



**Graphic Communication
(National 5): question paper**

Candidate evidence

Candidate 2 evidence

MARKS

1. (continued)

- (b) Describe two ways the graphic designer has used each of the following design elements and principles in the layout.

You may annotate the graphic on the opposite page to support your answer.

(i) Alignment

2

One way the graphic designer has used alignment is the large heading and text alling at the same point. Plus where the red and 'UP' alling together

(ii) ^{box}Depth

2

The graphic designer has used dept through layering the runners in the background, plus the two background boxes over each other creates depth. Plus the translucent boxes create

(iii) ^{depth}Contrast

2

The receding red colour scheme in contrast to the grey/black creates a contrasting colour scheme, through bright and dull. Plus the contrasting colours on the title ~~plus~~

- (c) Explain two advantages to the fitness company of promoting their company online rather than in printed media.

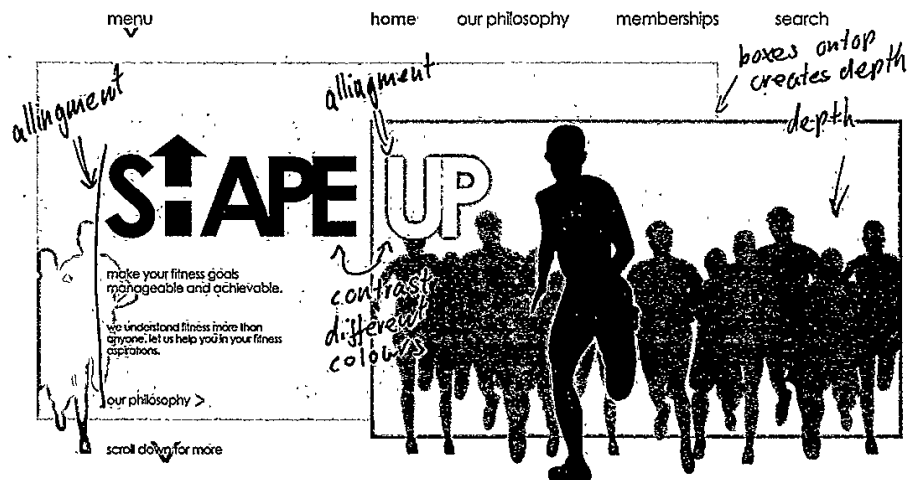
2

The majority of their audience will be online looking for this, so it is easier to find, and reach their target audience. It saves costs on printing, plus no trees are cut down to make paper for the promotion to be printed on

[Turn over

Total marks — 65
Attempt ALL questions

1. The website homepage for a fitness company is shown below.

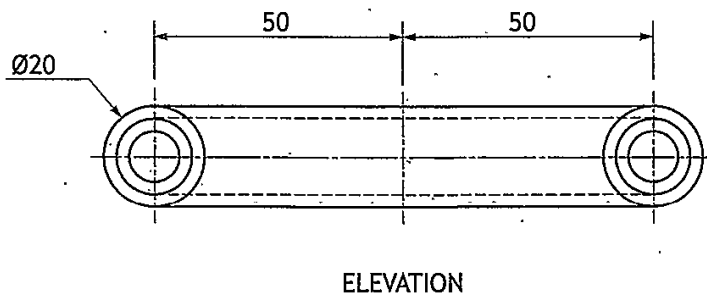
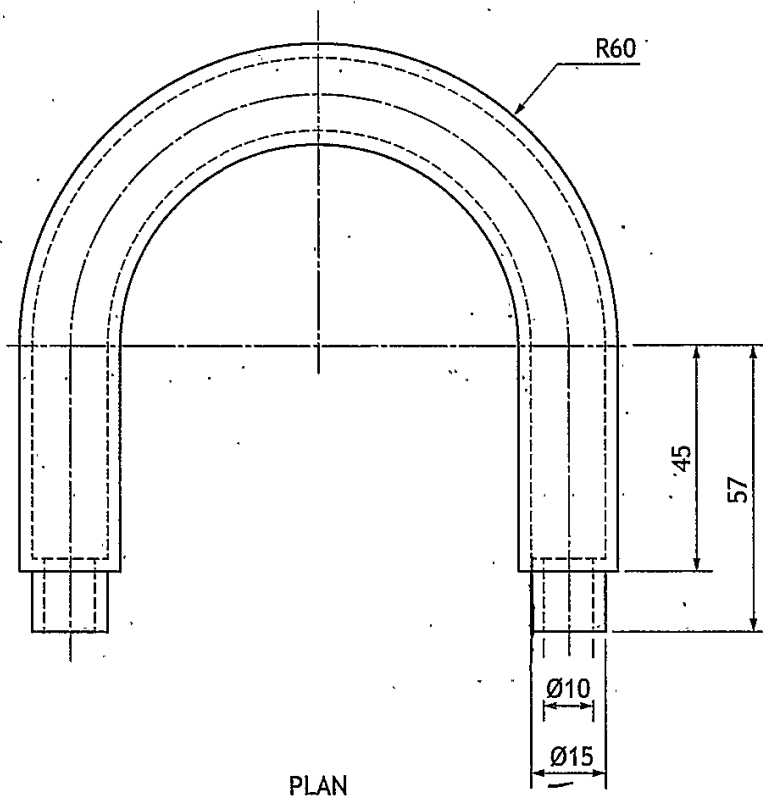
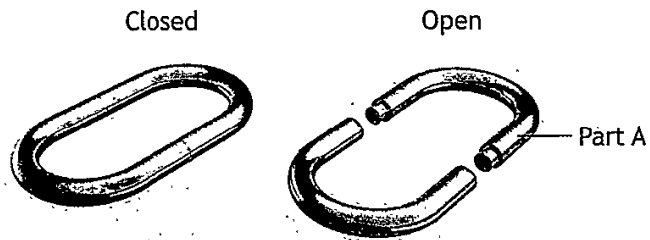


- (a) Explain two ways the designer has successfully created a modern and simple website homepage.

2

with 2 colours in different shades
The graphic designer has ~~used~~ kept the colour scheme to a minimal, this is simple plus it unifies the homepage. The graphic designer has also used a modern font that makes the page look attractive and aesthetically pleasing. Plus the use of the cubic features like the rectangular boxes, and font help ~~make it~~ make it look simple and unified.

