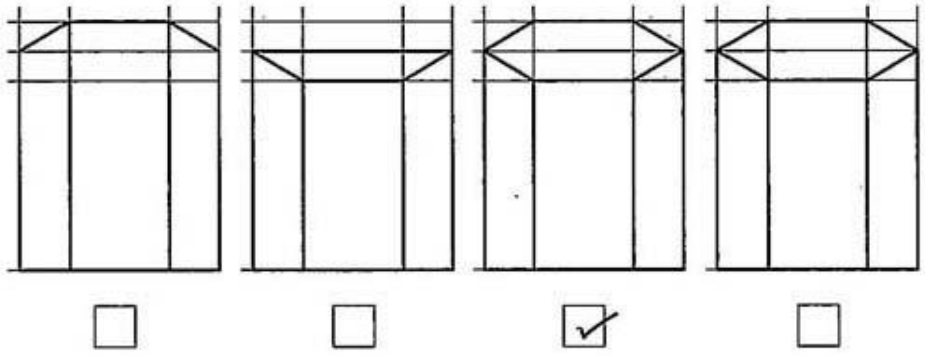
1. (continued)

To aid the production of the storage system the CAD technician was asked to complete the orthographic drawing shown below.

Hidden detail and slots removed for clarity.

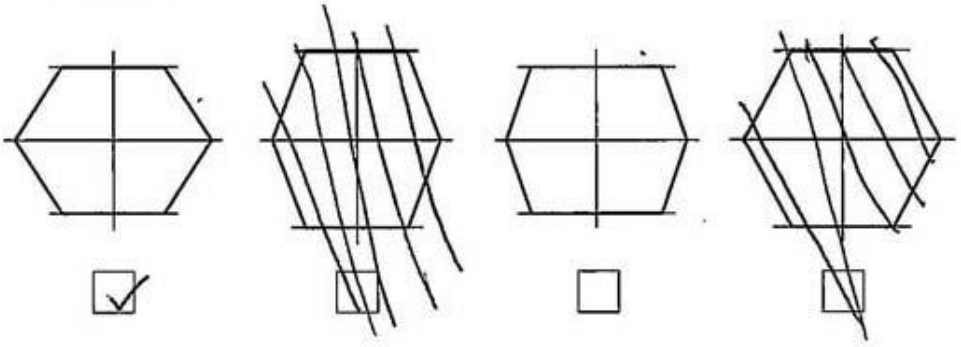


(d) Identify, using a tick (✓), the correct elevation. Ignore wall thickness. 1



A true shape of surface X–X was required.

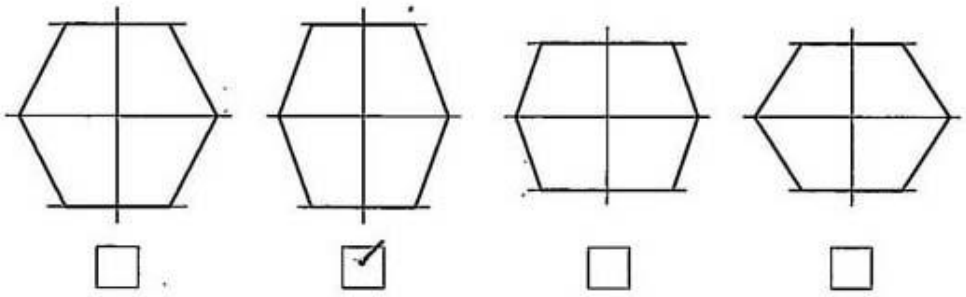
(e) Identify, using a tick (✓), the correct true shape. Use a ruler or trammel to measure. 1



1. (continued)

A true shape of surface Y–Y was required.

(f) Identify, using a tick (✓), the correct true shape. Use a ruler or trammel to measure. 1



1. **(continued)**

The CAD technician was then asked to provide surface developments of the body of the knife block, without the top.

(g) Identify the two correct surface developments, shown opposite, of the knife block when opened out at surface generators 'A' and 'B'.

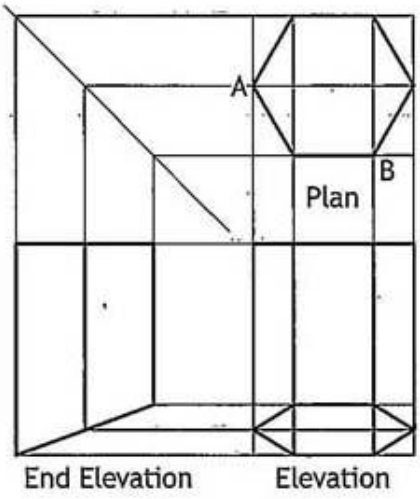
You should refer to the orthographic drawing below.

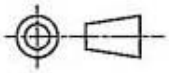
(i) When opened out at generator A, the correct surface development is view. 1

4 *Insert number*

(ii) When opened out at generator B, the correct surface development is view. 1

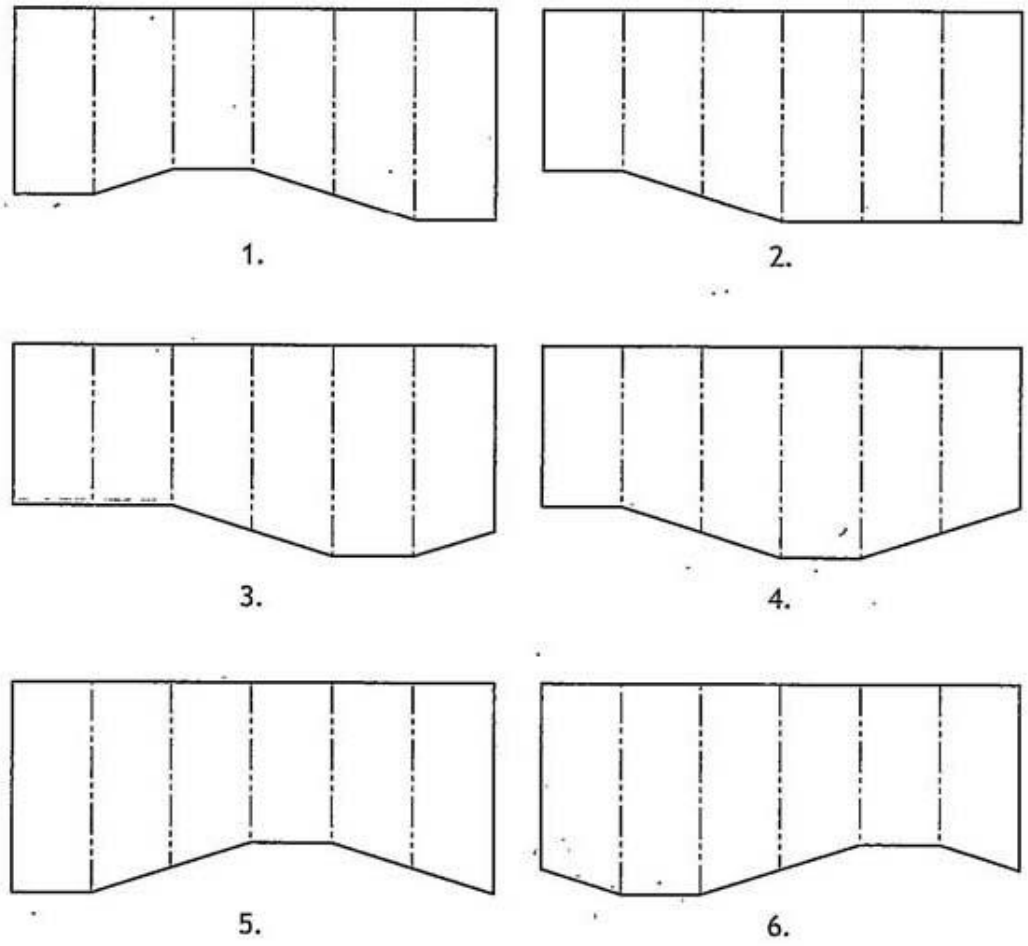
1 *Insert number*





1. **(continued)**

The range of surface developments are show below.



