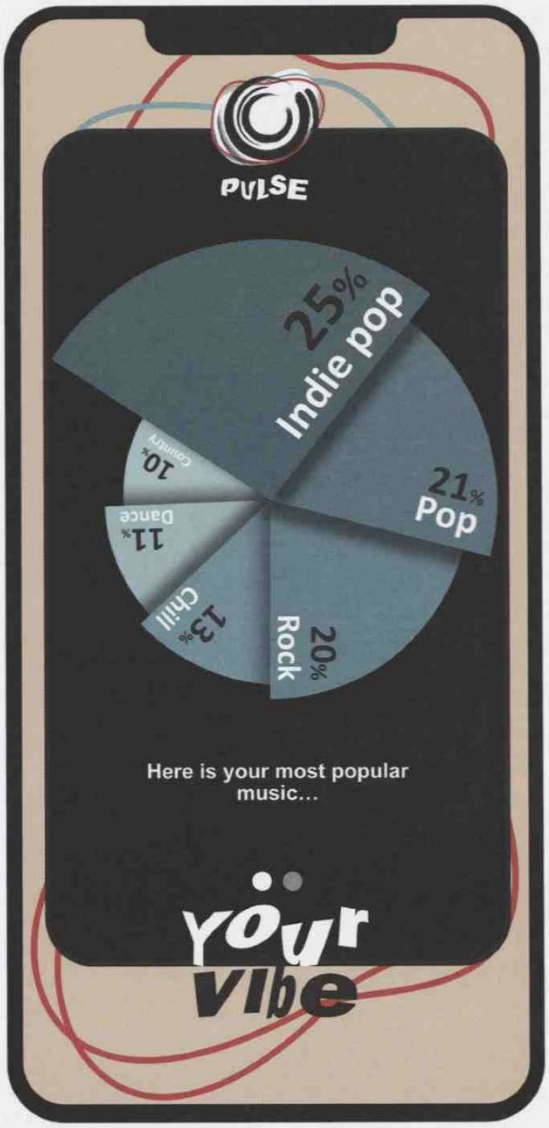
Candidate 1 evidence

DO NOT WRITE IN THIS MARGIN

Total marks — 80

Attempt ALL questions

1. Pulse is a music streaming app for smartphones. A screen from the app is shown below.



MARKS | DO NOT WRITE IN THIS MARGIN

1. (continued)

(a) The screen shows a user's most popular types of music listened to over a year.

(i) State the name of the chart used. 1

pie chart

(ii) Explain why this chart is appropriate to communicate this information. 1

all values add up to 100. easy to compare segments. it shows percentages.

(b) Describe **three** ways the graphic artist has graphically communicated the most popular types of music on the screen. 3

changing the size of segments

using different numbers

increasing warmth of colour

decreasing opacity of colour

decreasing size of segments

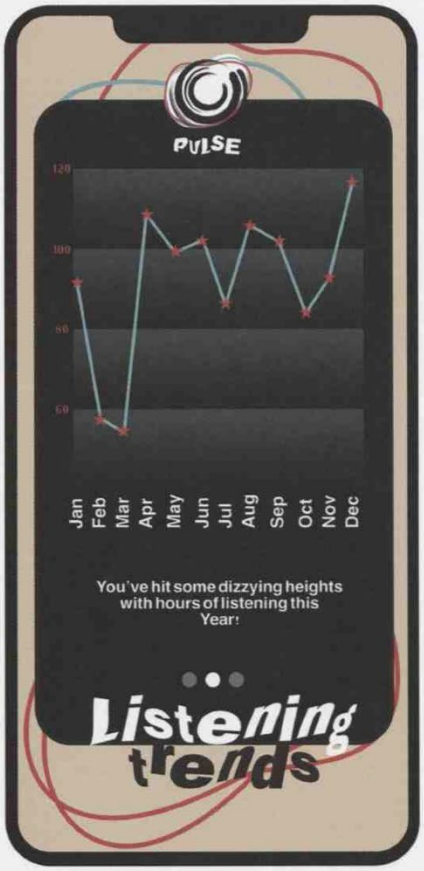
decreasing size of text

[Turn over

MARKS | DO NOT WRITE IN THIS MARGIN

1. (continued)

A second screen from the app is shown below.



(c) This graph shows the number of hours a user listened to music each month.

(i) State the name of the graph used above. 1

line graph

(ii) Explain why this graph is appropriate to communicate this information. 1

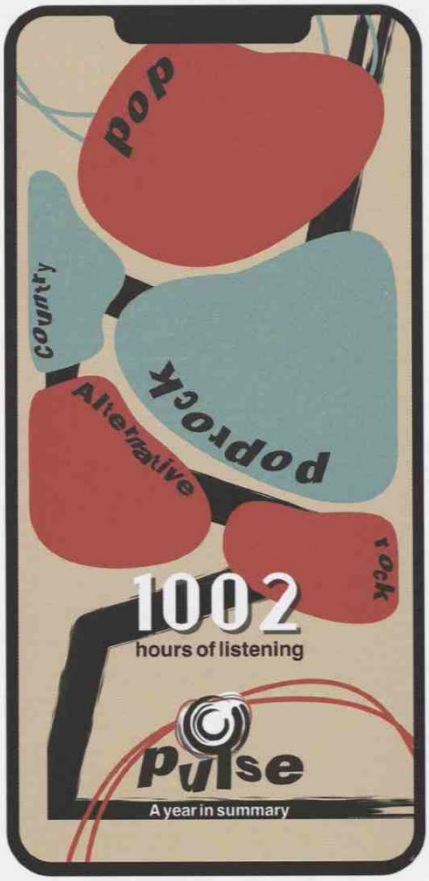
~~it shows trend over time~~

it shows the trend over time

MARKS | DO NOT WRITE IN THIS MARGIN

1. (continued)

A graphic layout showing another screen from the app is shown below.



(d) Describe **two** ways each of the following design elements and principles have been used in the layout:

(i) Depth "1002" text overlapping the line and shape. "1002" text has a drop shadow. red line is overlapping the black line. pulse logo is overlapping the red line. shapes are overlapping the black line — 2

MARKS | DO NOT WRITE IN THIS MARGIN

1. (d) (continued)

(ii) Unity colour red is repeated. black line links elements together. font is repeated. the colour blue is repeated. 2

(iii) Contrast contrast between white "1002" text black line. "1002" text and red shape "1002" text and background. contrast between red and blue. contrast between different fonts. contrast between shape sizes 2

(e) Describe **one** way alignment has been used in the layout. 1

"1002" is centre aligned with "hours of listening" and "pulse" logo, and "a year in summary"

[Turn over

MARKS | DO NOT WRITE IN THIS MARGIN

2. A landscape design company has produced graphics for a new garden studio shown below.



preliminary graphic



promotional graphic

(a) (i) Explain the purpose of a promotional graphic. 1

to show a realistic representation. to appeal to non-technical people

A digital version of the manual preliminary graphic is created.