2. A 3D CAD illustration of a bicycle lock casing, and an orthographic drawing of Part A, are shown below.



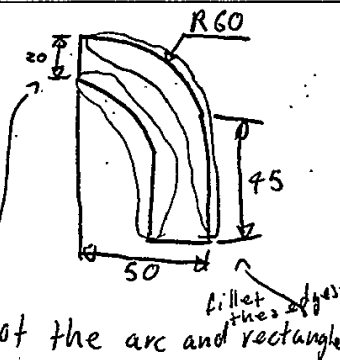
2. (continued)

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

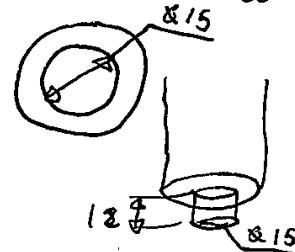
You may use sketches to support your answer.

6

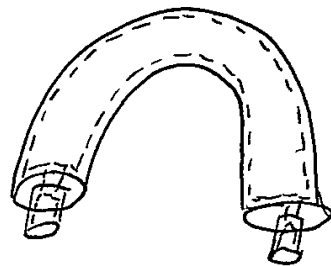
On the center axis draw this shape using the 2D line tool and arc. Then extrude add by 20mm. then using the mirror tool mirror the shape ~~on~~ on the center axis on the face. then fillet each edge of the arc and rectangle by R10mm to create a cylindrical tube.



Then on the bottom 2 faces sketch a circle with a diameter of 15mm then extrude add by 12mm ~~then on top of~~ then repeat on the other side

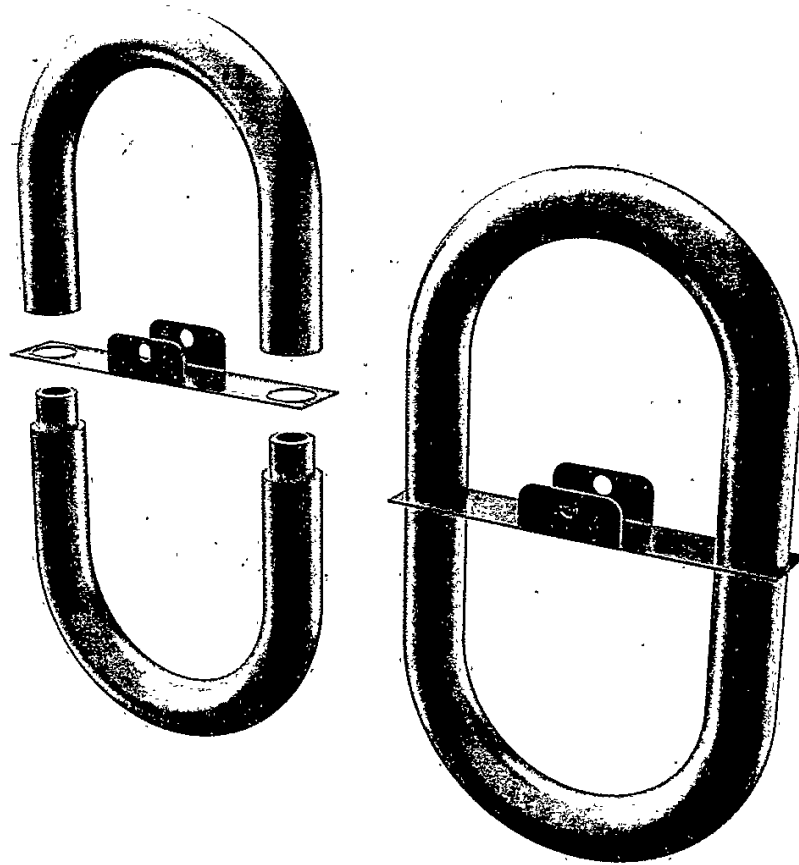


Then shell the whole thing leaving a wall thickness of 5mm and removing the two bottom faces of the 15 circle

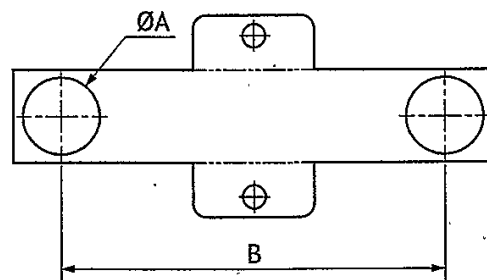


2. (continued)

3D CAD illustrations of the bicycle lock with its packaging and a drawing of the packaging are shown.



The packaging sleeve for the bicycle lock is made from card and fits between both parts of the lock. A surface development of the packaging sleeve is shown below.



NOTE: The thickness of the card is not shown and the surface development is not to scale.

2. (continued)

(b) Calculate the minimum dimensions on the surface development for

(i) diameter A 21 mm 1

(ii) length B ~~100 mm~~ 101 mm 1

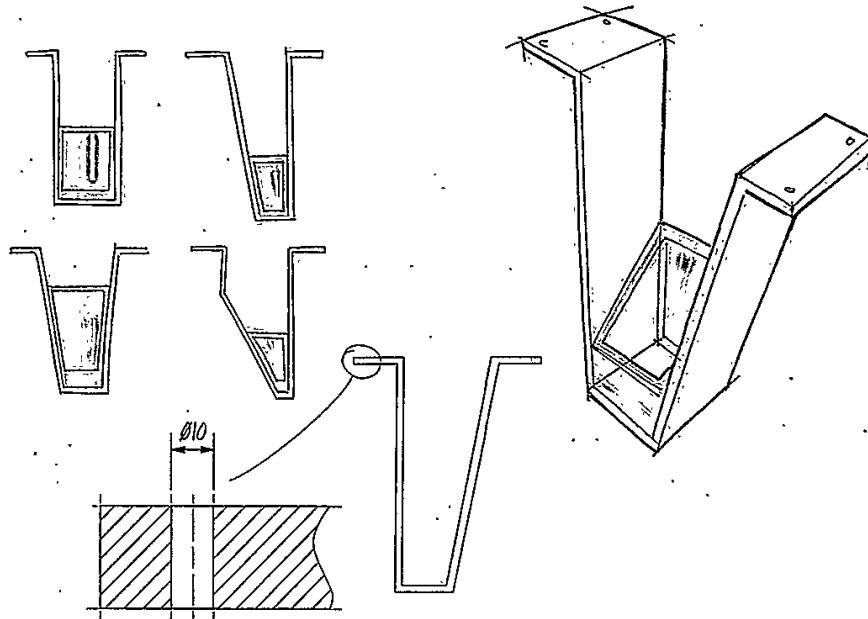
(c) Describe how the environmental impact of manufacturing the packaging sleeve can be reduced. 1

On the sheet it is cut out of it should be near the edge so the waste material is kept to a minimum.