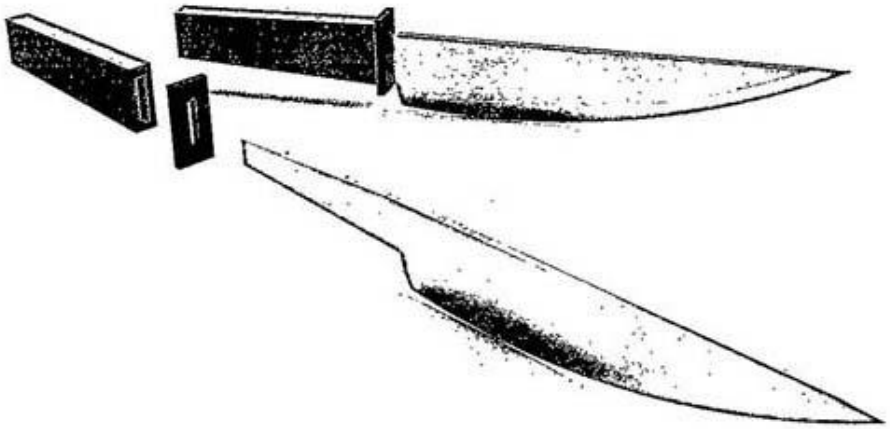
A number of the knife blocks are to be produced from a single sheet of material.

(h) Explain, in terms of environmental impact, why it is important to carefully consider the layout of multiple parts. **1**

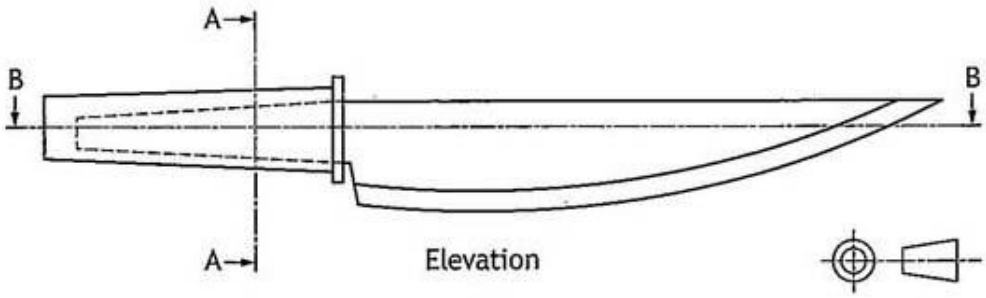
To make sure that when things are built they are animal safe

1. **(continued)**

(i) A knife set to complement the knife block is to be produced. Rendered pictorials and orthographic views of one knife are shown below.

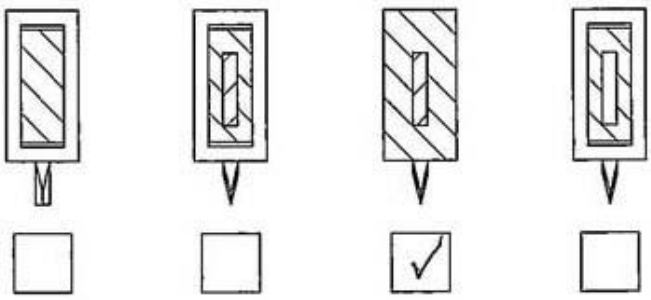


Plan



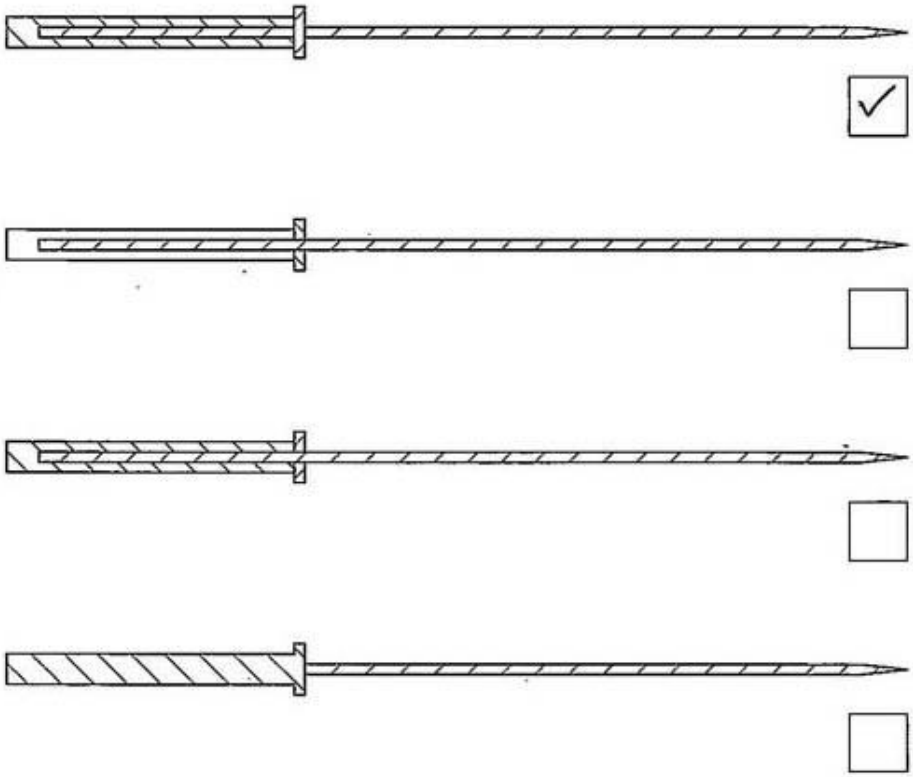
Elevation

(i) Identify the correct sectional end elevation A-A by ticking (✓) a box below. 1