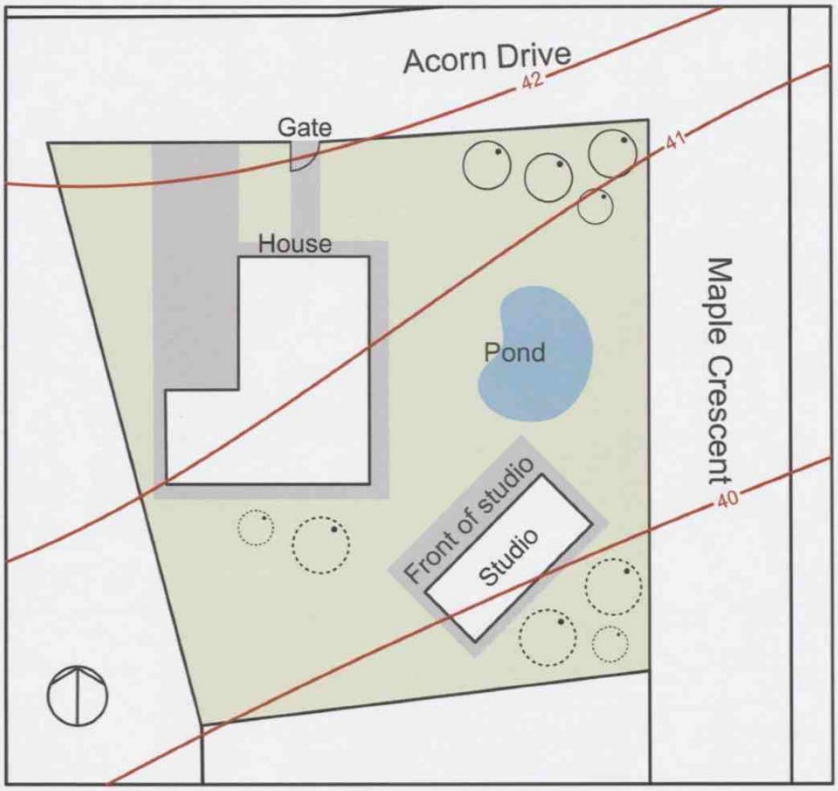
(ii) State the names of **two** input devices that could be used to convert the preliminary graphic into a digital file. 2

digital camera, flatbed scanner, mobile phone

MARKS | DO NOT WRITE IN THIS MARGIN

2. (continued)

A site plan showing the proposed position of a garden studio is shown below.



(b) State a scale commonly used for a site plan. 1

1:200

(c) Contours are shown in red on the site plan.

Explain the purpose of contours on a site plan. 1

to show the elevation change.

to show the elevation

MARKS | DO NOT WRITE IN THIS MARGIN

2. **(continued)**

The front of the garden studio faces the house on the plot.

(d) State the direction the front of the garden studio faces. 1

North west

(e) State the direction the pond is in relation to the house. 1

East

The site plan was produced by a designer who works from home.

(f) Describe **two** advantages of remote working. 2

No need to travel. lower job turn-over.

~~can work anywhere~~. can work from anywhere.

can work at any time. easier to collaborate.

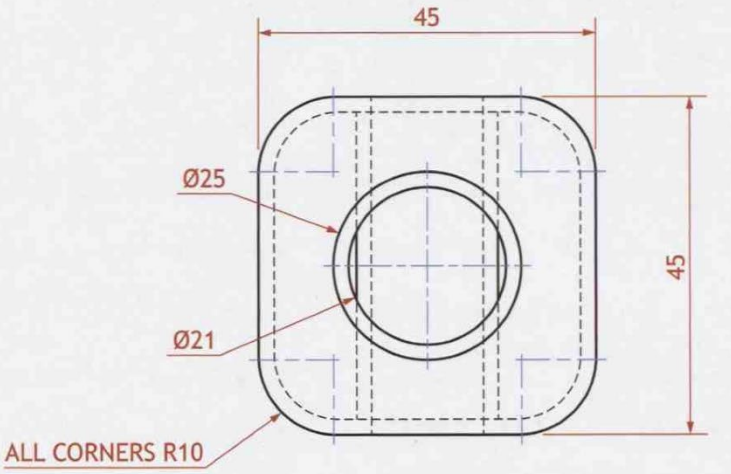
~~more~~ it is more productive

[Turn over

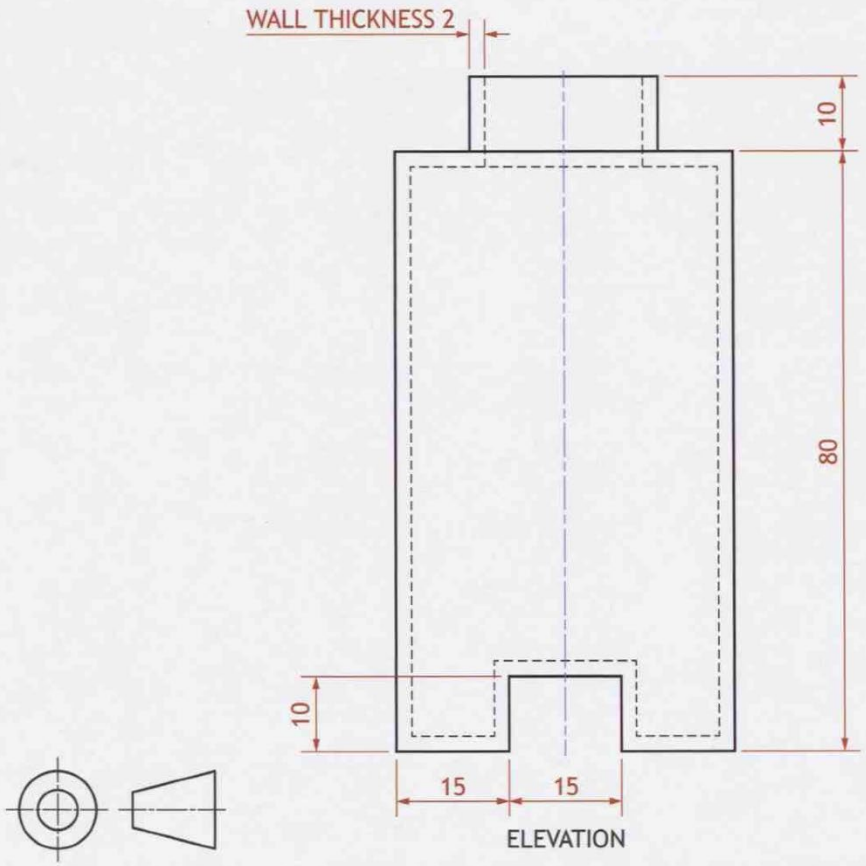
DO NOT WRITE IN THIS MARGIN

3. A company has created a new drinks bottle for their product line. It has two parts: a body and a lid.

An orthographic drawing of the body is shown below.



