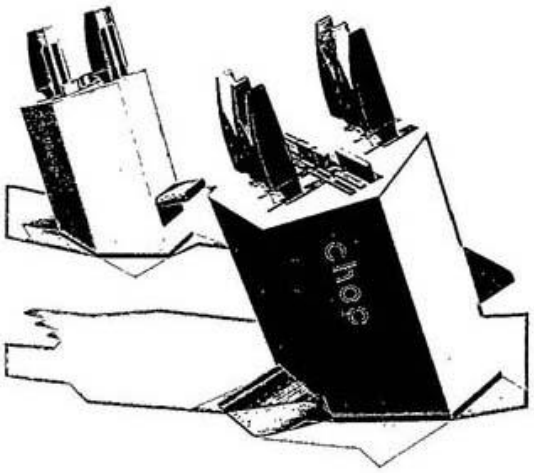
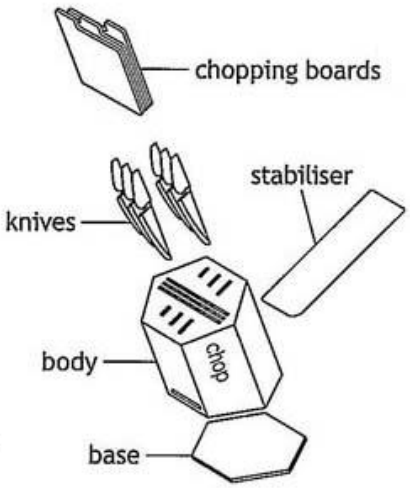
Candidate 5 evidence

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 make changes to the design

You dont have to spend money producing a CAD model

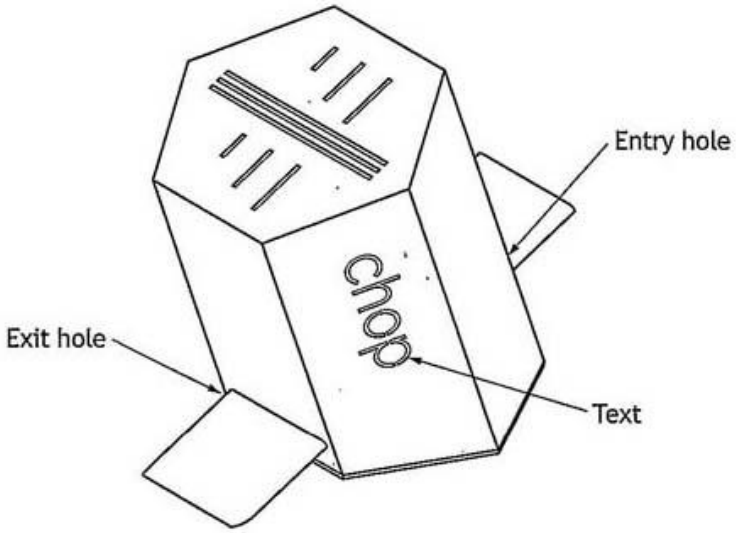
To produce the CAD model the CAD technician was given information about the storage system. One dimension stated: A/F 300mm.

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

A symetrical (guess) :-

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.

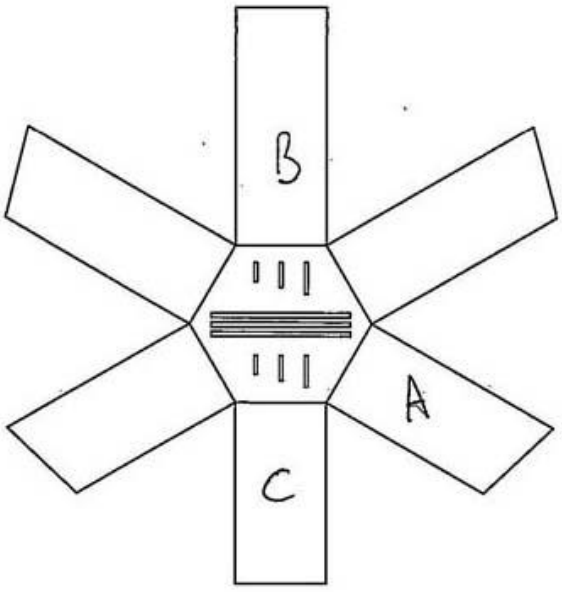


(c) Indicate, on the graphic below, where the Text, Entry hole and Exit hole would be located. 3

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.

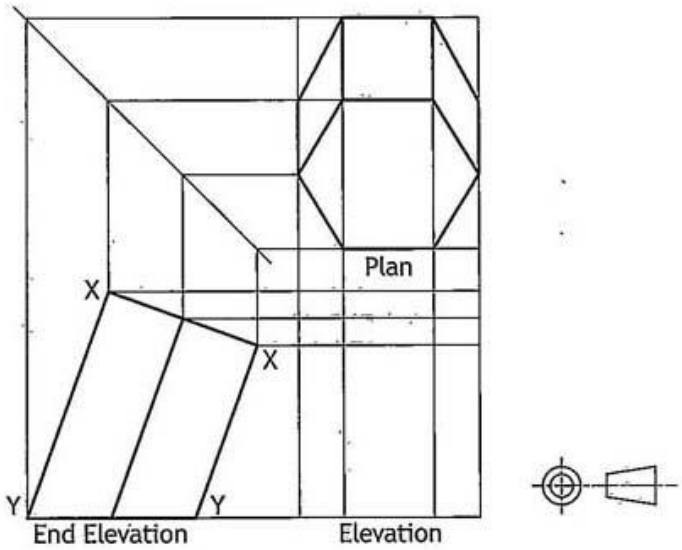
Use **C** to indicate on the panel where the Exit hole would be located.



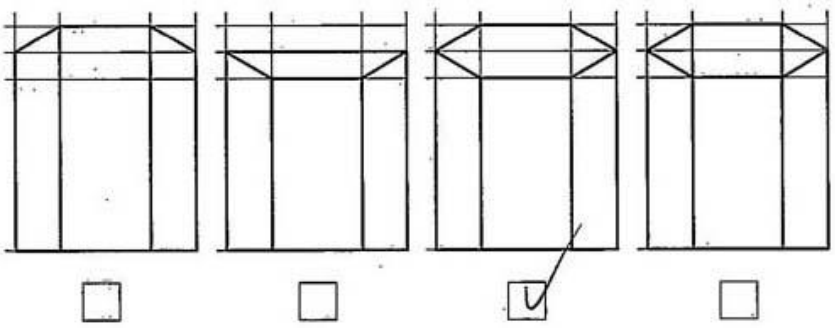
1. (continued)

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.