It could be made from recyclable materials or bio degradable materials

[Turn over

3. A designer has created preliminary sketches for a ceiling-mounted display sign for an airport. The preliminary sketches are shown below.



- (a) Explain the purpose of preliminary sketches.

2

To jot down ideas quickly and suggest
a ruff idea to the client if this is
what they want.

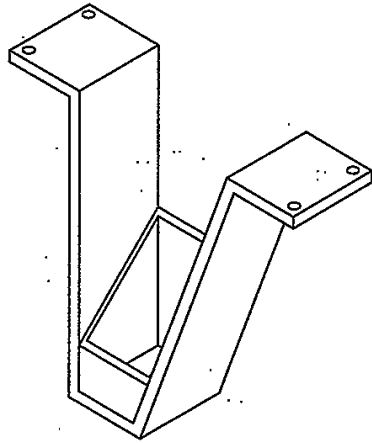
- (b) State two input devices that could be used to make a digital copy of the preliminary sketches.

2

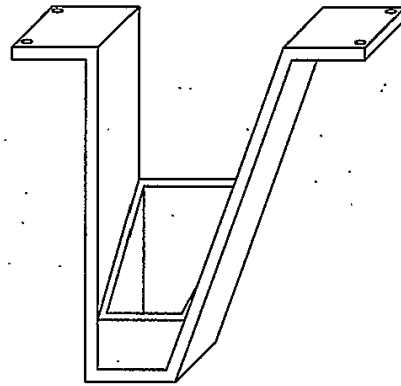
~~the~~ scanner
~~the~~ camera

3. (continued)

Two pictorial views of the display sign are shown below.



Pictorial A



Pictorial B

(c) State the names of the pictorial views.

2

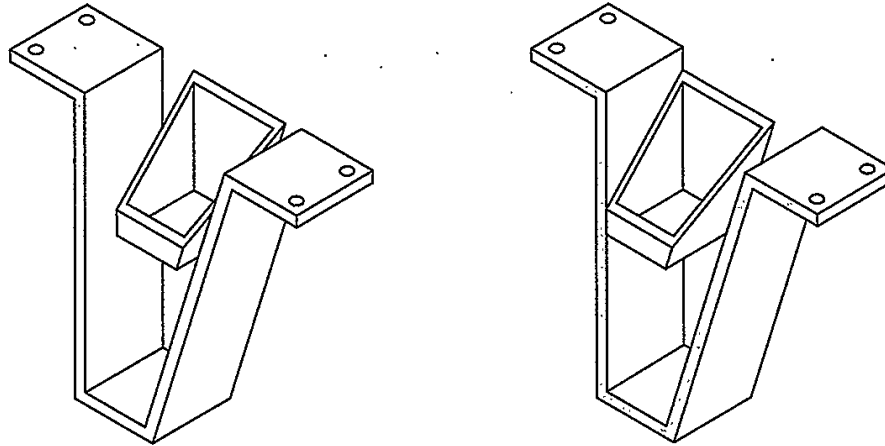
Pictorial A Isometric

Pictorial B Oblique

[Turn over

3. (continued)

- (d) The designer used constraints to assemble both parts of the display sign.
The before and after of stage 1 of the assembly is shown below. The grey areas show the surfaces that were constrained in stage 1.



Before

After

- (i) State the name of the CAD constraint used above.

1

mate constrain

- (ii) State the names of two other constraints used in 3D CAD modelling.

2

mate constrain mate

center axis constrain

- (e) The designer added more parts to the assembly from a CAD library.

Explain one advantage to the designer of using a CAD library.

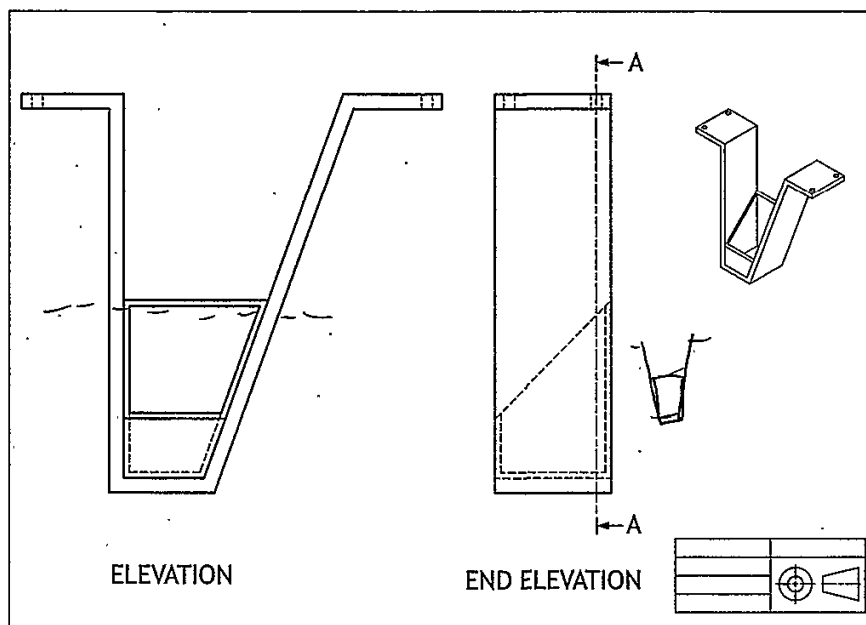
1

Parts can be re-used over and over again

you can share/borrow parts from other CAD designers

3. (continued)