PLAN



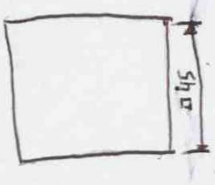
ELEVATION

MARKS | DO NOT WRITE IN THIS MARGIN

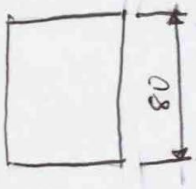
3. (continued)

(a) Describe, using the correct dimensions and 3D CAD modelling terms, how you would use 3D CAD software to model the body.

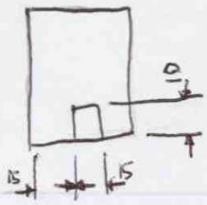
You may use sketches to help support your answer. 6



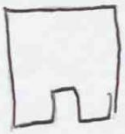
create a sketch of face ①, a square with width 45



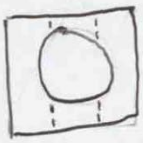
extrude the square by 80 to add material



create a sketch of face ②, with the dimensions shown



extrude face ② to remove material all the way through the object



create a sketch of a circle on the top of the object with diameter 25.

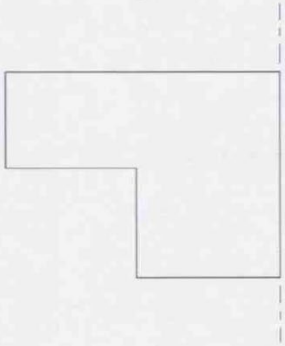
see additional space for answers.

DO NOT WRITE IN THIS MARGIN

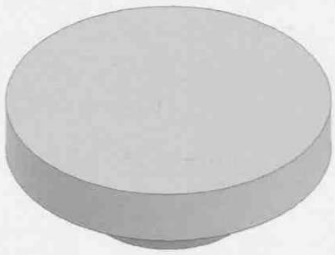
3. **(continued)**

The stages to create the 3D CAD model of the lid are shown below.

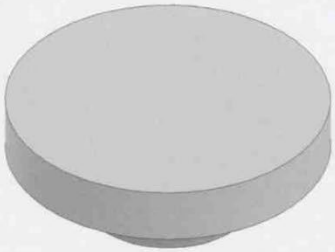
Stage 1



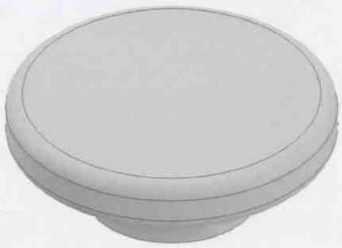
Stage 2



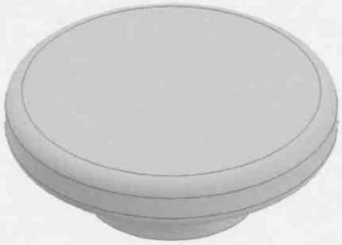
Stage 2



Stage 3



Stage 3



Stage 4



MARKS | DO NOT WRITE IN THIS MARGIN

3. (continued)

(b) (i) State the name of the 3D CAD command used to go from stage 1 to stage 2. 1

revolve

(ii) State the name of the 3D CAD edit used to go from stage 2 to stage 3. 1

fillet

(iii) State the name of the 3D CAD edit used to go from stage 3 to stage 4. 1

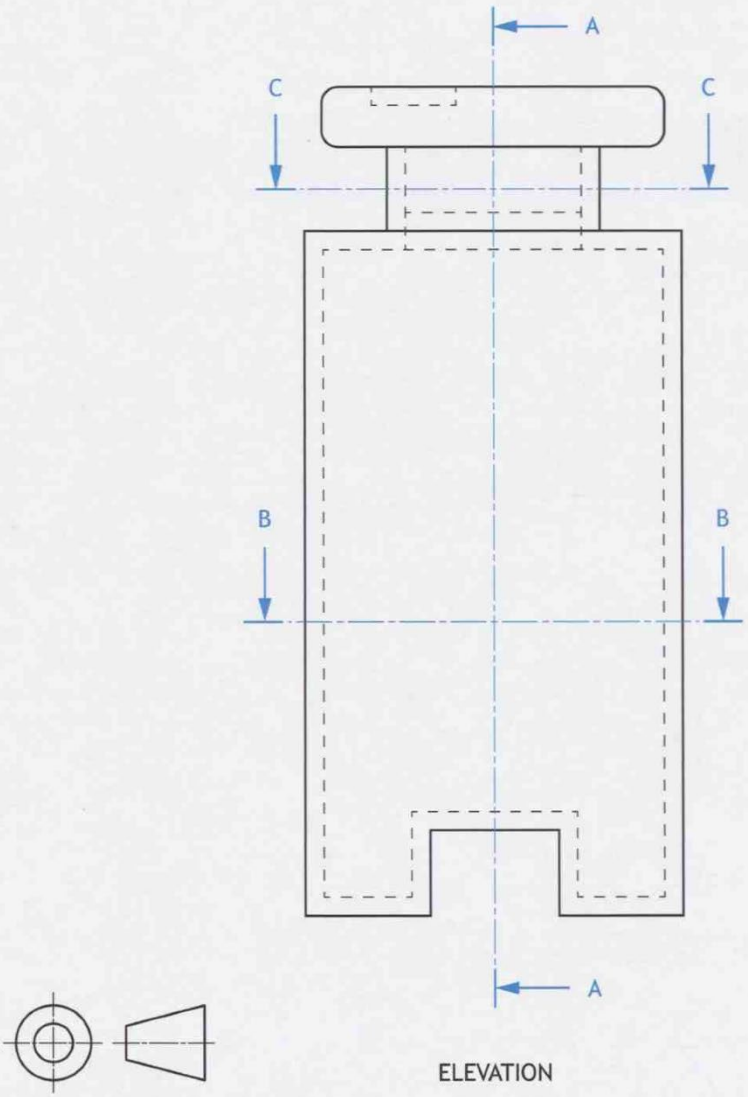
extrude subtract

[Turn over

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3. **(continued)**

The elevation of the assembled bottle is shown below.