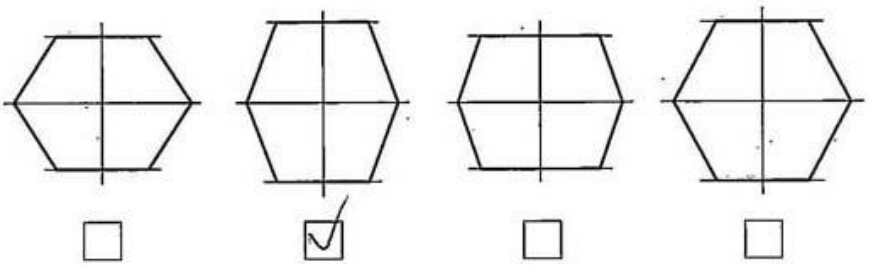


(d) Identify, using a tick (✓), the correct elevation. Ignore wall thickness. 1



A true shape of surface X–X was required.

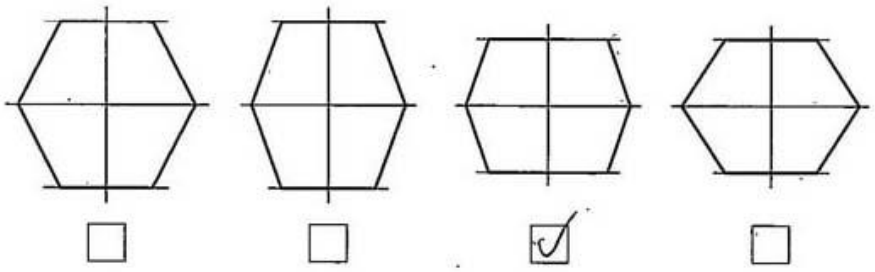
(e) Identify, using a tick (✓), the correct true shape. Use a ruler or trammel to measure. 1



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'.

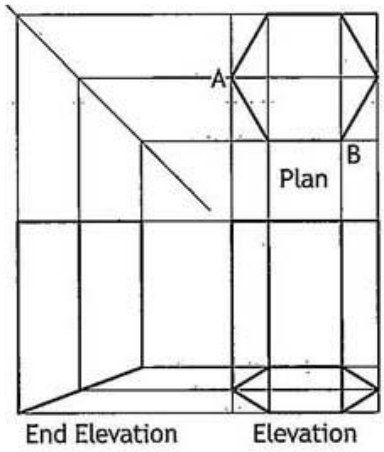
You should refer to the orthographic drawing below.

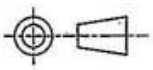
(i) When opened out at generator A, the correct surface development is view. 1

[5] *Insert number*

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

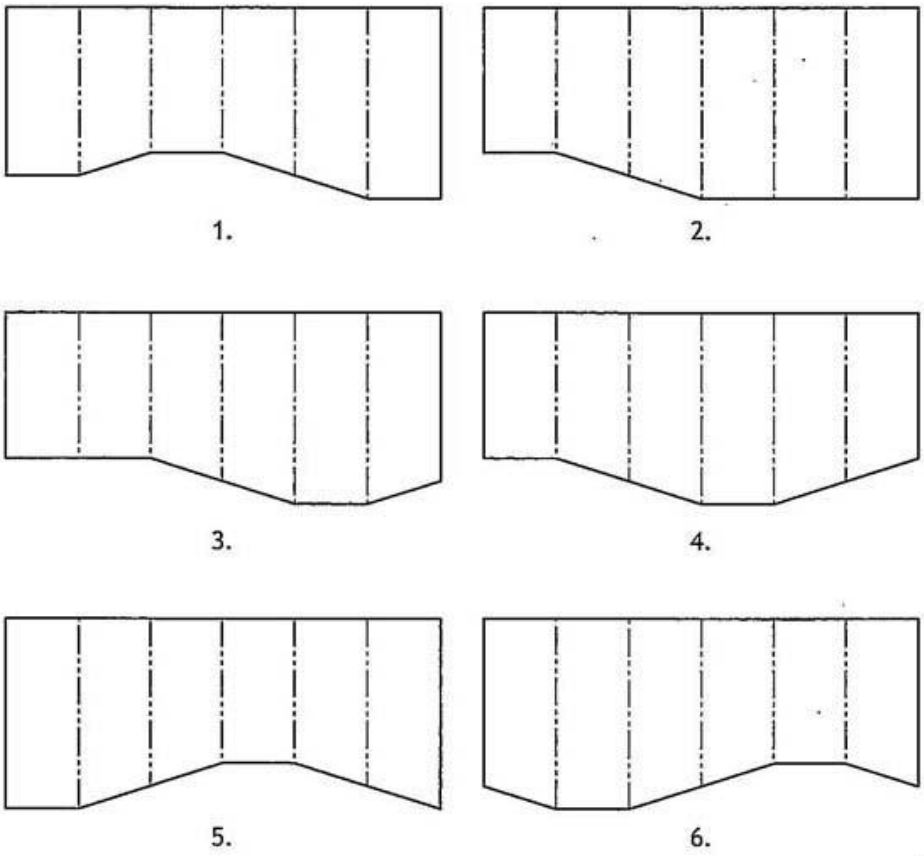
[1] *Insert number*





1. **(continued)**

The range of surface developments are show below.



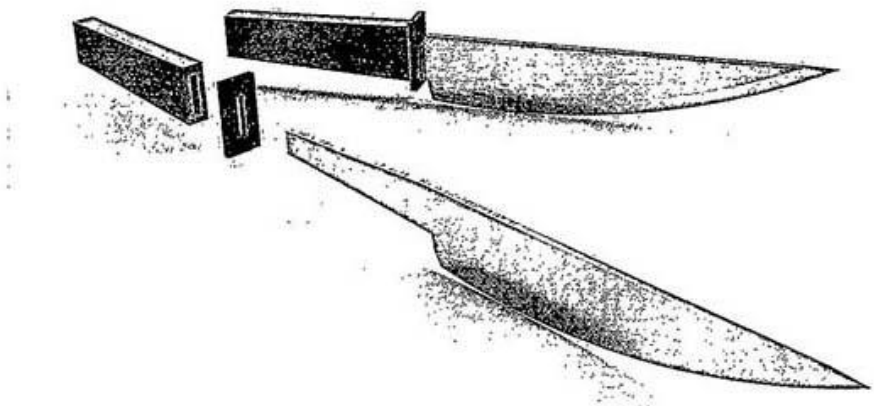
A number of the knife blocks are to be produced from a single sheet of material.