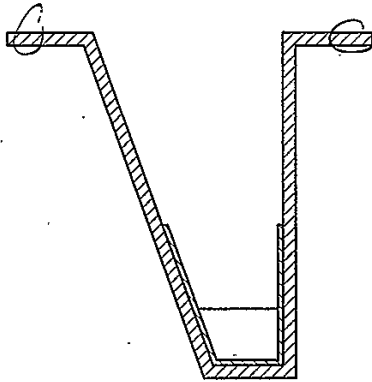
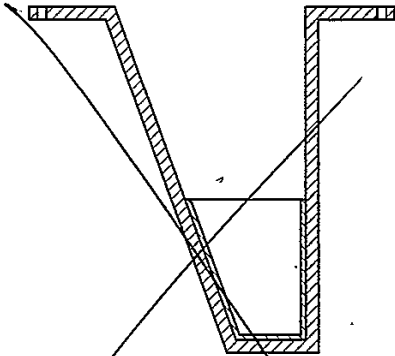
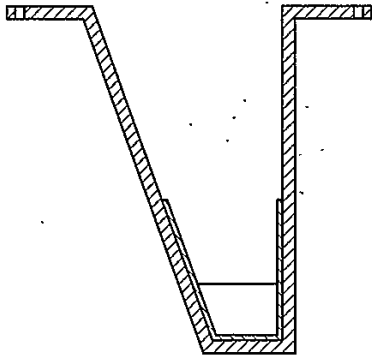
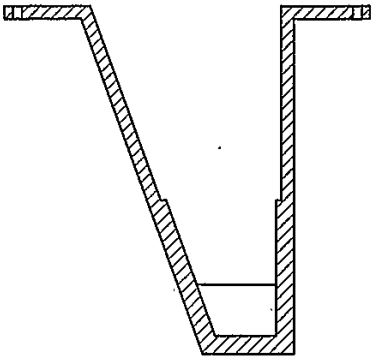
The finished production drawing of the assembly is shown below.



3. (continued)

(f) Identify the correct sectional end elevation A-A from the production drawing shown opposite, by ticking (✓) a box below.

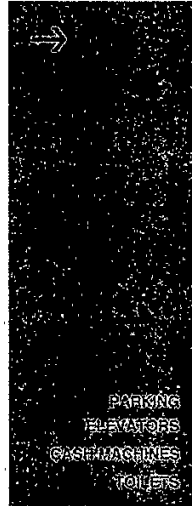
1



[Turn over

3. (continued)

Two ideas for the airport signs are shown below.



Sign 1



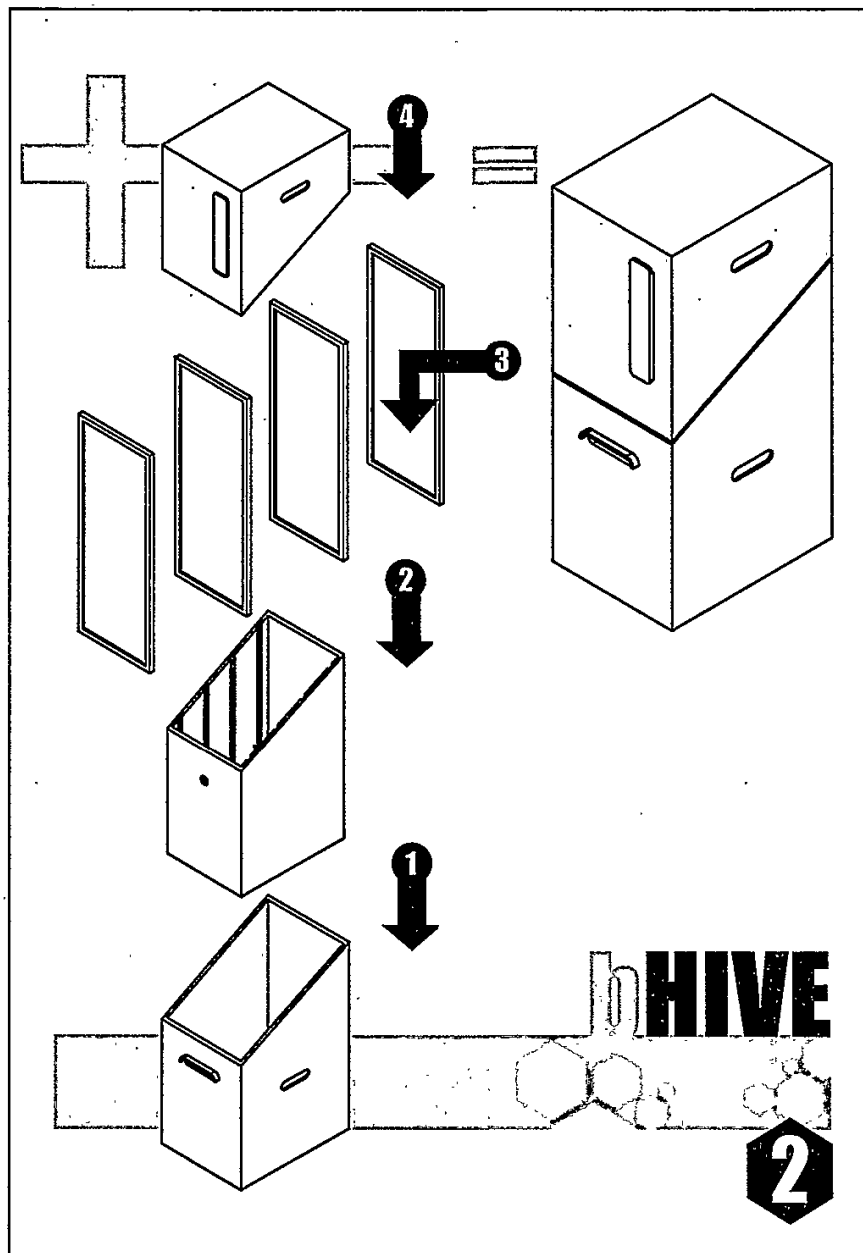
Sign 2

- (g) Explain, giving two reasons, why sign 2 is more appropriate for the airport sign.

2

The contrasting colours stand out making it noticeable in the airport. The use of images makes it accessible for people to understand plus you can tell what it is just by looking at it

4. A graphic designer has produced an instruction manual for a beehive, shown below.



4. (continued)

- (a) Explain an advantage to both the user and the manufacturer of not including text within the instruction manual.

(i) User It easier to understand plus it takes less 1
time as you don't need to read anything

(ii) Manufacturer Less ink and paper are used plus 1
it saves time as they don't need to check
writing for errors

Before the final printing of the instruction manual several changes were made to reduce environmental impact.

- (b) Describe one change that could be made to reduce the amount of ink used in the instruction manual opposite. 1

The assembled picture could be removed to ~~save~~
save ink plus the flash bar and 's and =s
could be removed as well to save ink

[Turn over

4. (continued)

The beehives are available in both primary and secondary colours. The lid and base are sold separately to allow customers to personalise their colour combinations.

- (c) A customer wants to purchase a red lid and a contrasting base.

State the name of a suitable colour.

1

Blue

- (d) A customer wants to purchase a violet base and a harmonising lid.

State the name of a suitable colour.

1

pink/magenta

- (e) A customer plans to purchase a beehive for use in a school's garden, they have selected both parts in primary colours.

- (i) State the name of two primary colours that could be purchased.