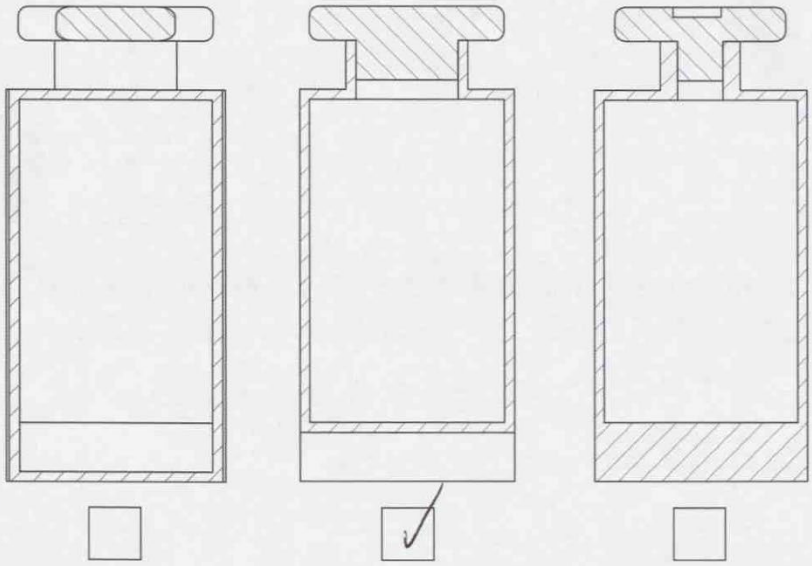
ELEVATION

3. (continued) MARKS | DO NOT WRITE IN THIS MARGIN

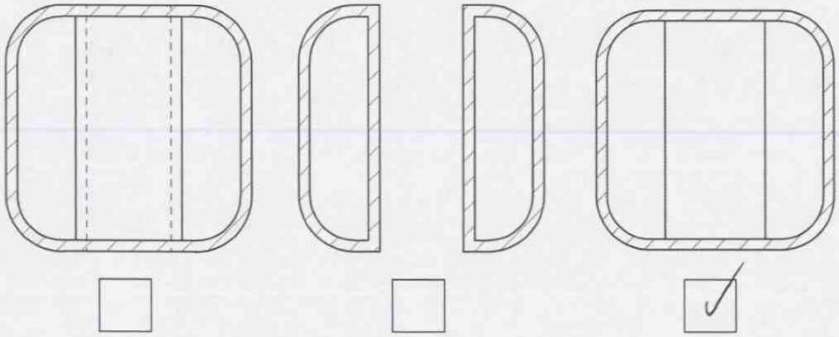
(c) Three sectional views projected from the elevation are shown below.

Identify the correct sectional view for each cutting plane by ticking (✓) a box below.

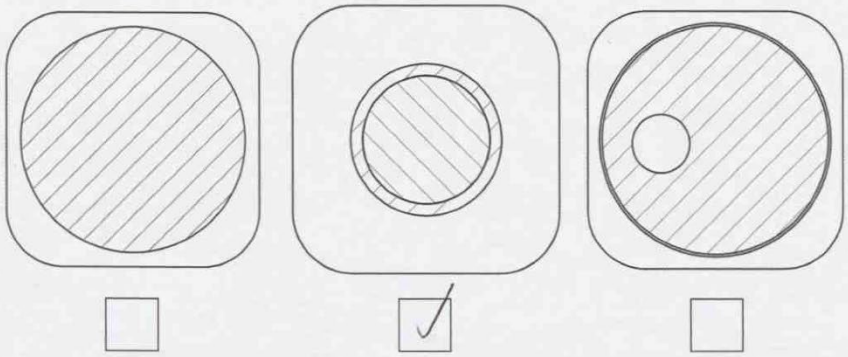
(i) Cutting plane A–A 1



(ii) Cutting plane B–B 1



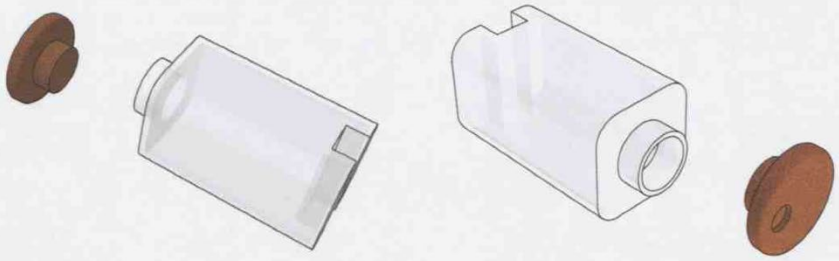
(iii) Cutting plane C–C 1



MARKS | DO NOT WRITE IN THIS MARGIN

3. **(continued)**

The bottle parts were assembled using 3D CAD assembly techniques.



(d) Describe, using 3D CAD constraints, how to assemble the bottle and lid.
You may annotate the graphic shown above to support your answer. 2

constrain the centre axis of the plug of lid and entrance of the bottle. mate the bottom of the main part of the lid and the lip of the bottle

MARKS | DO NOT WRITE IN THIS MARGIN

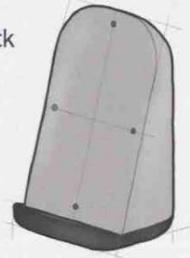
4. A designer has created manual preliminary sketches for a smartphone charging dock.

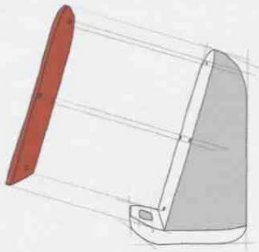
(a) Describe **two** reasons for creating preliminary sketches. 2

it contributes to the final design. it can be shown to the client. it can easily be edited. it is quickly created. ideas can be sketched

The designer created more preliminary sketches using digital methods. Two of the preliminary sketches are shown below.

charging dock concept





dock with detachable face plate

(b) Describe **two** advantages of creating digital sketches over manual methods. 2

it can be visualised in 3D. it can be easily shared. it is easy to edit. different colours and materials can be tested. it can exist in multiple places at once. it can be collaborated on

(c) The designer displays their work in an online portfolio.

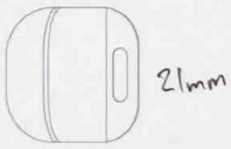
Explain **two** benefits to the designer of having their portfolio published online rather than being printed. 2

there is less material used. it can be shared globally. it can be edited from anywhere. all instances can be edited. there is less waste there is less pollution. it can be viewed anywhere

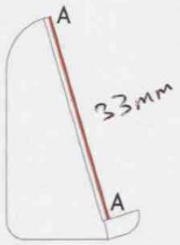
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4. **(continued)**

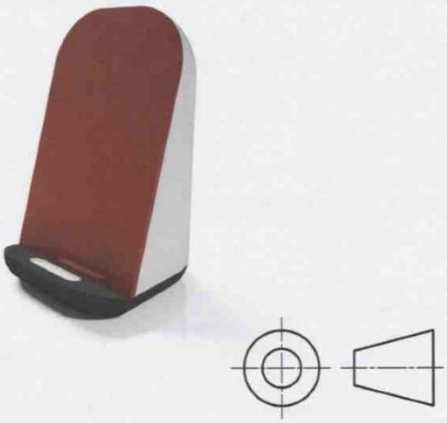
An orthographic drawing and rendered pictorial view of the charging dock are shown below.