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

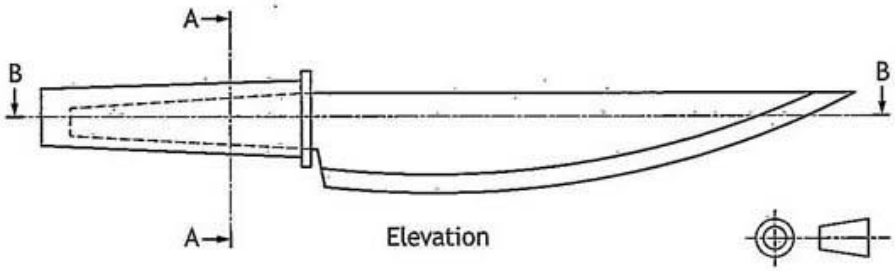
to save material & reduce waste

1. (continued)

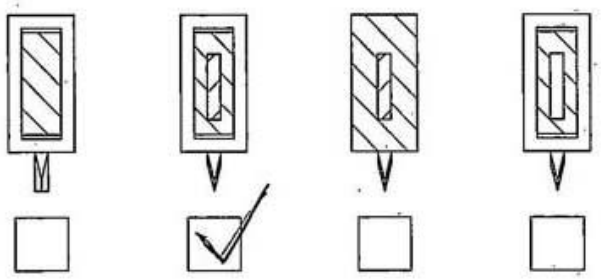
(i) A knife set to complement the knife block is to be produced. Rendered pictorials and orthographic views of one knife are shown below.



Plan

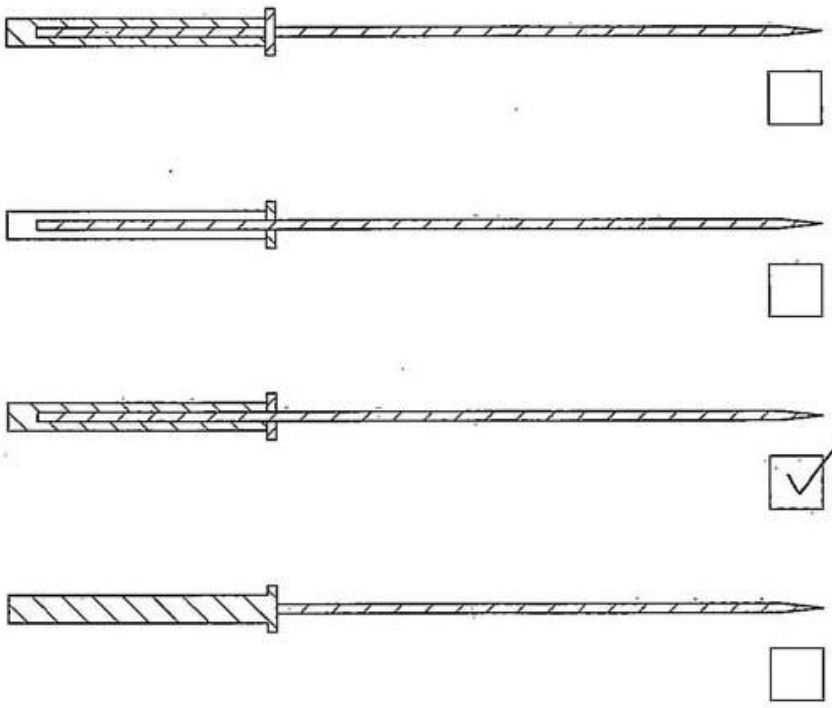


(i) Identify the correct sectional end elevation A-A by ticking (✓) a box below. 1

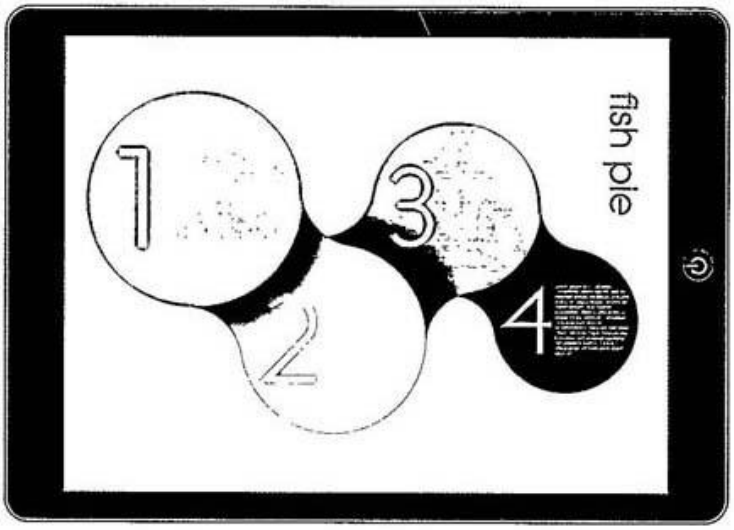


1. (i) (continued)

(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

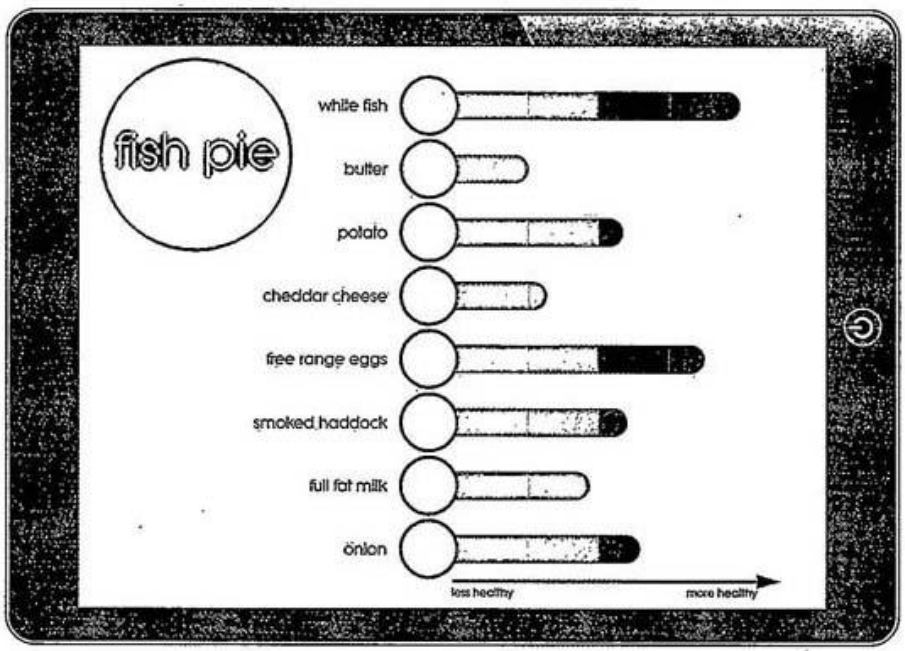
the artist has used colors going from receding colours to advancing colours. the use of shadow also helps as it's shows the direction to follow. we also read left to right & this is the order he has put it in