2

Red and blue

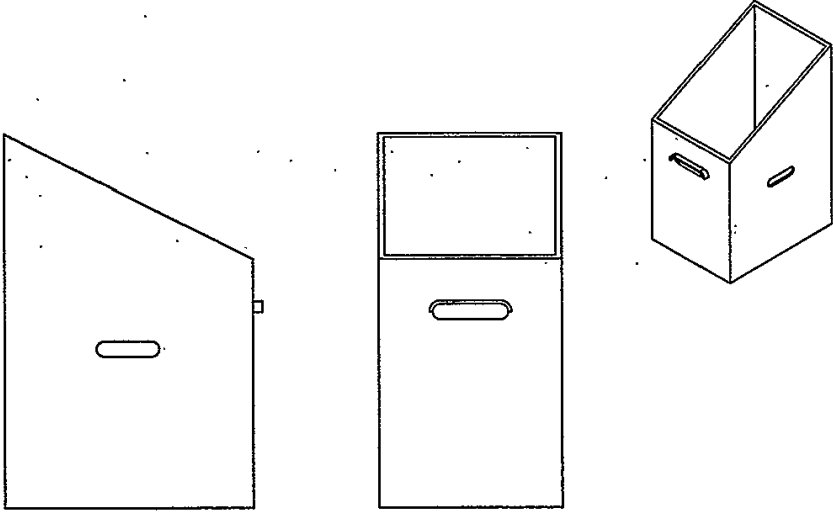
- (ii) Explain why primary colours are suitable for a school garden.

1

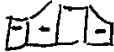
They are bright, playful ~~coll~~ ~~coll~~ colours
that would attract children as they like
bright colours

4. (continued)

A range of vinyl wraps are being created for the beehive.

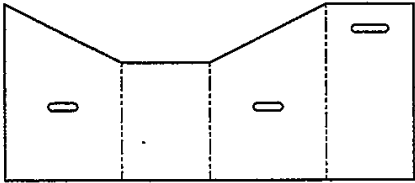


Base of beehive

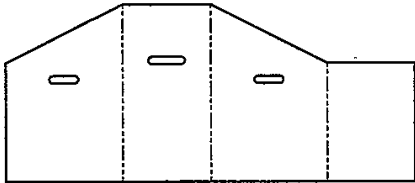
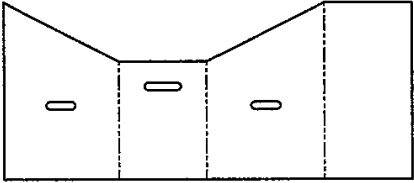


(f) (i) Identify the correct surface development used to create the vinyl wrap for the base of the beehive by ticking (✓) a box below.

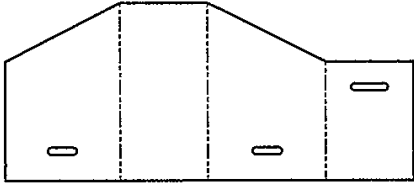
1



X



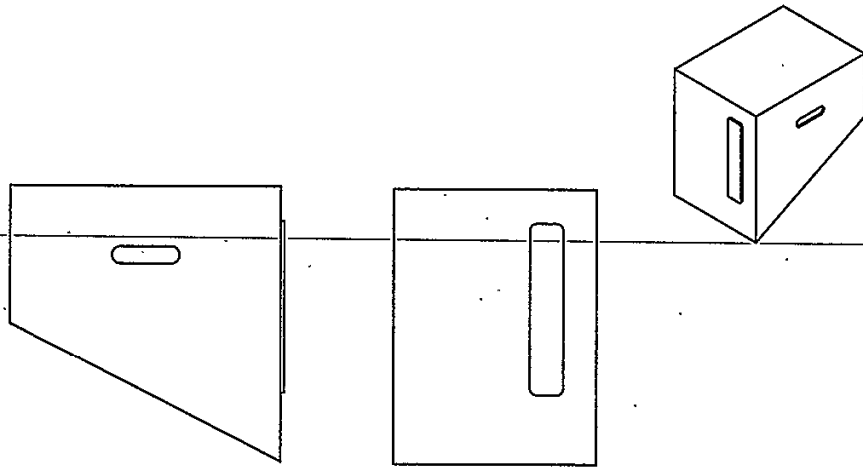
X



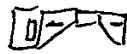
X

[Turn over

4. (f) (continued)



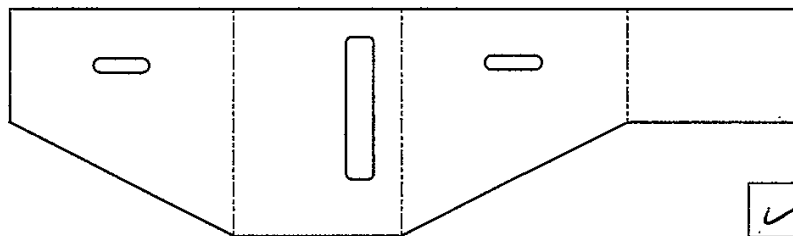
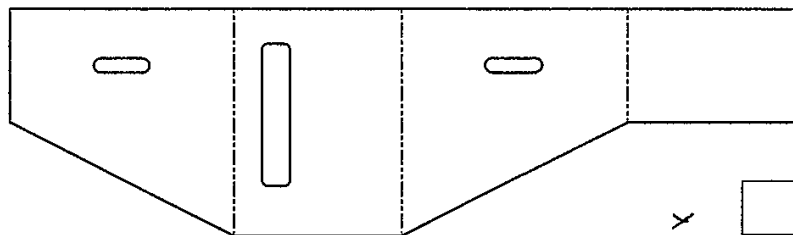
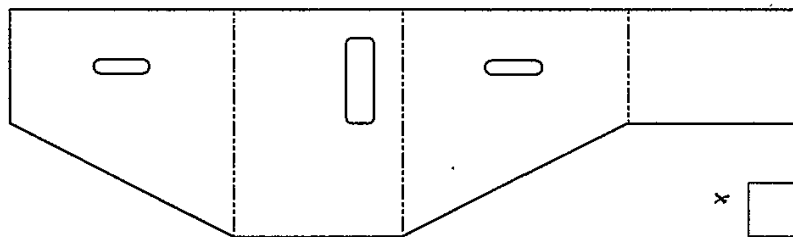
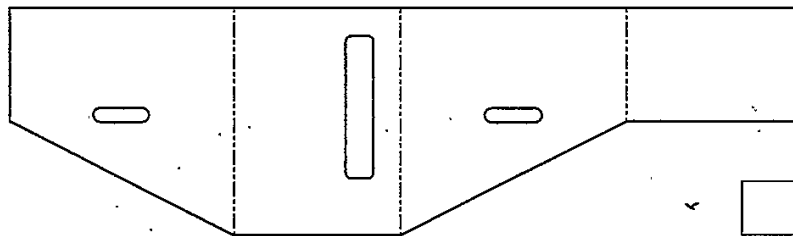
Lid of beehive