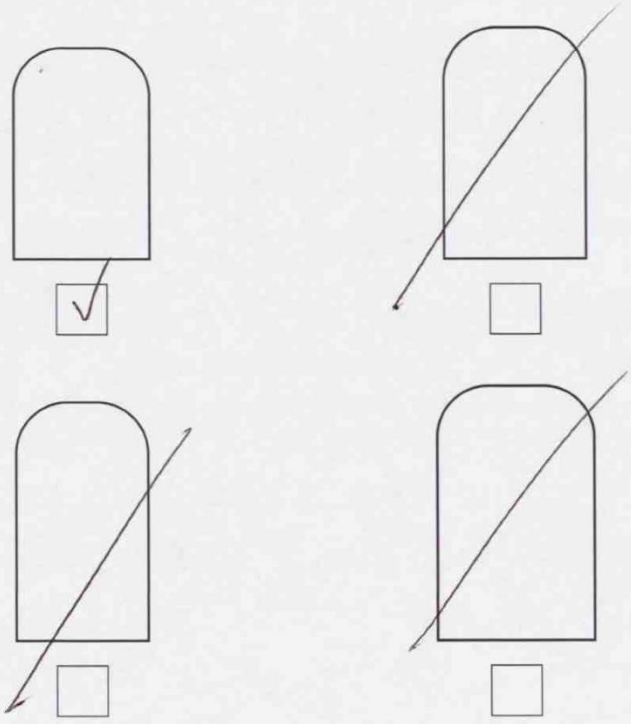
PLAN



ELEVATION



(d) Identify the correct true shape of the sloping surface A–A by ticking (✓) a box below. 1

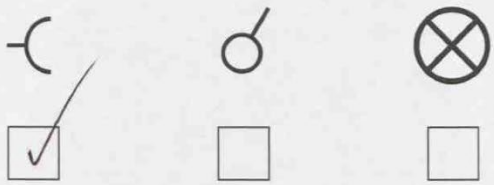


MARKS | DO NOT WRITE IN THIS MARGIN

4. (continued)

(e) The charging dock will be connected to a socket.

Identify the correct British Standard symbol for a socket by ticking (✓) a box below. 1



[Turn over

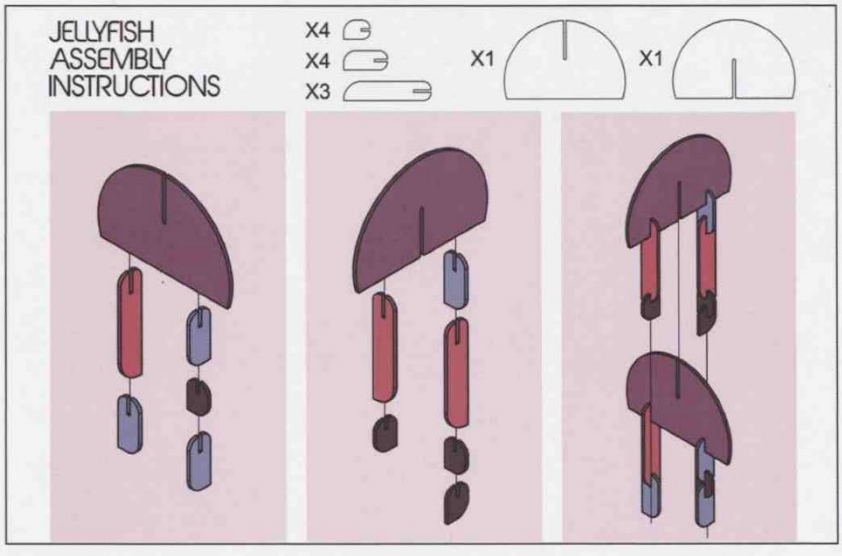
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5. A manufacturer has produced a range of toys. A 3D CAD illustration of a jellyfish toy is shown below.



jellyfish toy

The assembly instructions for the jellyfish toy are shown below.

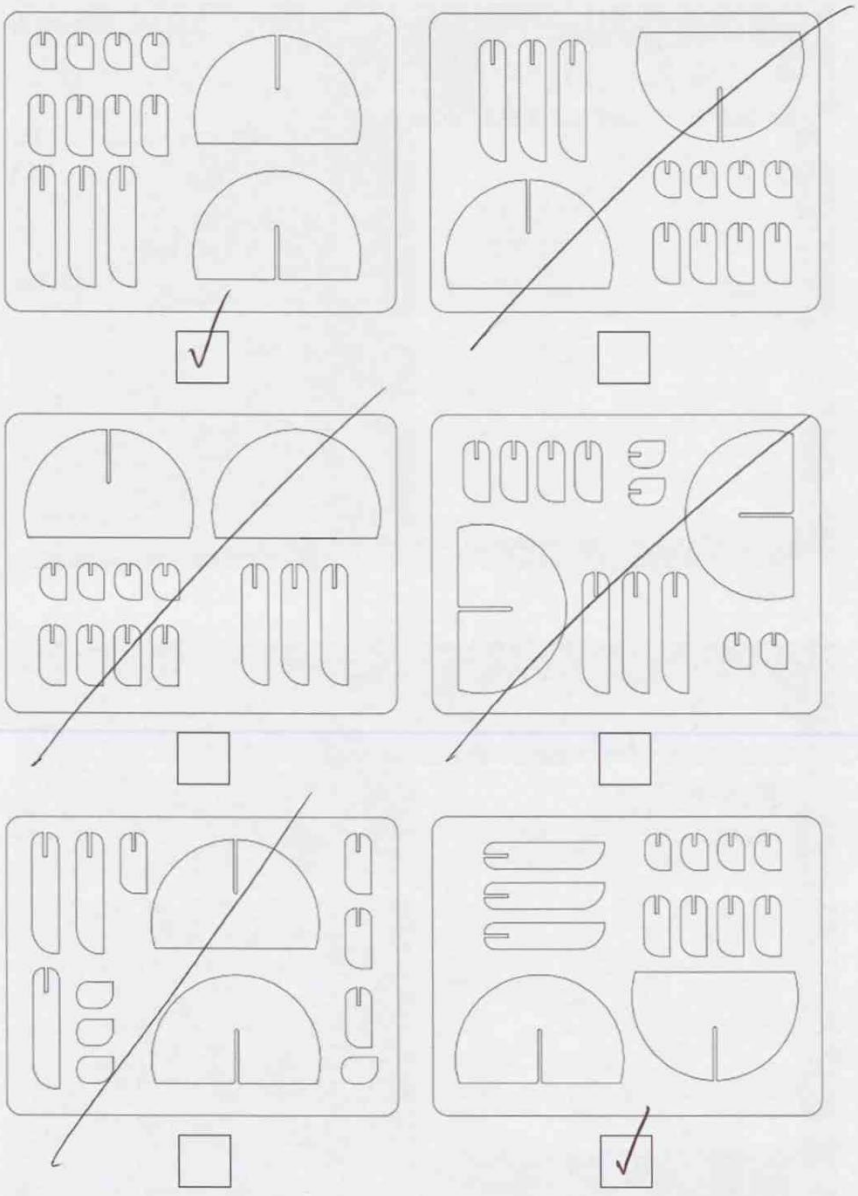


MARKS | DO NOT WRITE IN THIS MARGIN

5. (continued)

(a) The jellyfish toy parts are cut out from one sheet of material. Some layouts are shown below.