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

you dont need to chop down trees to produce paper. you dont need to produce inks

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

the greener the bar goes the healthier the ingredient

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

Scatter graph

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

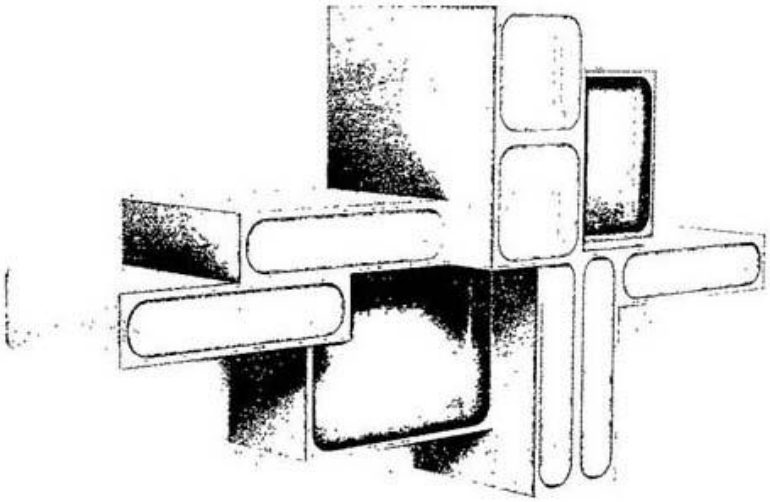
(f) (i) State the most suitable type of informational graphic to present the data in **Statistics B**. 1

pie chart

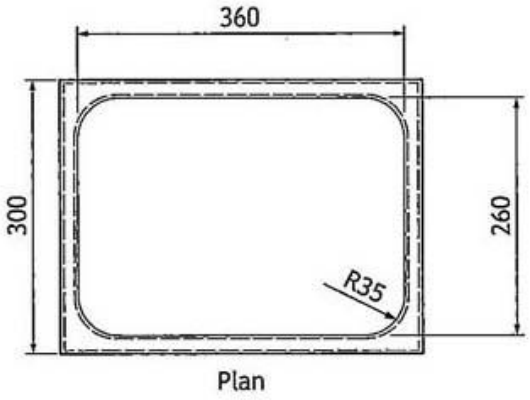
(ii) Explain why this is an appropriate type of informational graphic to present. 1

the total is 100% & also the stats are allready in percentage

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.

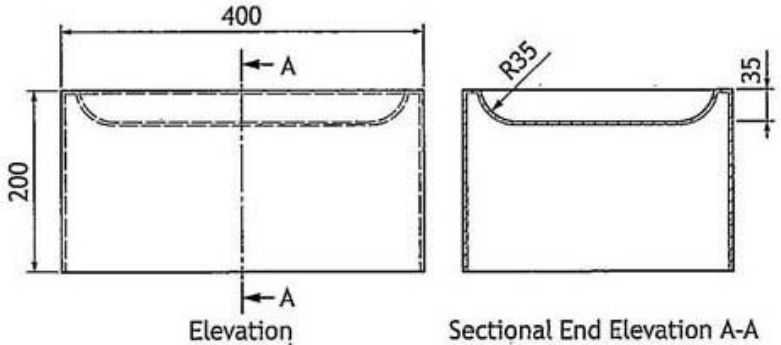


An orthographic drawing of one of the orange lighting pods is shown below.



Plan

Please note:
Wall thickness = 3 mm



Elevation

Sectional End Elevation A-A

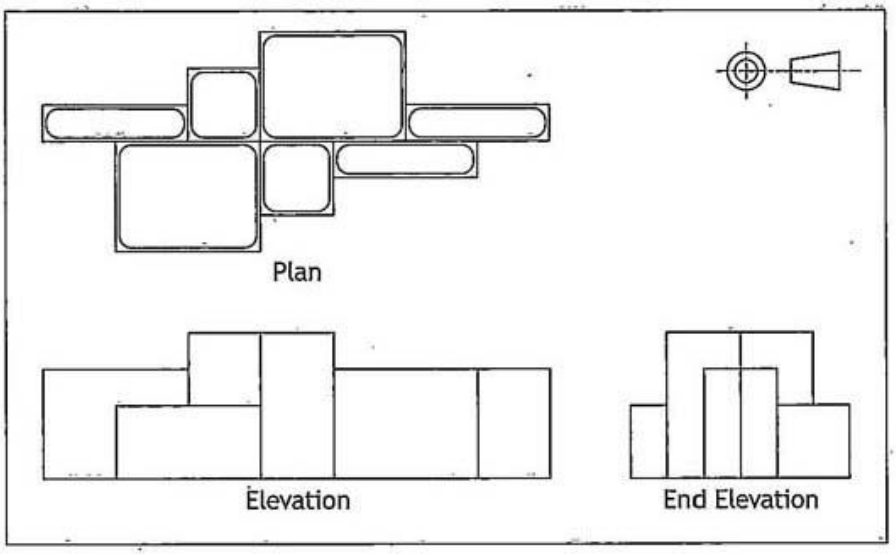
3. (continued)

(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**

Start sketch & choose appropriate plane
then ~~using~~ the line tools draw a 300 × 400
box. finish sketch, now extrude by
200mm. Now select one of the 300 × 400
faces & draw a box using the line tool
360 × 260; now use the arc tool on the corner
at a radius of 35 to cut the orig and lines.
finish sketch & extrude again but this time
subtract by 85, after which go on fillet
& fillet to inside edges at a radius of
35. finally shell the inside of the pod
to 3 mm thickness