4. (f) (continued)

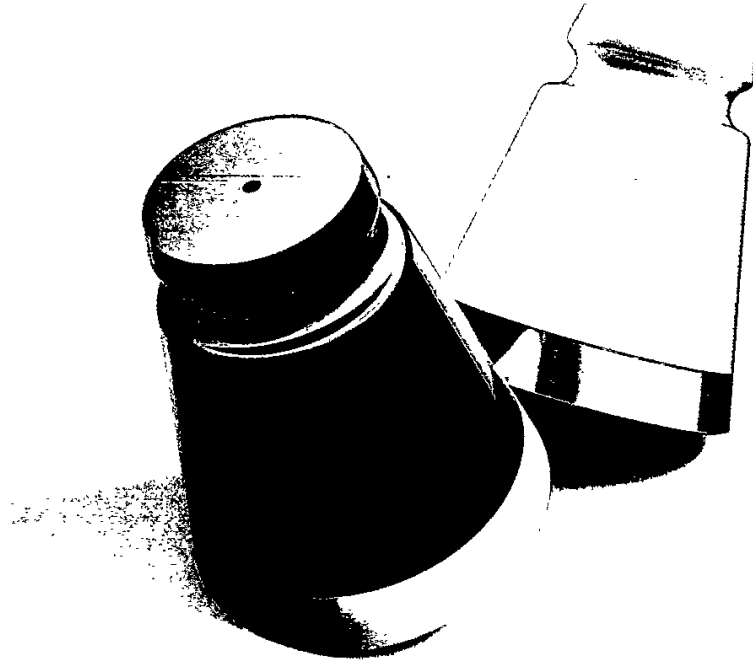
(ii) Identify the correct surface development to create the vinyl wrap for the lid of the beehive by ticking (✓) a box below.

1



[Turn over

5. A new range of salt and pepper shakers are being developed.
A 3D CAD illustration of the salt and pepper shakers is shown below.



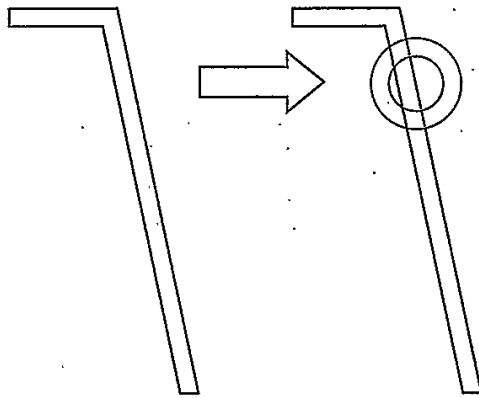
5. (continued)

MARKS

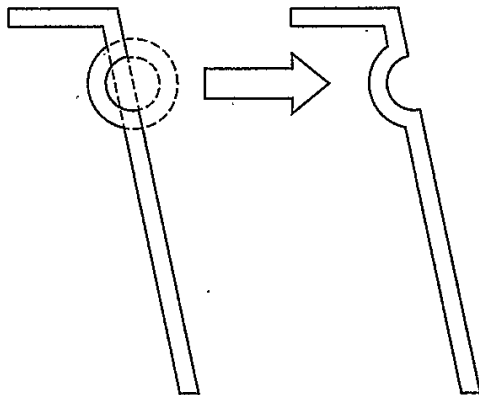
A series of 2D drawing tools were used when modelling the shaker.

(a) State the name of the 2D CAD drawing tool highlighted in red that is used at each stage.

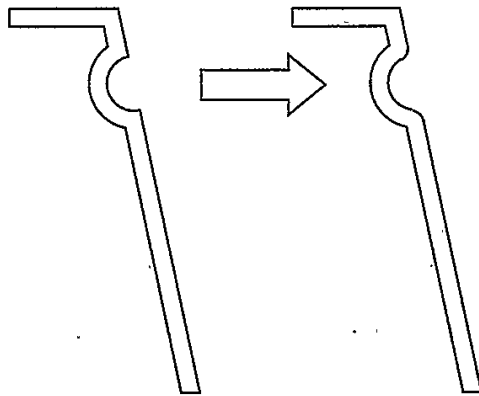
3



(i) tool used: line



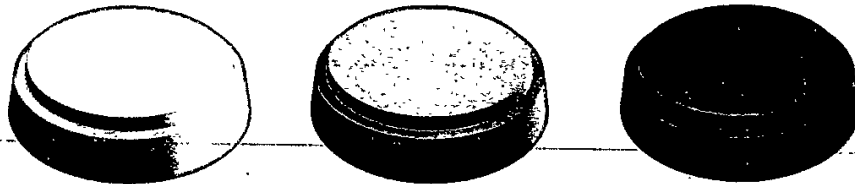
(ii) tool used: 2D Circle



(iii) tool used: Arc

5. (continued)

The base of the shaker will be made in a range of different woods. For promotional purposes the designer produced a 3D CAD illustration.



- (b) State the name of the technique used to give the greyscale model the appearance of wood.

1

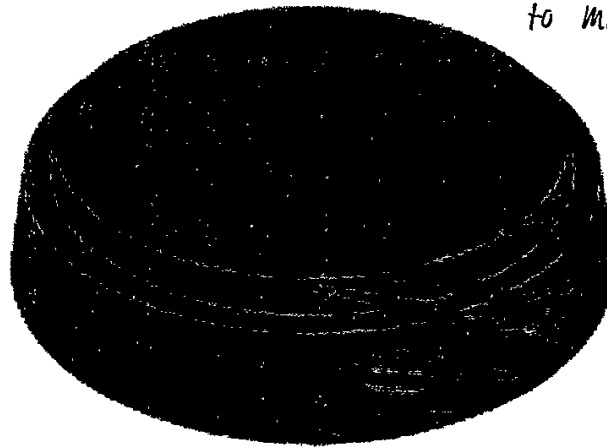
texture

- (c) Describe two benefits of using 3D CAD models for manufacturing.