Identify the **two** correct layouts by ticking (✓) **two** boxes. 2



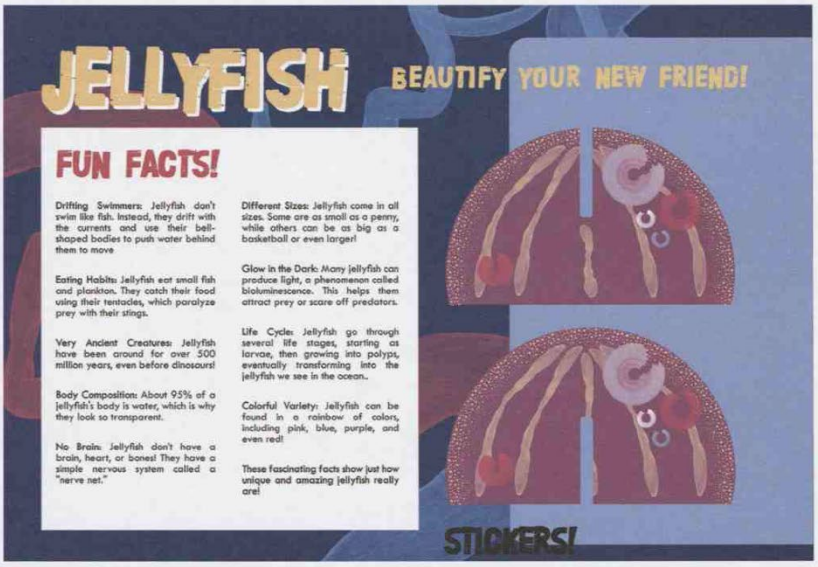
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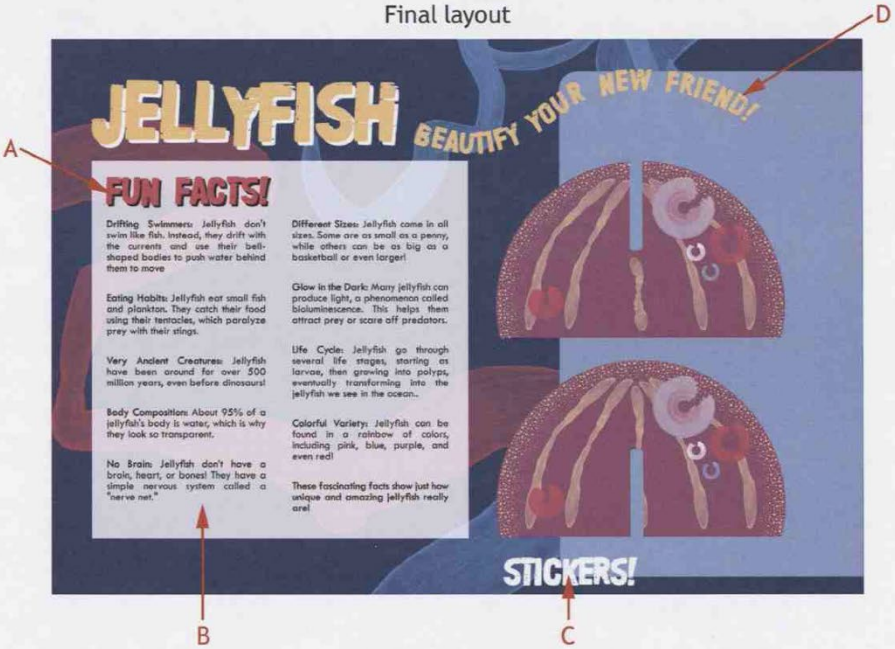
5. (continued)

The jellyfish toy is sold with a sticker fact sheet. The first draft, and final layout of the graphics are shown below.

Draft layout



Final layout



MARKS | DO NOT WRITE IN THIS MARGIN

5. (continued)

(b) State the names of the DTP edits, A to D, applied to the final layout, shown opposite.

Do not refer to scaling or resizing in your answer, and you must give a different answer for each response.

(i) Edit A to the 'fun facts' text: drop shadow 1

(ii) Edit B to the white box: transparency 1

(iii) Edit C to the 'STICKERS' text: reverse 1

(iv) Edit D to the 'BEAUTIFY YOUR NEW FRIEND' text: flow text along a path 1

(c) Describe, giving **two** reasons, the effect yellow-orange has on the title. 2

it creates contrast with the blue background the tertiary colour is calm. tertiary colours are harmonising. it makes the title pop. it makes the title stand out

Colours were selected by referring to the colour wheel.

(d) Complete the table below stating whether the colours are primary, secondary or tertiary. 3

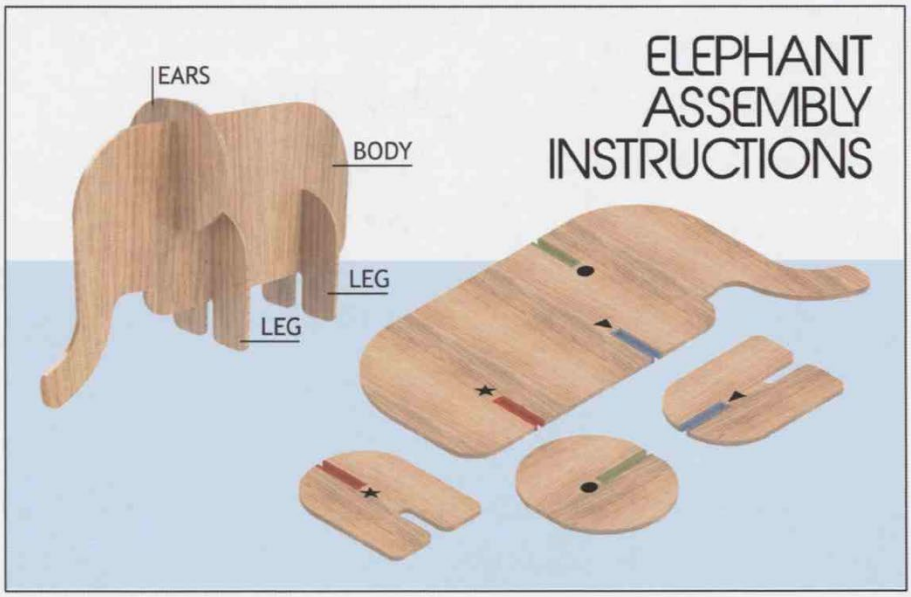
Colour	Primary, Secondary or Tertiary
Purple	secondary
Blue	primary
Yellow-orange	tertiary

[Turn over

MARKS | DO NOT WRITE IN THIS MARGIN

5. **(continued)**

Assembly instructions for an elephant toy are shown below.