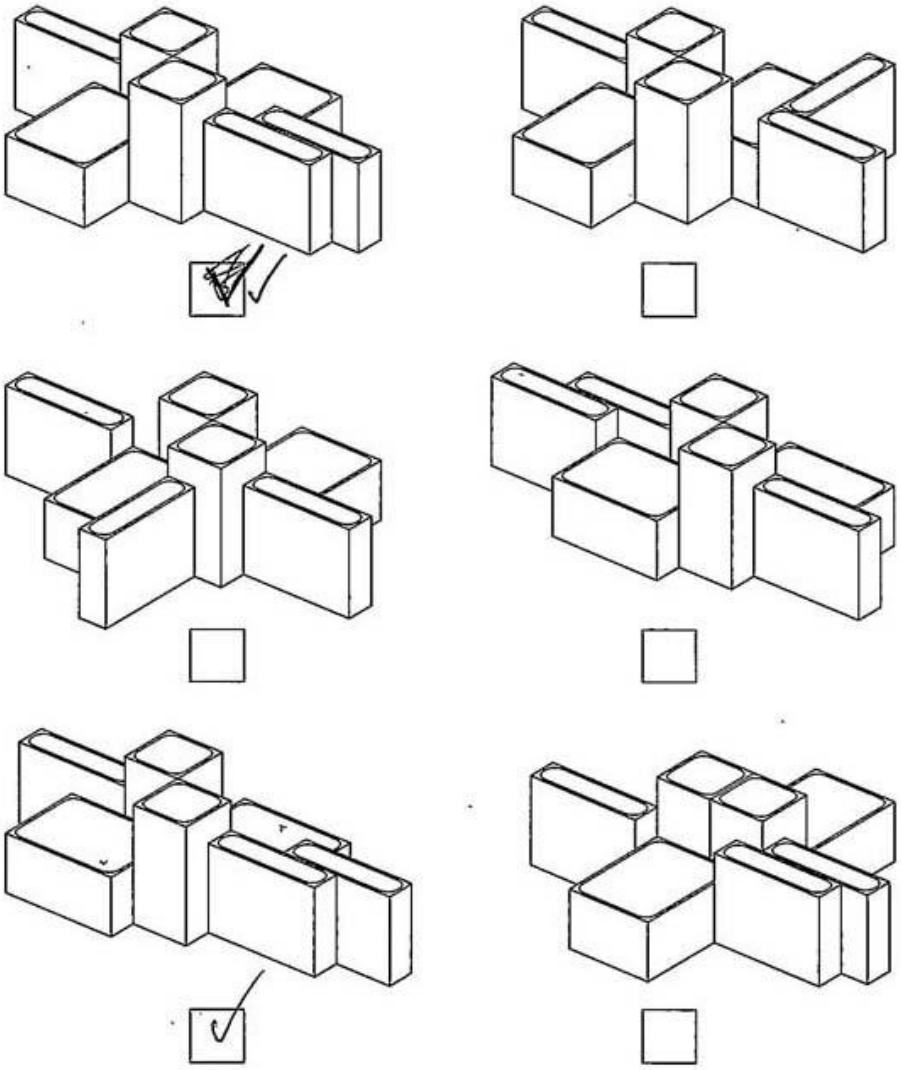
3. (continued)

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



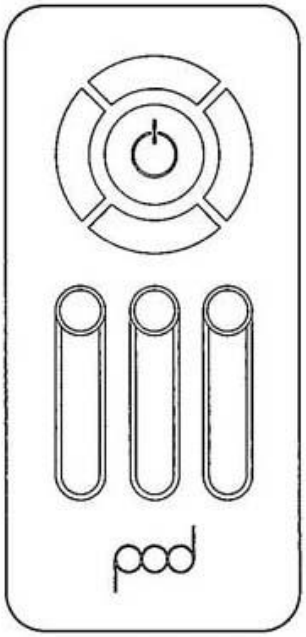
3. (continued)

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

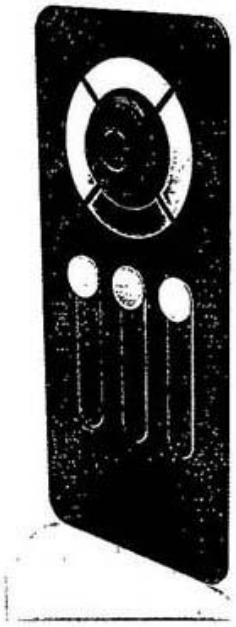


3. (continued)