2

It saves material as its not a real model, it can be sent/shown to clients easily, it can demonstrate how it should look assembled, changes can be made if its too difficult to manufacture

The initial renders were dark, pixelated and poor quality.



- (d) Describe one way the designer could improve the final renders.

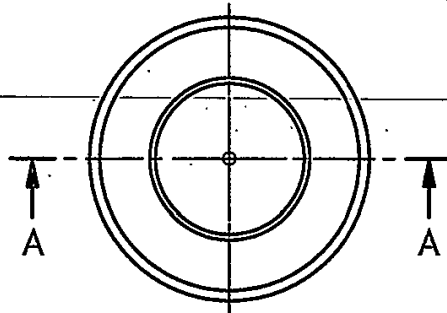
1

They could change the lighting plus ray-trace it at a higher quality, get a better computer

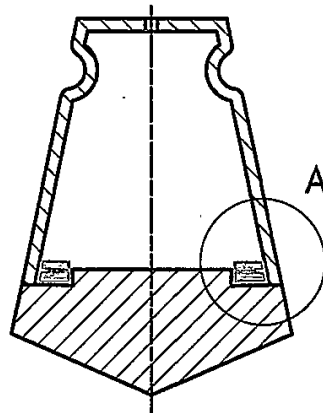
5. (continued)

Modifications were made to the base section of the shaker. A sealing ring was added to stop the two sections separating.

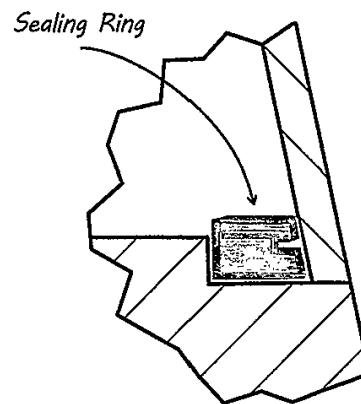
The designer's development sketches for the changes are shown below.



PLAN



Section A-A



Detail A

5. (continued)

(e) Describe, using 3D CAD modelling techniques, how the sealing ring would be modelled.

Do not refer to dimensions. You may annotate the line drawing on the opposite page and use sketches to support your answer.

3

Sketch a square/rectangle
 then extrude add
 then on the shaded face
 they could draw another 2 rectangles
 then extrude add them.
 then champher the
 edges

The sketches show the following steps:

- A square/rectangle is drawn.
- An arrow points to a 3D block representing the extruded shape.
- A shaded face of the block is shown.
- Two rectangles are drawn on the shaded face.
- An arrow points to a 3D block with two rectangular features, representing the extruded shapes.
- An arrow points to a chamfered edge of the block, labeled "champher".
- A final 3D model of the sealing ring is shown.

6. (continued)

Detail from badge 3 is shown below.



- (c) State the name of the two DTP techniques applied to the word 'expedition'. 2

Technique 1 Text wrap

Technique 2 Curve, Rotate

[Turn over

6. The Scottish Space Exploration Association (SSEA) are launching a proposal for a base on Mars.

Three promotional badges have been developed for the proposal.



Badge 1



Badge 2



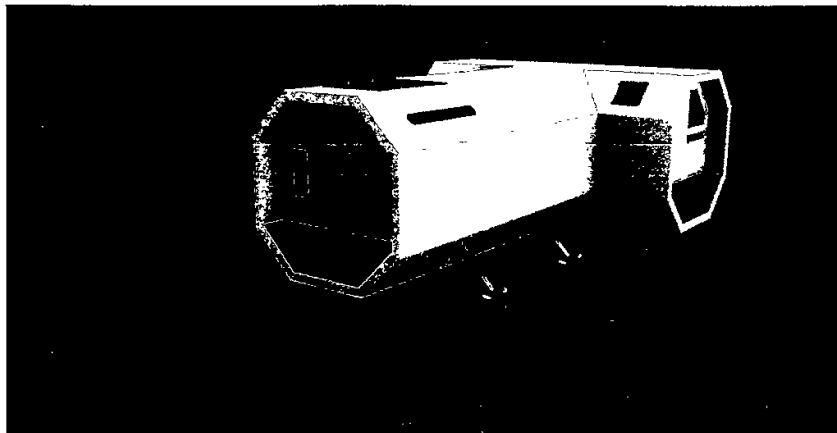
Badge 3

Describe one way the designer has used the following design elements and principles in any of the badges.

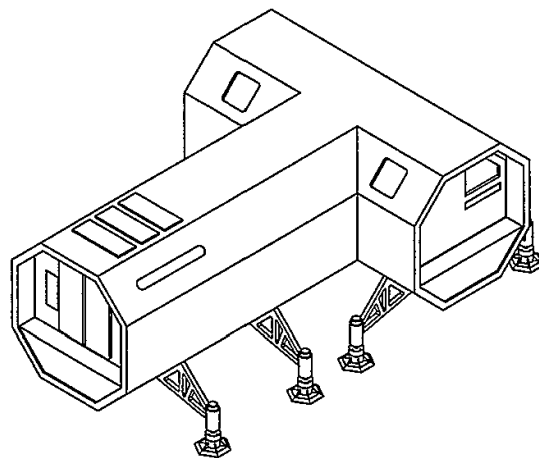
- (a) (i) Dominance 1
Dominance has been used in badge 3 by making the MARS title the largest text on the badge
- (ii) Line 1
Line has been used in badge 3 as the thick circular line separates the 'expedition' and background from the rest/main part of the badge
- (iii) Unity 1
has been used in badge 2 through the receding ~~contrast~~ red colour that contrasts with the dark blue background.
- (b) (i) State whether the font style used in the badges above is Serif or Sans Serif. 1
Serif
- (ii) Explain why this font style is a suitable choice. 1
it is modern ^{bold} and eye-catching perfect for people to see and be attracted to

6. (continued)

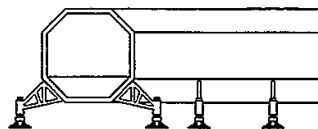
It is proposed that a Mars base will be constructed using identical pods arranged in different ways.



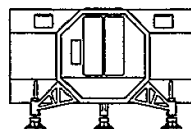
Orthographic elevations and a pictorial view of a single pod are shown below.