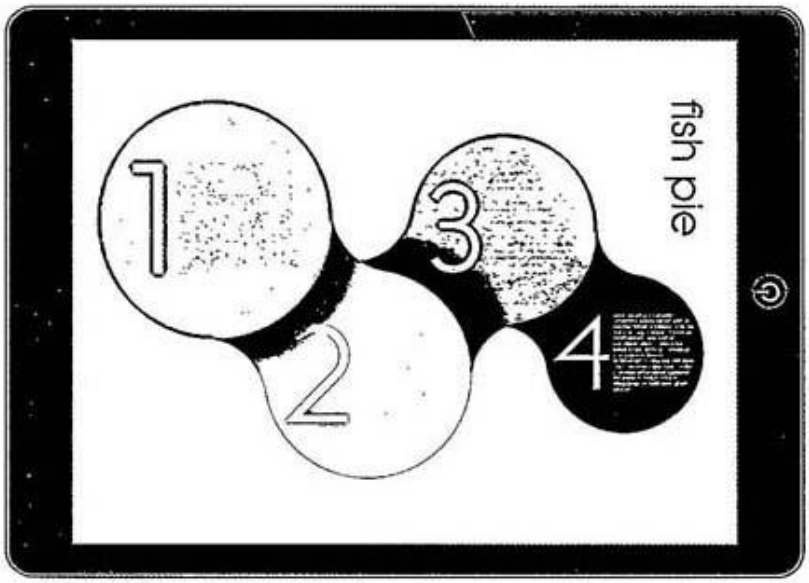


1. (i) (continued)

(ii) Identify the correct sectional plan **B-B** by ticking (✓) a box below. 1



2. A recipe app has been produced. The graphic artist was asked to ensure that the graphic layout was easy to follow.



(a) Describe three ways, other than the numbering system, that the graphic artist has graphically communicated the **sequence** of the recipe shown above. 3

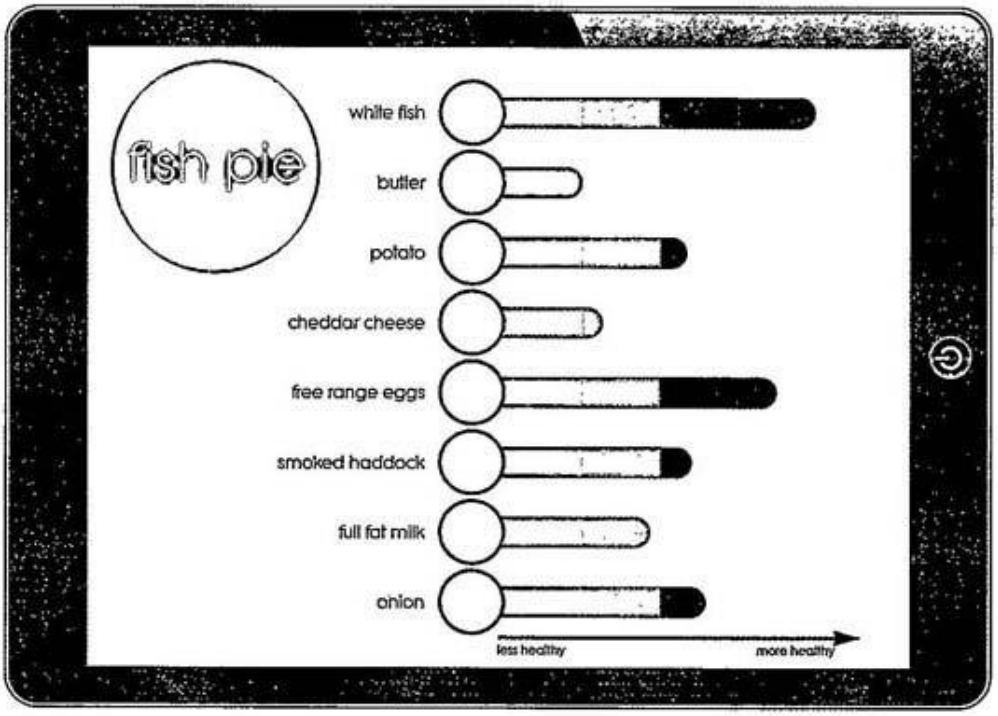
First of all he has used numbers to make sure that they know what order it goes in. The he has used colours to show each step out carefully. He has joined them together by using shapes to identify the different information.

(b) Describe two benefits that producing a recipe app, rather than physically printing a recipe book, would have for the environment. 2

It would use less paper, saving more trees. Use less ink which can harm things. Allow trees to grow.

2. (continued)

The app also contains an additional feature that analyses individual ingredients and calculates the overall health rating of the recipe.



(c) Name the type of graph or chart that was used in the graphic shown above. 1

Bar graph

(d) Describe one way that the graphic artist has graphically communicated the health rating of the individual ingredients. 1

He has used the colour green which associates with vegeables

2. (continued)

Two different sets of statistics that have been provided are shown below.

Statistics A	
Nutritional Data – Nuts	
Cashew	170 Calories, 13g Fat, 8g Carb, 5g Protein, 1g Fibre
Hazelnut	180 Calories, 18g Fat, 4g Carb, 4g Protein, 2g Fibre
Peanut	170 Calories, 14g Fat, 6g Carb, 7g Protein, 2g Fibre
Walnut	210 Calories, 20g Fat, 6g Carb, 5g Protein, 2g Fibre

Statistics B	
Healthy diet plan	
Fruit and Vegetables	33%
Carbohydrates	33%
Protein	12%
Milk and Dairy	15%
Fats and sugars	7%

(e) (i) State the most suitable type of informational graphic to present the data shown in **Statistics A**. 1

Table

(ii) Explain why this is an appropriate type of informational graphic to present. 1

It has many columns that allow you to clearly provide the correct information

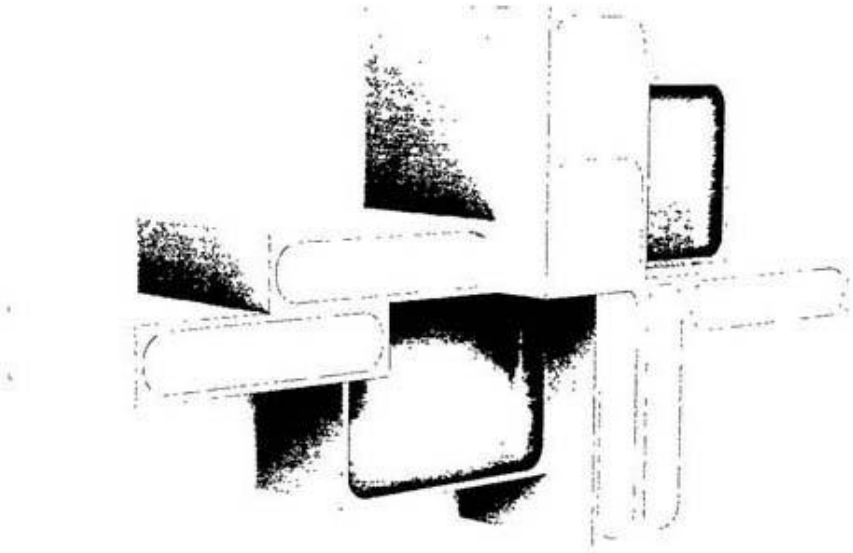
(f) (i) State the most suitable type of informational graphic to present the data in **Statistics B**. 1

Bar ~~line~~ Graph

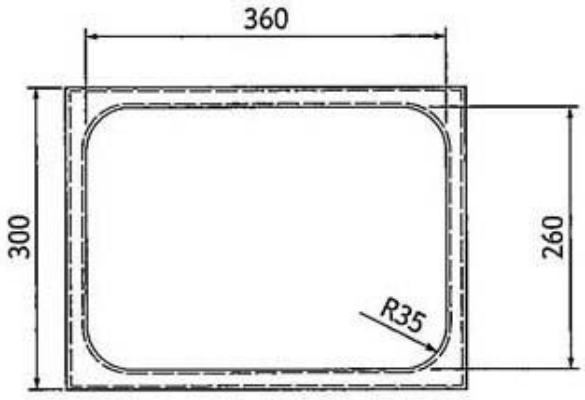
(ii) Explain why this is an appropriate type of informational graphic to present. 1

shows that clearly what a healthy diet should maintain

3. A modular lighting system is shown below. There are three sizes of coloured lighting pods that can be arranged in a variety of ways. A rendered 3D CAD illustration is shown below.