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

You dont need to extrude & use other feats like change fillet ect for 2D

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

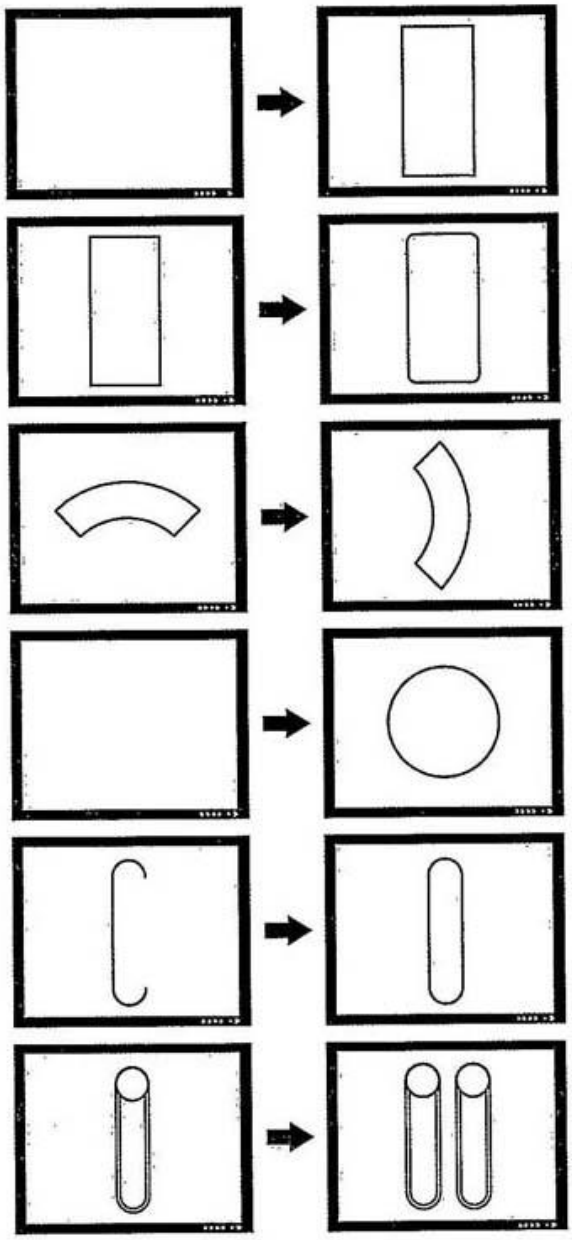
more detailed than 2D

More Professi

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
line

(ii) Tool used
arc
~~circle~~

(iii) Tool used
revolve

(iv) Tool used
circle

(v) Tool used
cut

(vi) Tool used
duplicate

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

fold line

(ii) A continuous thick line 1

out line

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

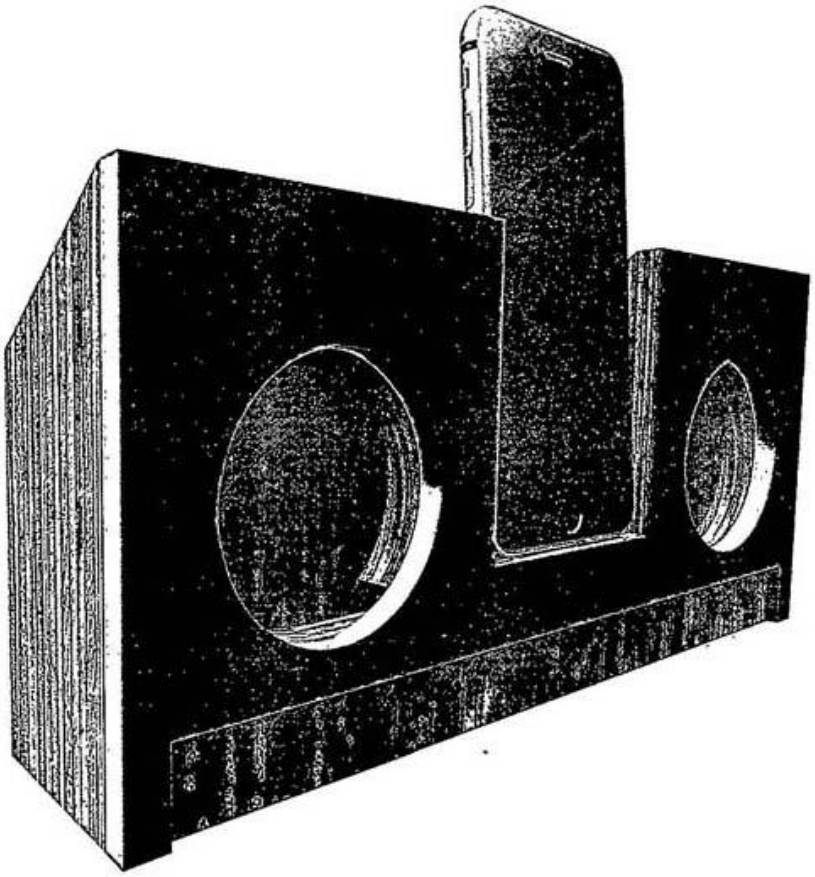
centre line

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

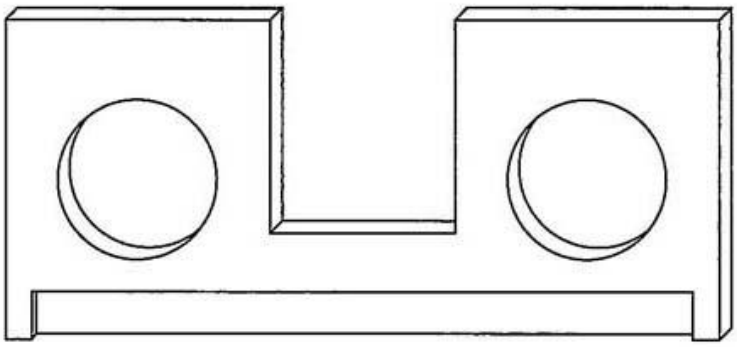
(g) Explain what is meant by the term scale 2:1. 1

2:1 = 2x1 = double the size of actual model

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.