(e) Identify **two** features of the assembly instructions that make them easy to understand. **2**

the location of the assembly are colour-coded.
there are ~~[illegible]~~ icons marking where pieces are assembled.
there is a finished assembly for reference

MARKS | DO NOT WRITE IN THIS MARGIN

6. A rendered 3D CAD illustration of a bottle holder is shown below.



(a) State the name of **two** CAD Illustration techniques that have been applied to the model. 2

lighting, material, [redacted]

(b) Explain **one** effect CAD illustration techniques have on 3D models. 1

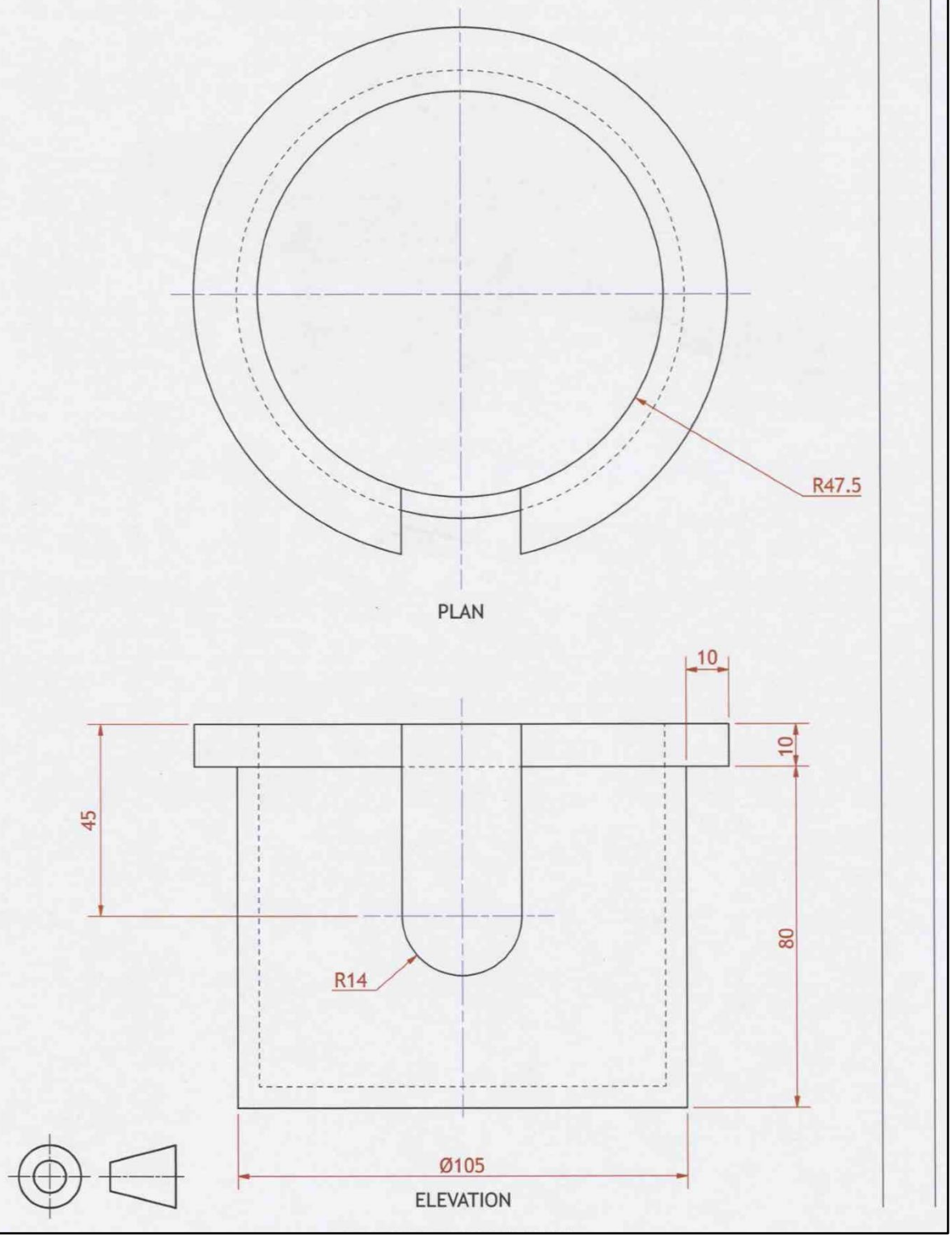
it makes it more realistic, different materials and colours can be tested

[Turn over

6. (continued)

DO NOT WRITE IN THIS MARGIN

An orthographic drawing of one of the bottle holder components is shown below.

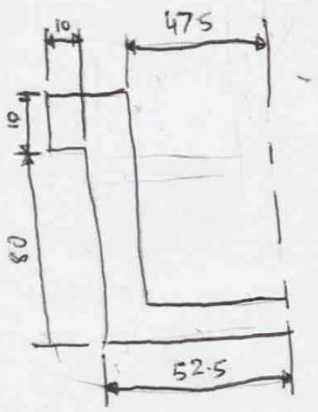


MARKS | DO NOT WRITE IN THIS MARGIN

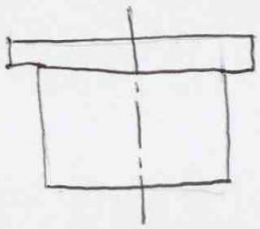
6. (continued)

(c) Describe, using the correct dimensions and 3D CAD modelling terms, how you would use 3D CAD software to model the bottle holder.

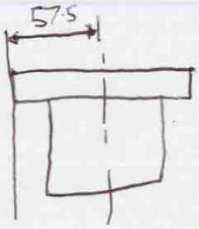
You may use sketches to support your answer. 5



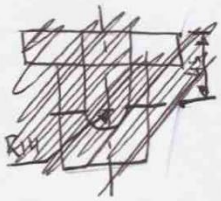
create a sketch on a centre axis, using the dimensions shown.



revolve the face around the centre axis, 360°



create a work plane offset by 57.5 from the centre



create a sketch of face (2) on the workplane, following the dimensions shown

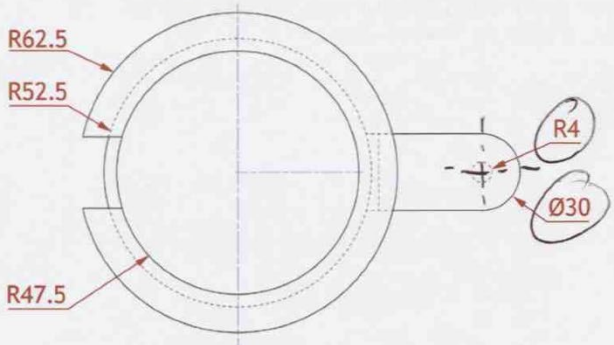


See additional space for answers

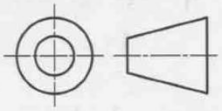
6. (continued)

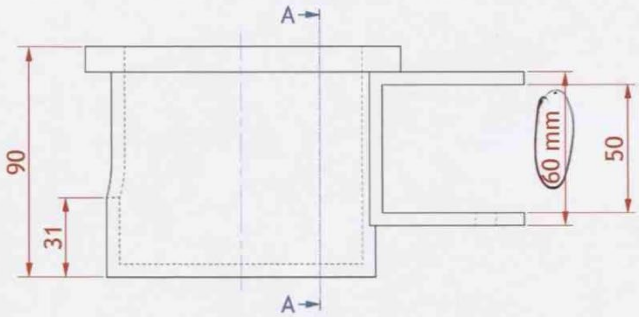
MARKS | DO NOT WRITE IN THIS MARGIN

An orthographic drawing of the assembled bottle holder is shown below.