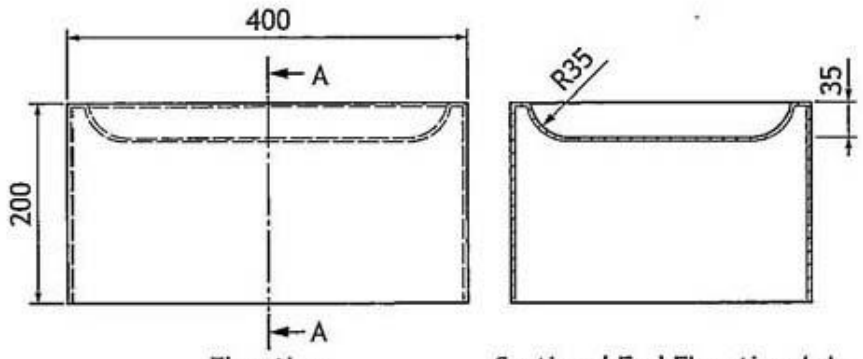


An orthographic drawing of one of the orange lighting pods is shown below.



Plan

Please note:
Wall thickness = 3 mm



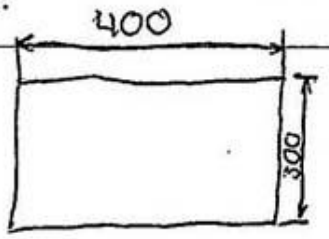
Elevation

Sectional End Elevation A-A

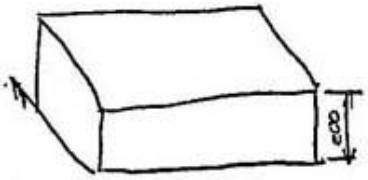
3. (continued)

(a) Describe, using the correct dimensions and 3D CAD modelling terms, how you would use 3D CAD software to model the orange lighting pod. You may use sketches to support your answer. 6

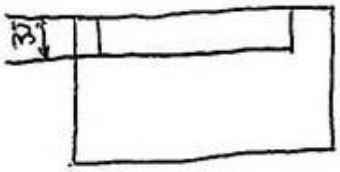
1) Draw a rectangle



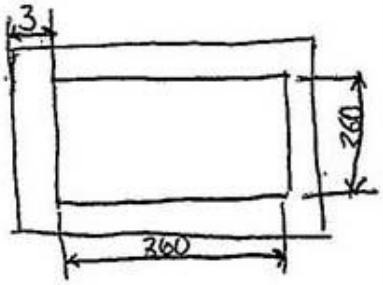
2) Extrude the rectangle by 200mm.



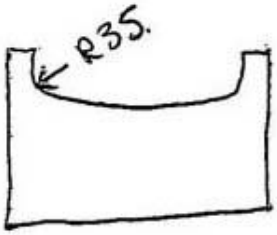
4) Take the extruded rectangle tap on the surface and subtract by 35mm.



3) Wall thickness should be 3mm draw a rectangle.

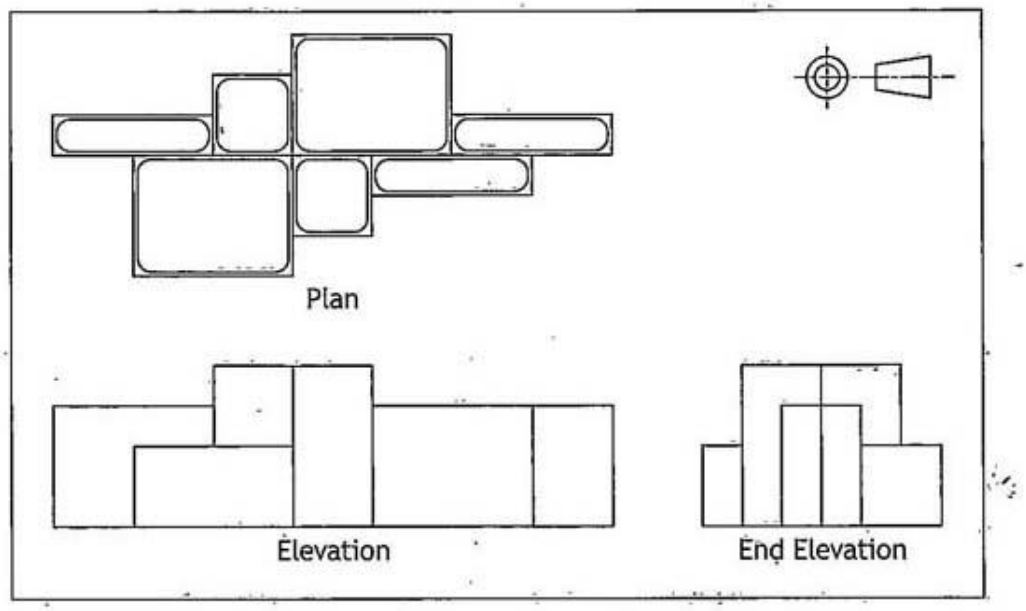


5) Fillet the four sides of the inner rectangle At R35.



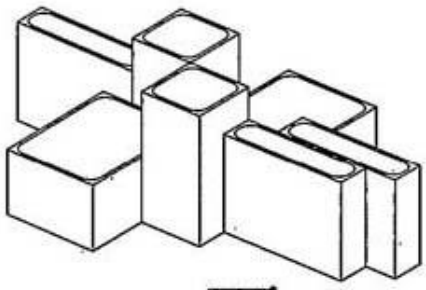
3. (continued)

Orthographic assembly views of an arrangement of the lighting system are shown below. Hidden detail removed for clarity.