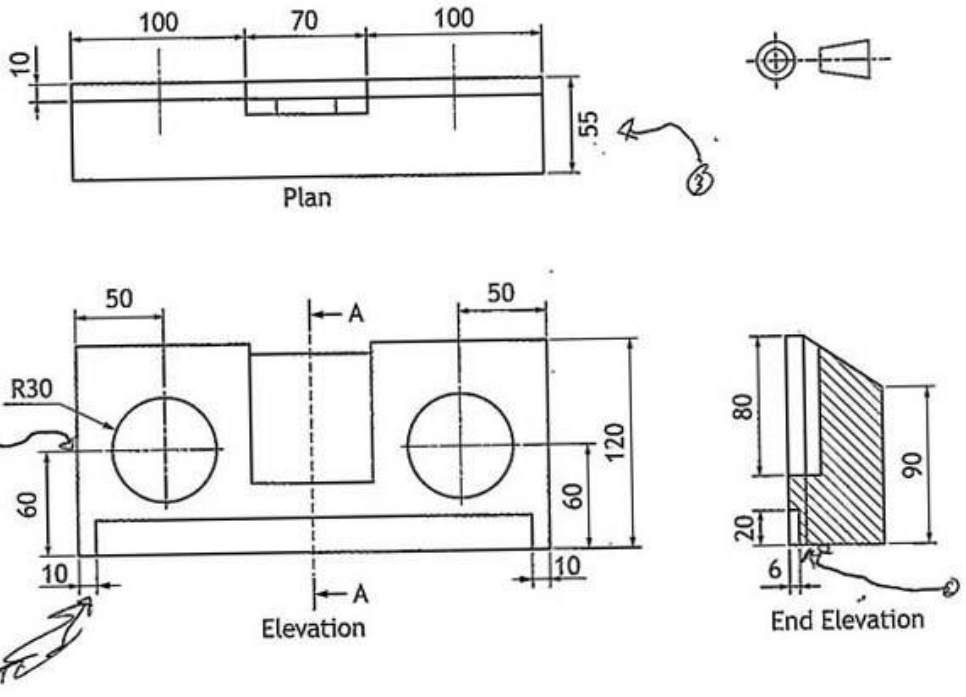


(a) State the type of pictorial view shown above. 1

Iso metric

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 No gap on some dimension

② hatch lines are the same, but should be different

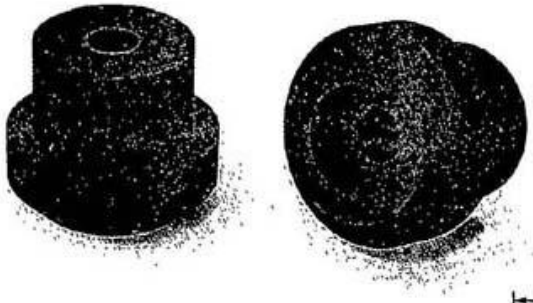
③ not above the dimension line

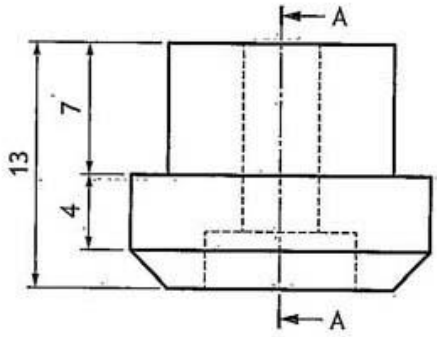
no hidden line

centre line dont go all the way through the material

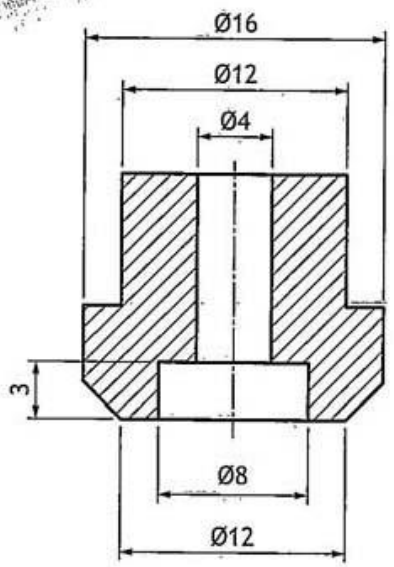
4. **(continued)**

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





Elevation



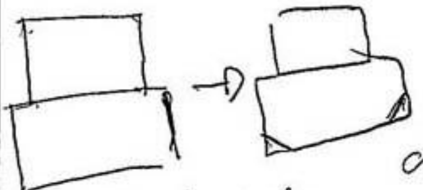
Sectional End Elevation A-A

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.

start sketch, select appropriate plain then
treat using the circle tool a 16 diameter
circle, finish sketch & extrude it by 6 mm
now start a ~~rectangle~~ new sketch & creat a circle with a
12 diameter form the circle & extrude 7mm
no chamfer the top of the 16 diamet circal by 2mm



now on the end of
12 diameter circ
draw a 4 diameter hole
now finish sketch now extrude but subract 10mm
now at the top of the 16 diameter circle
draw a 8 diameter ~~hole~~ hole & finish sketch
Subtract 3mm.

4. **(continued)**

The orthographic drawings of the speaker were shared online.

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

extend your market.

~~shopping~~ shops may see it & offer to buy or see your product

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

the companys can understand & produce the product.

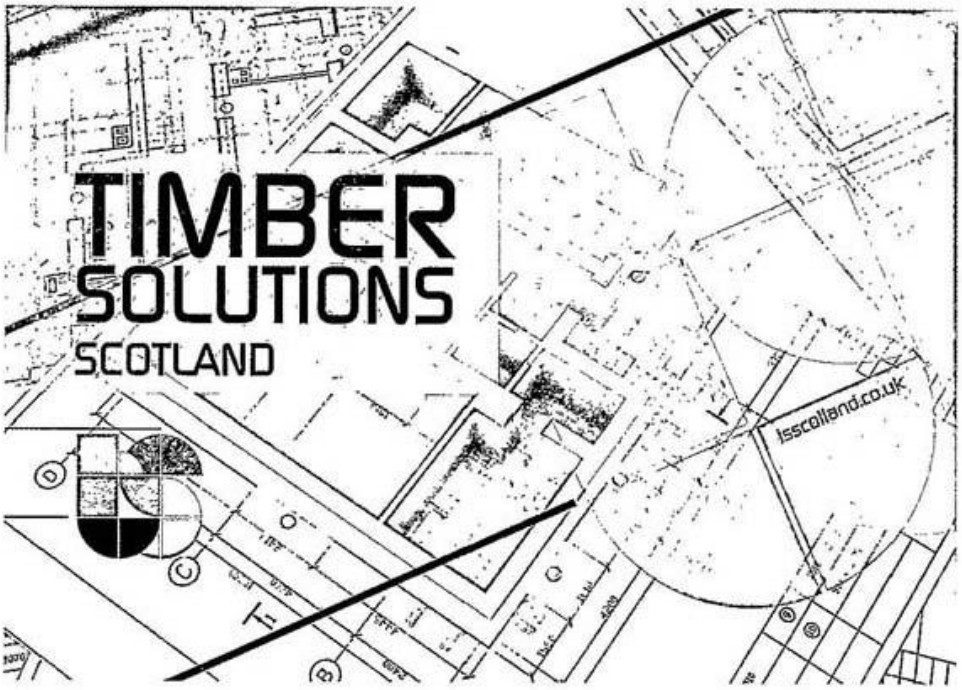
(f) Explain the purpose of the following types of production drawings.

(i) Sectional views to see inside the product 1

(ii) Assembly drawings to see the seperate produc 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**

evey thing is seprate by a line in bubble font.

he has used blue lines across the page & on the logo

(ii) Dominance **2**

the "timber solution scotland" domenant as its a diffrent colour which uses contrast.

the large "ts" is domenant as it is the biggest thing on the page

(iii) Colour **2**

the designer has used blue & brown thorgh the poster which creats contrast.