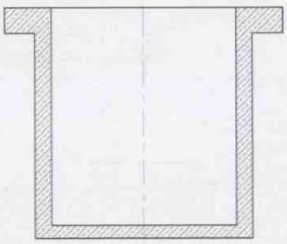


ELEVATION





END ELEVATION



SECTIONAL END ELEVATION
A–A

The orthographic drawing contains errors that do not conform to British Standards.

(d) Identify **six** errors in the orthographic drawing. 6

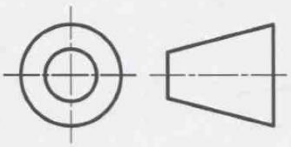
You may annotate the drawing to support your answer.

radius is used for circles instead of diameter.
diameter is used for ares instead of radius
units should not appear.
centre line is missing for circles.
hatching lines should not have dashes
a hidden line is missing from the elevation
"elevation" should be "plan"

MARKS | DO NOT WRITE IN THIS MARGIN

6. (continued)

A title block will be added to the final orthographic drawing. The title block will include the symbol shown below.



(e) (i) Describe the purpose of this symbol. 1

to indicate third-angle projection

(ii) State **three** other pieces of information that should be included in a title block. 3

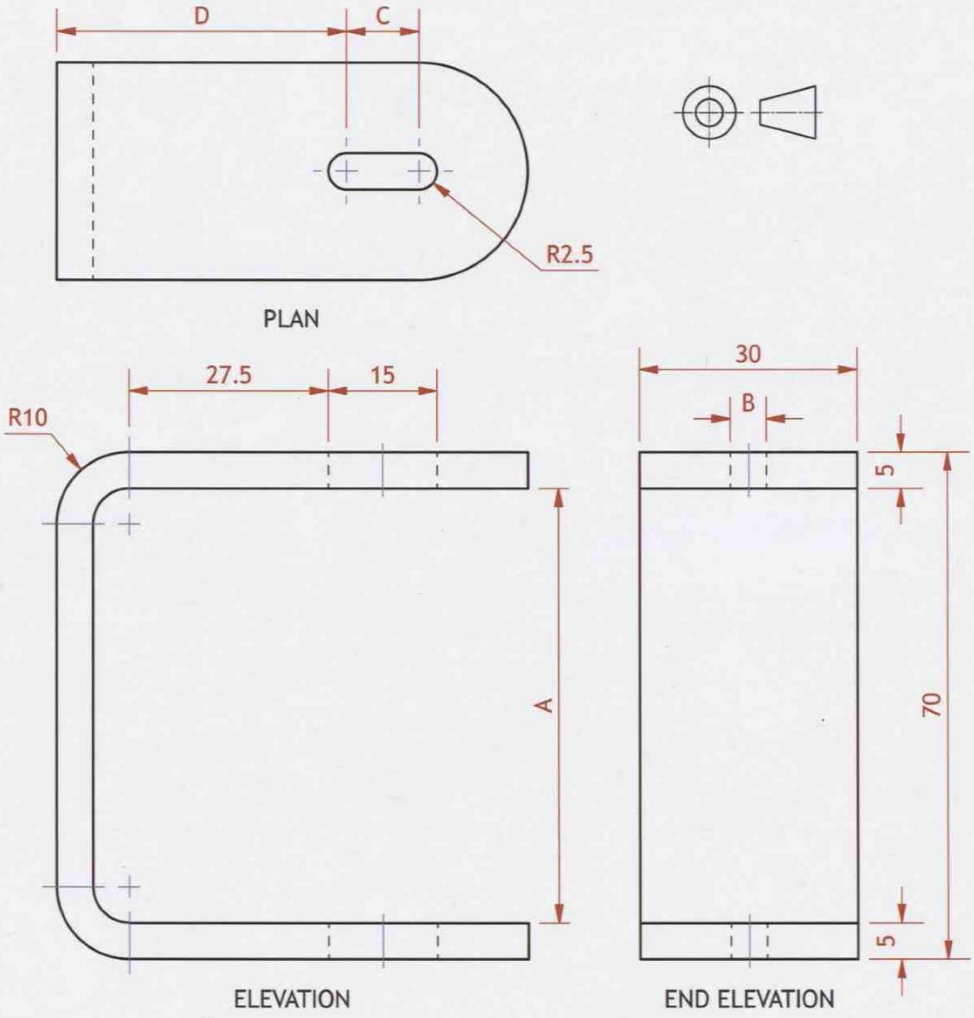
your name, the object's name, scale, units used

[Turn over

6. (continued)

MARKS | DO NOT WRITE IN THIS MARGIN

An updated orthographic drawing of another component from the bottle holder is shown below.



(f) Calculate the missing dimensions, A to D, from the orthographic drawing. 4

A = 60 mm

B = 5 mm

C = 10 mm

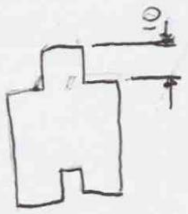
D = ~~40~~ 40 mm

[END OF QUESTION PAPER]

DO NOT WRITE IN THIS MARGIN

ADDITIONAL SPACE FOR ANSWERS

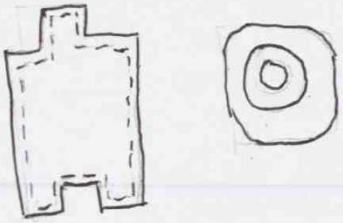
3.a



extrude the circle by 10 to add material

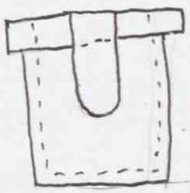


fillet all corners with a radius of 10.



shell the entire object with a wall thickness of 2, and remove the top face from the circle

6.c



extrude face (2) to subtract material by 21.

DO NOT WRITE IN THIS MARGIN

ADDITIONAL SPACE FOR ANSWERS

2.a (i) so non-technical people can understand it.
it can be used to promote
it can be placed in magazines