3. (continued)

(b) Identify, using a tick (✓), the two pictorial assembly drawings that match the arrangement **in the orthographic assembly drawing shown.** 2



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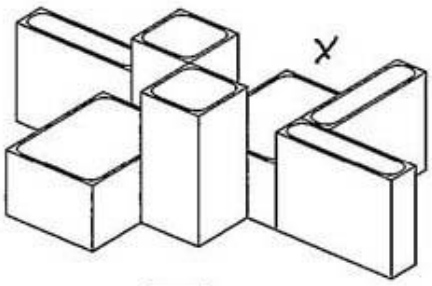

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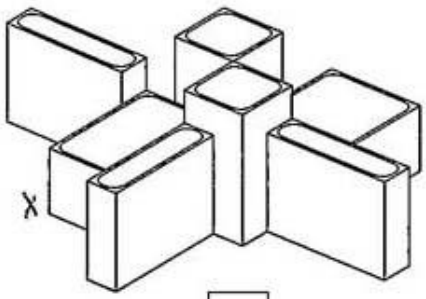

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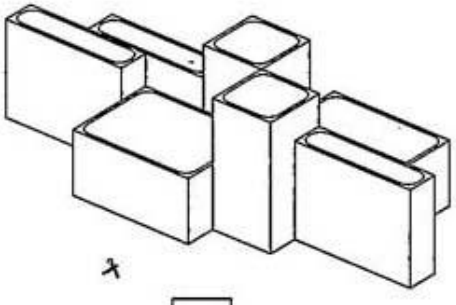

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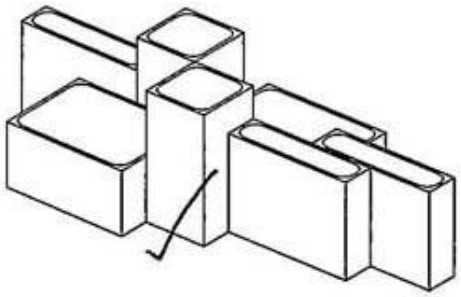

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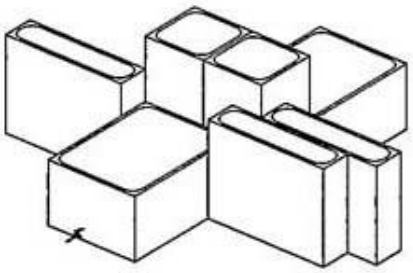
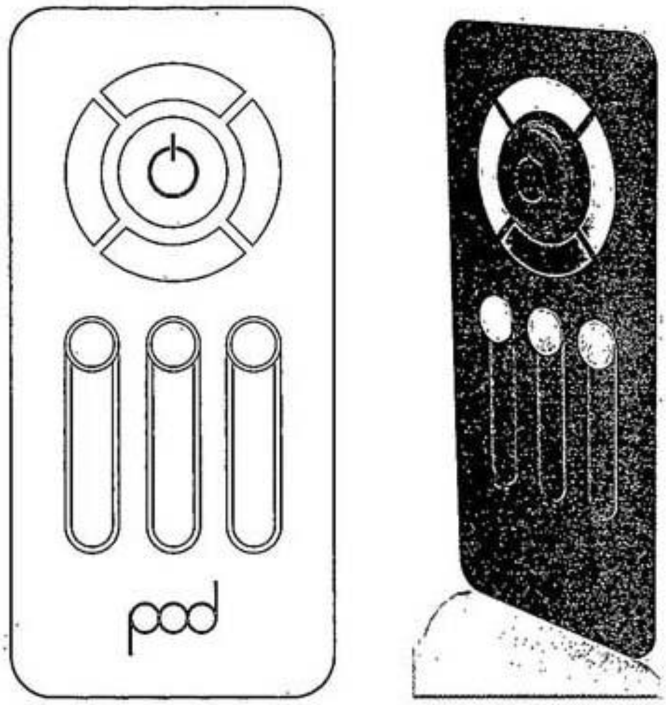


☐

3. (continued)

A 2D CAD line drawing, produced using 2D CAD software, and a 3D CAD model of a control panel for the lighting system are shown below.



2D CAD Line Drawing 3D CAD Model

(c) Explain why the 2D CAD line drawing can be produced more quickly than the 3D CAD model of the control panel. **1**

It doesn't include complex movements such as extruding, fillets, subtraction. You can just create it by taking the 3D CAD and

(d) Describe two benefits of a 3D CAD model over a 2D CAD drawing. **2**

~~It's a fast easy way to complete the rough diagram~~

~~[illegible]~~ → It looks more realistic than the 2D ~~[illegible]~~ CAD.

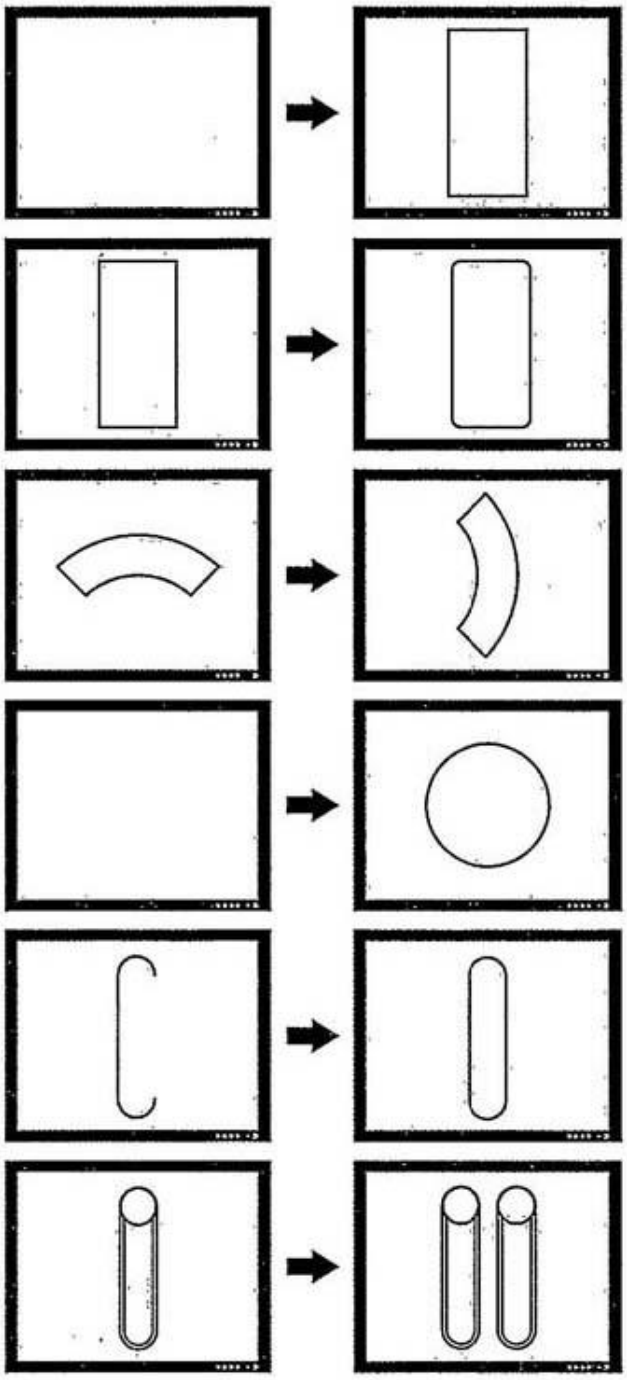
→ ~~You can~~ It's an easier way to see the finished product.

→ It can give you an accurate idea.

3. **(continued)**

To create the features of the control panel a number of 2D CAD tools were used.

(e) State the name of the **single** CAD tool used in **each case.** 6



(i) Tool used
rectangle.