he also uses differ shades & tints of blue

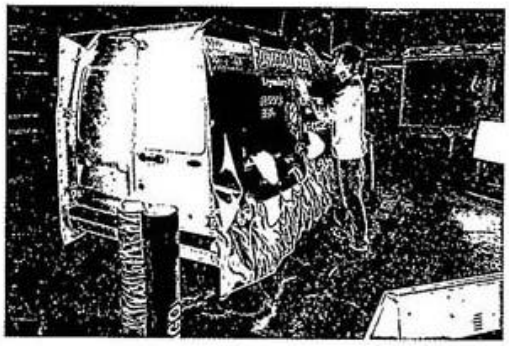
(iv) Unity **2**

the uses of differt types of blue

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

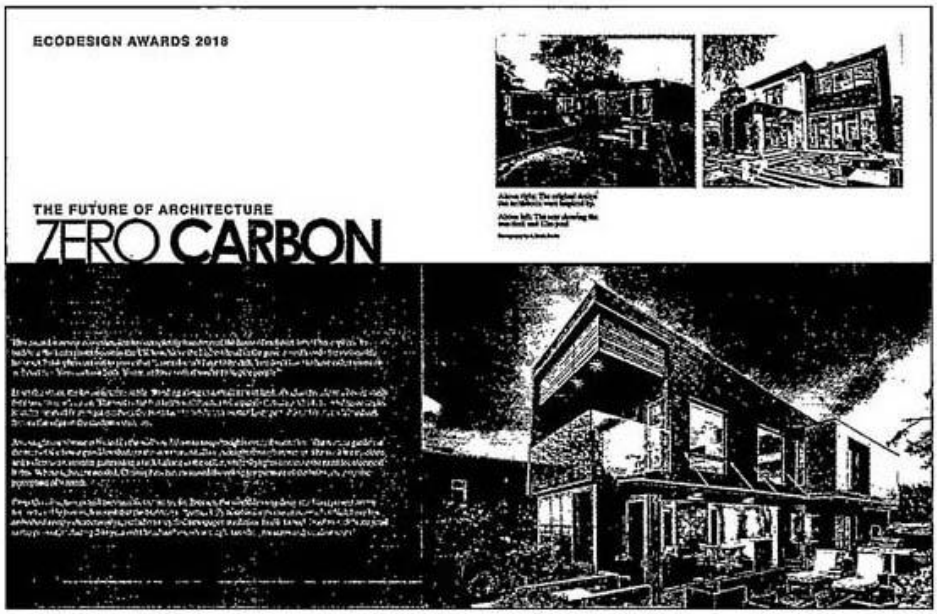


Modern printed technique

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

having it printed instead of painted is better for a client as it is cheaper due to you not having to pay for a person to sit there for hours paint & for the print itself. It is also quicker as it could take days to process paint & for it to then dry, which the printer just need to set & stick

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

~~Use~~ change the colour to white to create contrast

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

Shorten the text & make the colum smaller

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

~~Crop~~ the crop the sky out of the photo & replace with white background

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

centre the text

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

formal text which is also easy & clear to read

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

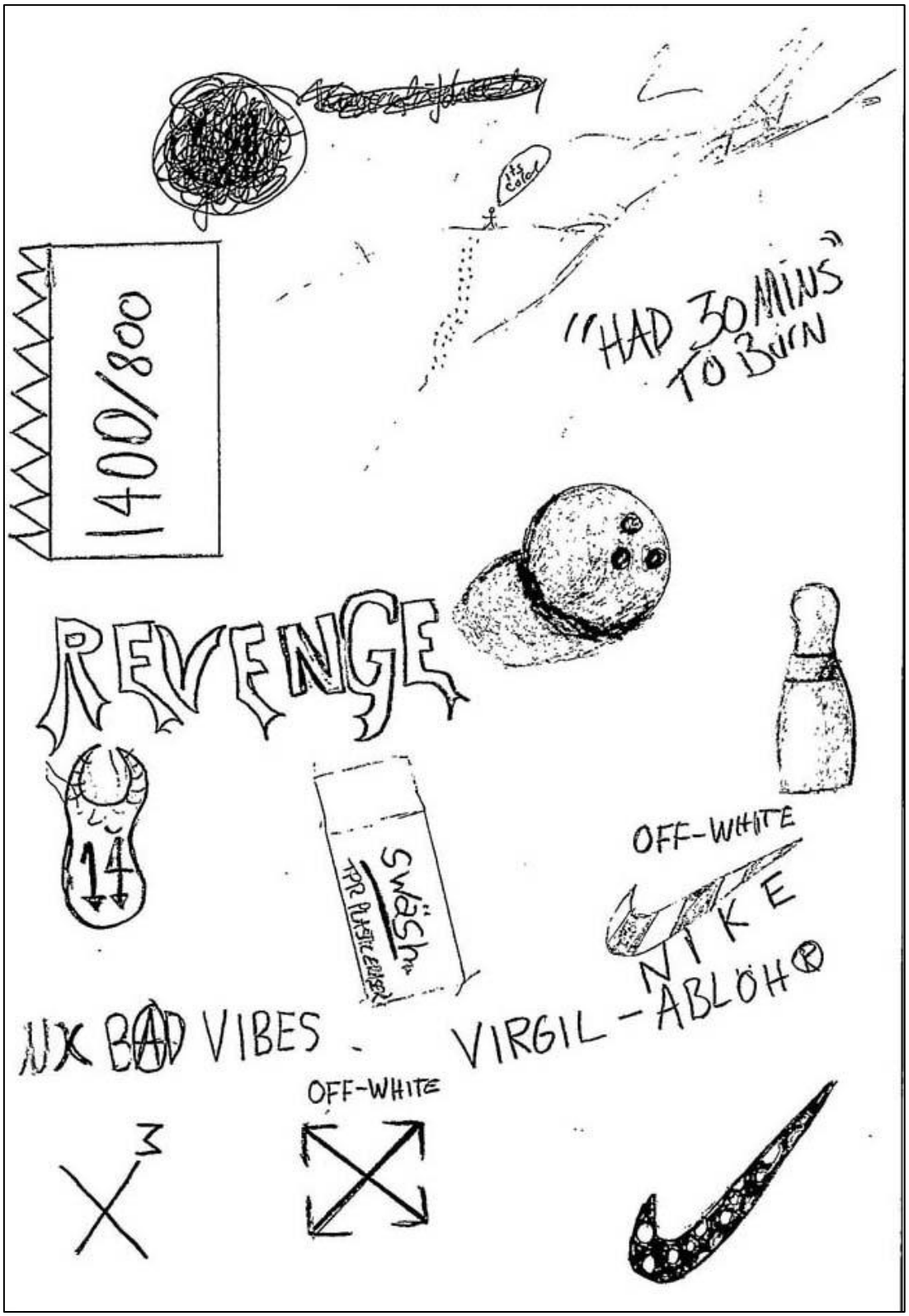
Using the images scale

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

dont need to be fully edited,
universal guides means it could be used internationally


1400/800
"HAD 30 MINS TO BURN
REVENGE
14
OFF-WHITE
NIKE
VIRGIL - ABLOH
OFF-WHITE