(ii) Tool used
fillet

(iii) Tool used
~~Arc~~ turn

(iv) Tool used
circle

(v) Tool used
line

(vi) Tool used
copy

3. (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 chain thin line 1

to show the centre of a circled object

(ii) A continuous thick line 1

to show the outline of an object

(iii) A long dash dotted thin line, thick at ends. 1

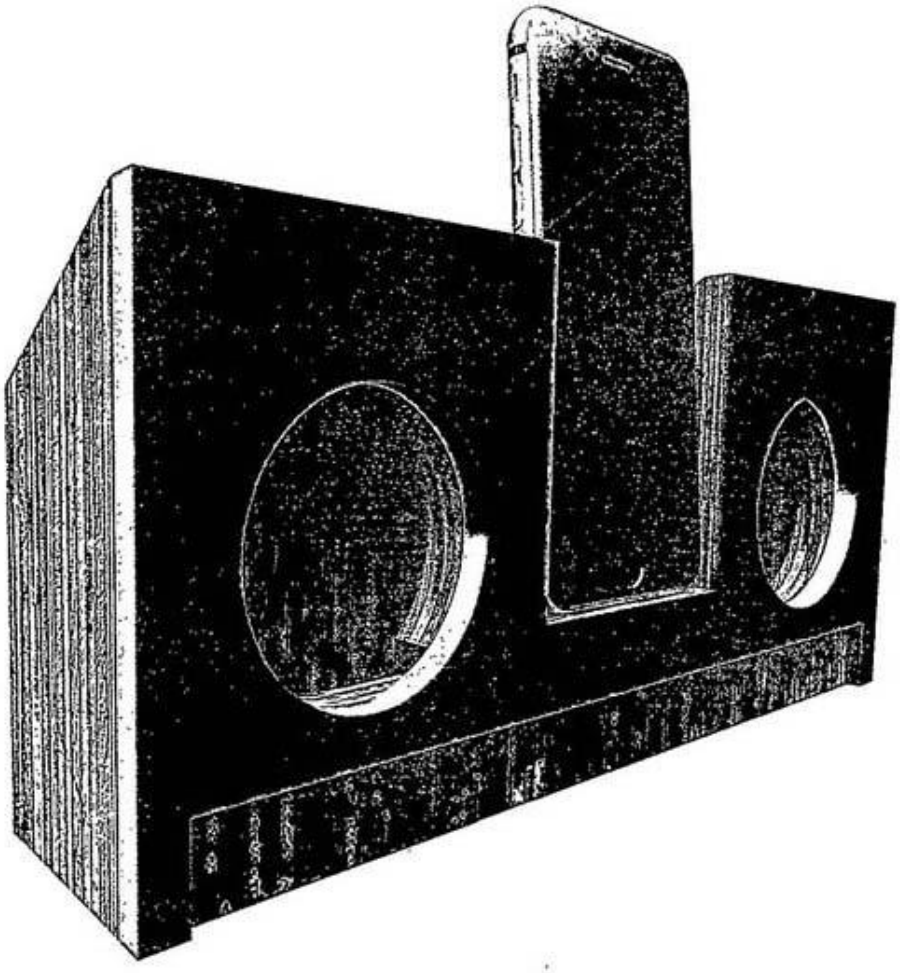
to show where sectional views are

The 2D CAD drawings are to be drawn using a scale.

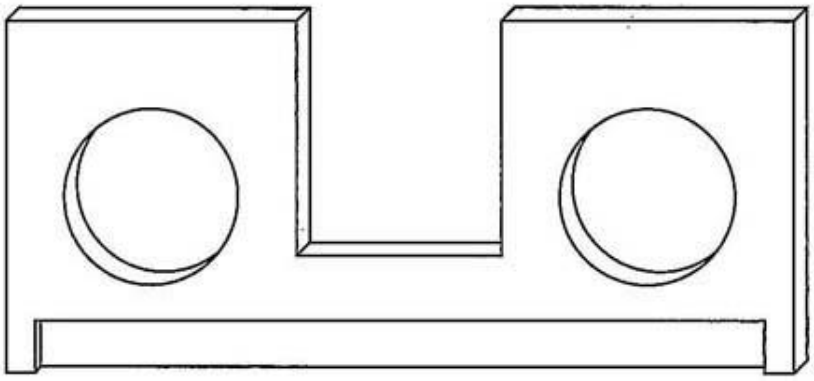
(g) Explain what is meant by the term scale 2:1. 1

2 is the paper size 1 is the real life size

4. A speaker has been designed using 3D CAD software. A rendered illustration is shown below.



A pictorial view of one of the speaker components is shown below.

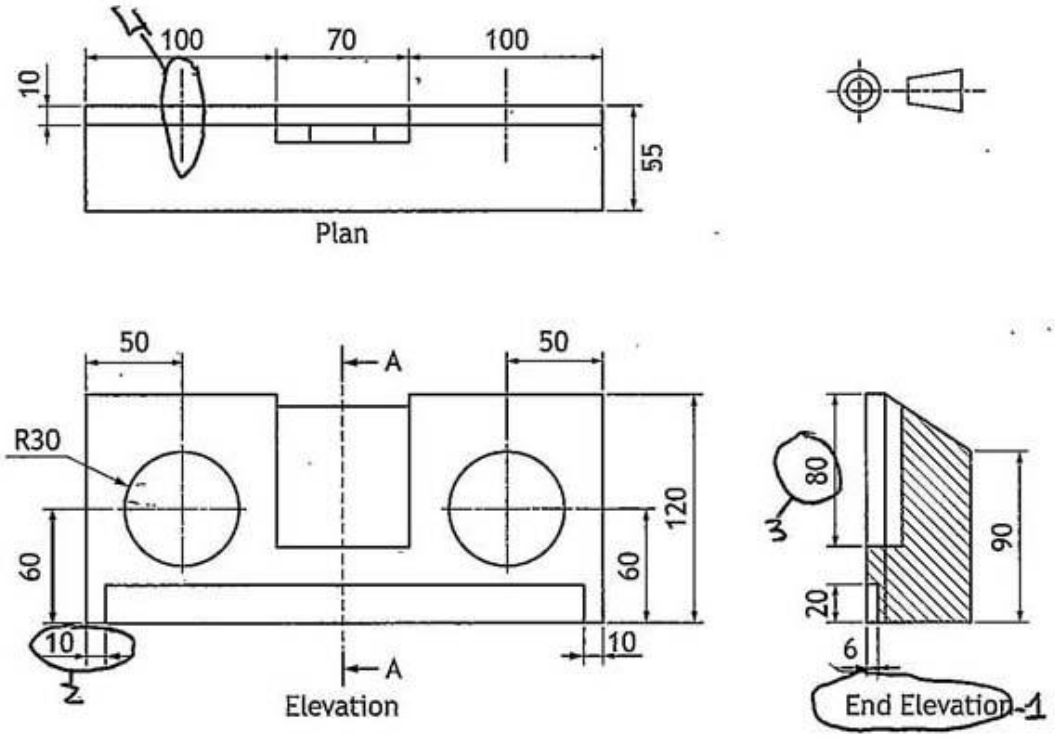


(a) State the type of pictorial view shown above. 1

Isometric Drawing

4. (continued)

A working drawing of the speaker assembly is shown below.



Five pieces of information in the working drawing do not adhere to British Standard conventions.

(b) State the five errors found in this drawing. **5**

You may annotate the orthographic drawing to support your answer.

1- End elevation there is no A-A section viewsign.

2 – do not write below graphics

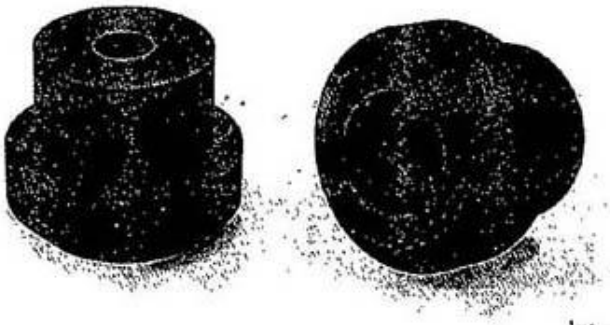
3 – Don't dimension the sectional view

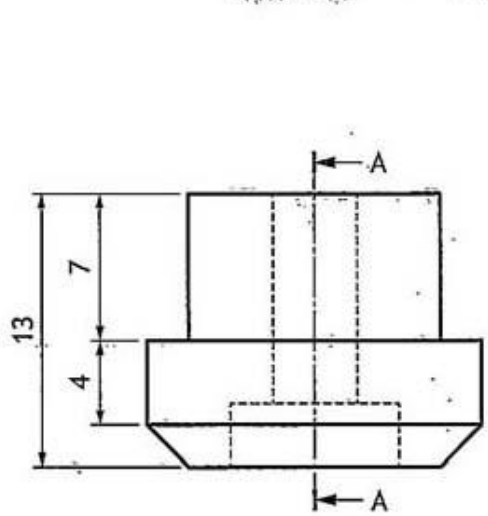
4 – If theirs no circle showing then don't use lines

5 –

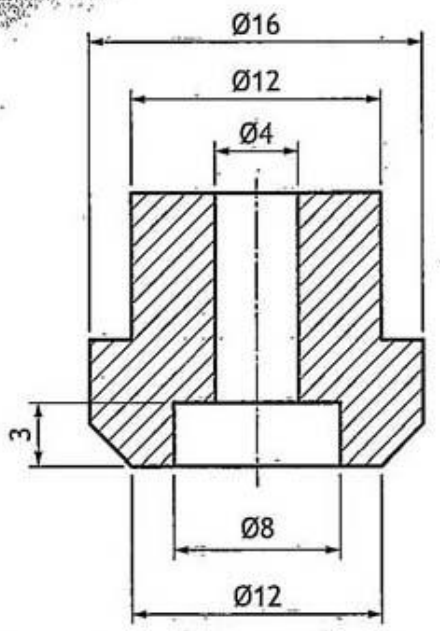
4. (continued)

Rubber feet are to be added to the base. Orthographic views and 3D illustrations of a rubber foot are shown below.





Elevation



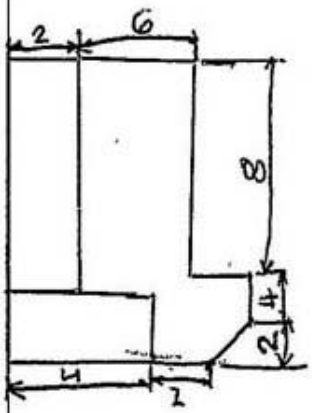
Sectional End Elevation A-A

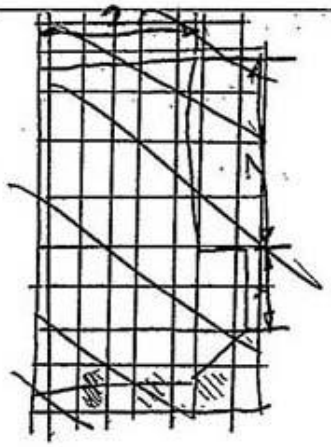
4. (continued)

(c) Describe, using the correct dimensions and 3D CAD modelling terms, how the rubber foot, shown opposite, would be produced. 3

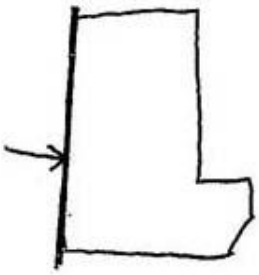
You may use sketches to support your answer.

1. Drawing the following shape accurately



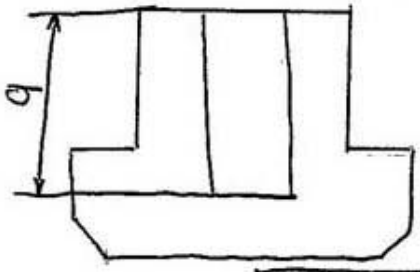


2. Clicking on the part where the arrow is pointing by extruding(all).

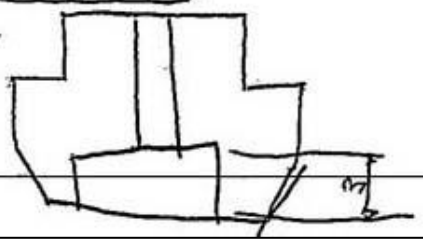


~~1. Drawing the shape accurately~~

3. Draw a circle on the bottom. Subtract by 9



4. Then subract 3 from the bottom drawing a circle.



4. **(continued)**

The orthographic drawings of the speaker were shared online.

(d) Describe two benefits of sharing these orthographic drawings online. 2

People who want to make something similar could use these.

It can show the company of and get more followers / ~~cos~~ customers

(e) Explain why it would be useful to adhere to British Standard conventions and protocols when sharing these types of drawings. 2

If you were to change it people may not understand the ~~part~~ sizes, so may not want to buy it

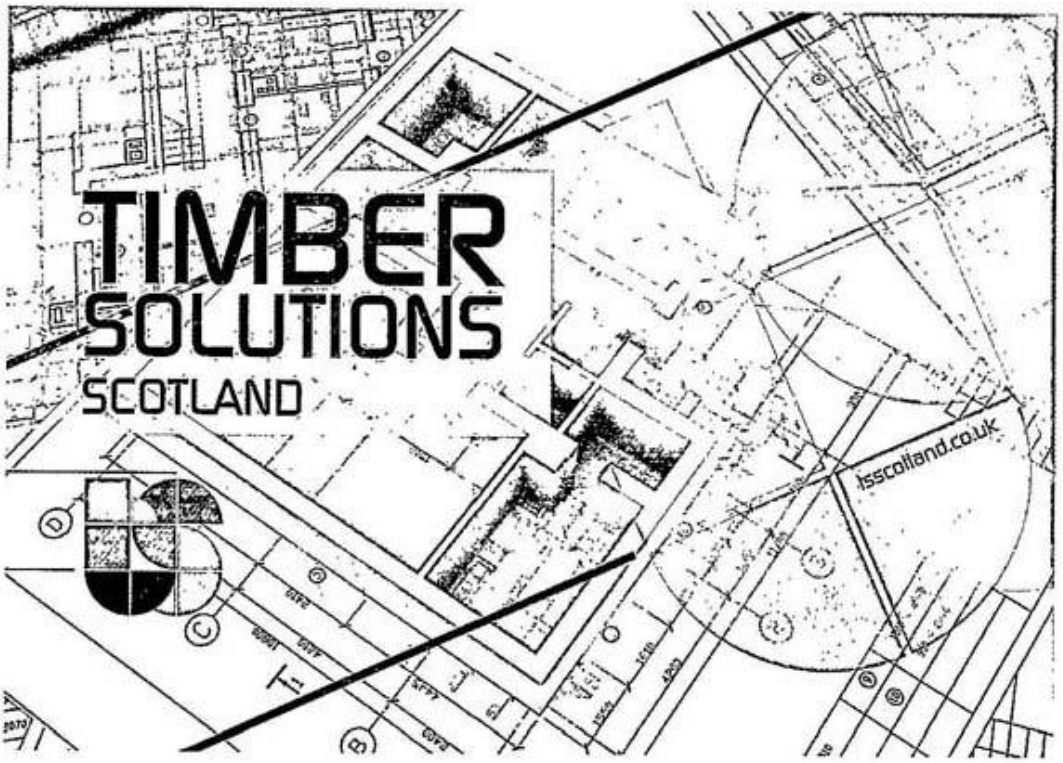
(f) Explain the purpose of the following types of production drawings.

(i) Sectional views It show you the inside of ~~what happens~~ the object demonstrating what does and doesn't get caught 1

(ii) Assembly drawings shows you the full diagram or object so you know what it looks like 1

5. Many companies now specialise in applying promotional graphic posters, to advertise services to the public, around commercial vehicles.

A finished layout for a small building company is shown below.



5. (continued)

The design work for the layout was produced by a graphic designer.

(a) Describe two ways in which the graphic designer used the following design elements and principles to enhance the layout.

(i) Line 2

He used line to change the way the shapes looke to add more affect to the promotional poster.

(ii) Dominance 2

He has used a bright bold title which stands out from the rest of the page allowing them to identify the title

(iii) Colour 2

He has used white as it is a proffessional and it associates with what the type of subject it is

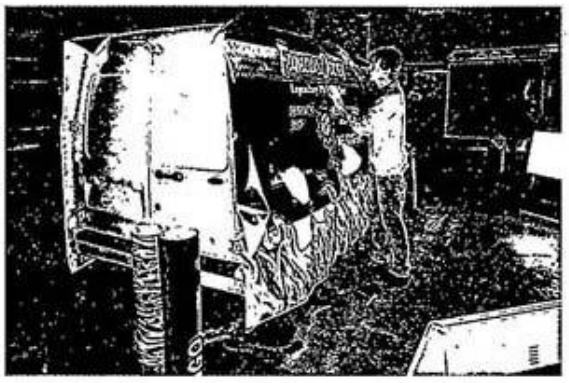
(iv) Unity 2

He has used the same colour when he drew out what the building was going to look like

5. (continued)

Vehicles were traditionally hand painted to include information about a company. Modern processes involve printing promotional graphics which are then applied to a vehicle.

Traditional painting technique

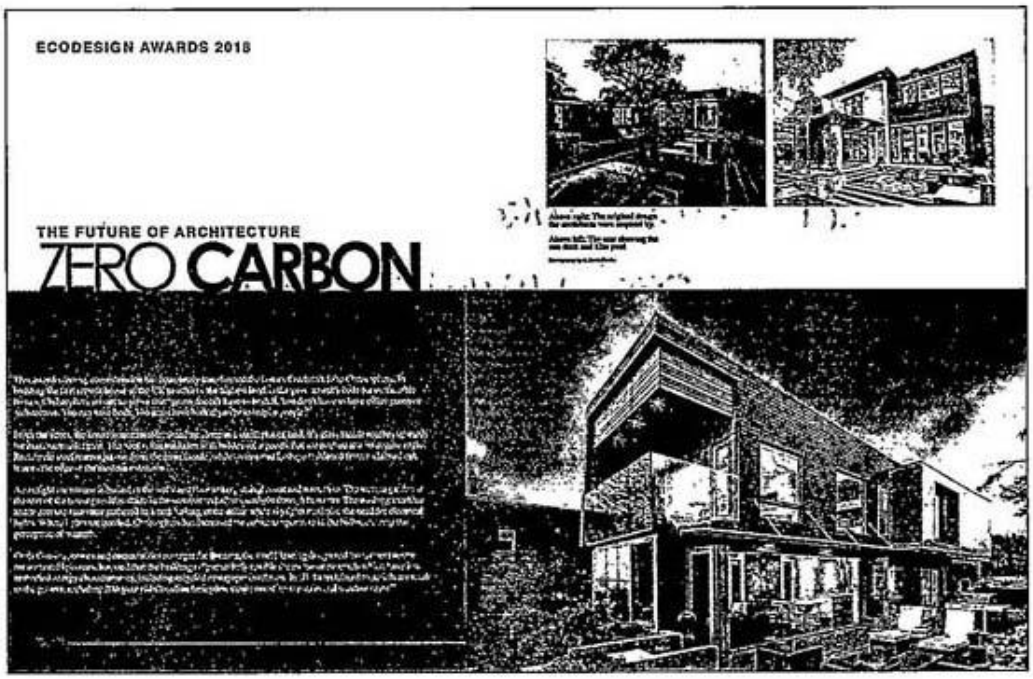


Modern printed technique

(b) Describe two advantages **to the client** of modern printing techniques over traditional painting techniques. 2

It's a more quicker way of designing a vehicle with a more neater design to it.
It doesn't cost as much, so replacing damaged parts can consist of taking down the poster and replacing, not getting a new van, car ect.

6. A graphic designer submitted a draft layout for an architectural magazine article to the editor. The draft is shown below.



The editor provided some feedback to the graphic designer on how to improve the layout.

(a) Describe, using the feedback shown below, four improvements the graphic designer should make to the layout using **Desktop Publishing techniques.**

(i) *The word 'house' in the heading is difficult to see* 1

It would make it more clearer to read therefore make the title more bold.

(ii) *The large column of extended text makes it difficult to read* 1

Shorten down the text to short snappy words, draws more attention

(iii) *The bottom image would look better without the sky in the background* 1

It would draw attention to just the house, the main subject

(iv) *The body text is too close to the edge of the paper* 1

If you moved it in the reader won't be distracted by it.

6. (continued)

The graphic designer used a sans serif font for the heading.

(b) State two reasons why the graphic designer has chosen a sans serif font for the heading. 2

As the rest of the page is filled with lots of highly detailed images.
it is bold text, not to fancy gets the title accross quickly.

When inserting an image, the graphic designer used the handles of the image to increase its size. This resulted in the image being out of proportion, shown below.

(c) Describe how the graphic designer could have resized the image without altering the proportions. 1

He could have used crtl alt and moved the arrow.

6. **(continued)**

During the production of the layout, using desktop publishing software, the graphic designer used **guidelines.**

(d) Describe two advantages of using guidelines in the creation of promotional layouts. 2

You can clearly place all of the information carefully, ~~good~~
It can make the poster look more neat and tidy not everly crowded