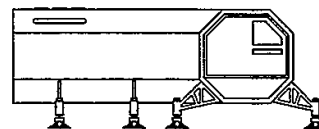
Pictorial View



End Elevation



Elevation



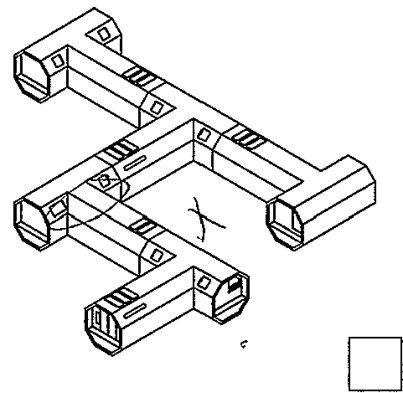
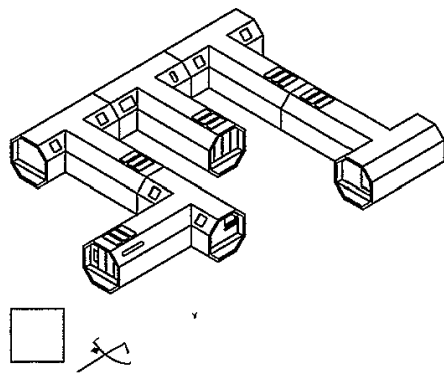
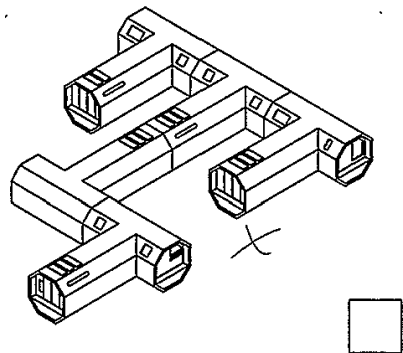
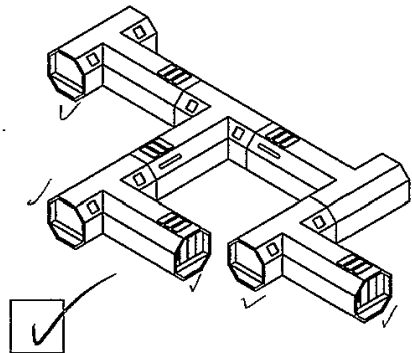
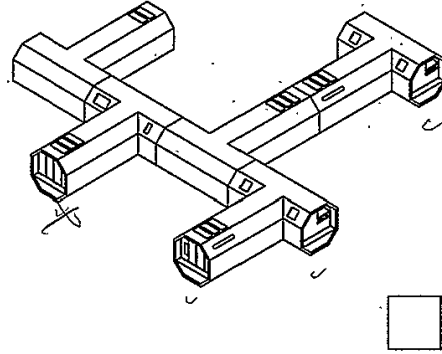
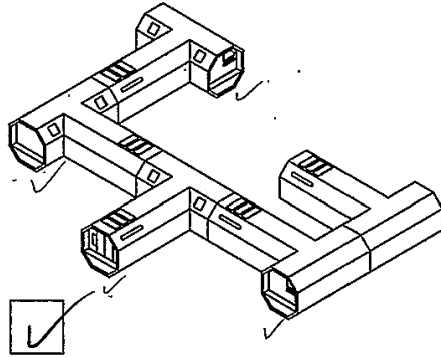
End Elevation

6. (continued)

(d) Several arrangements are shown below. The pod legs have been removed to simplify the drawings.

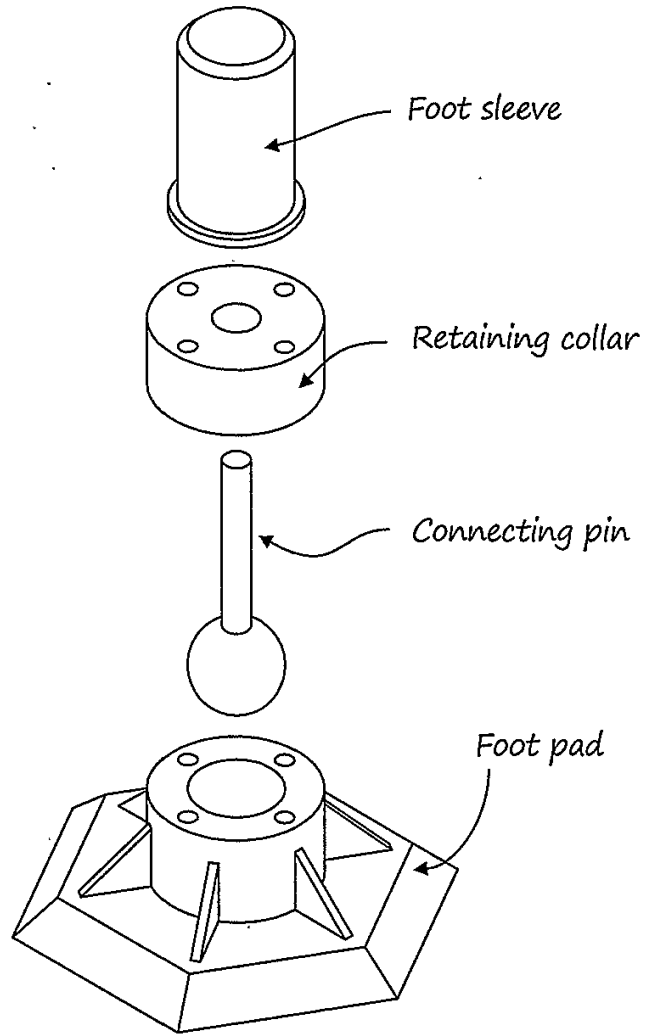
Identify the two correct arrangements by ticking (✓) two boxes below.

2



[Turn over

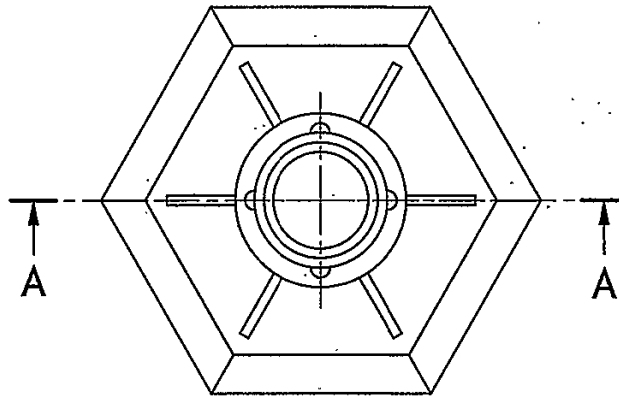
(e) An exploded pictorial of a pod leg is shown below.



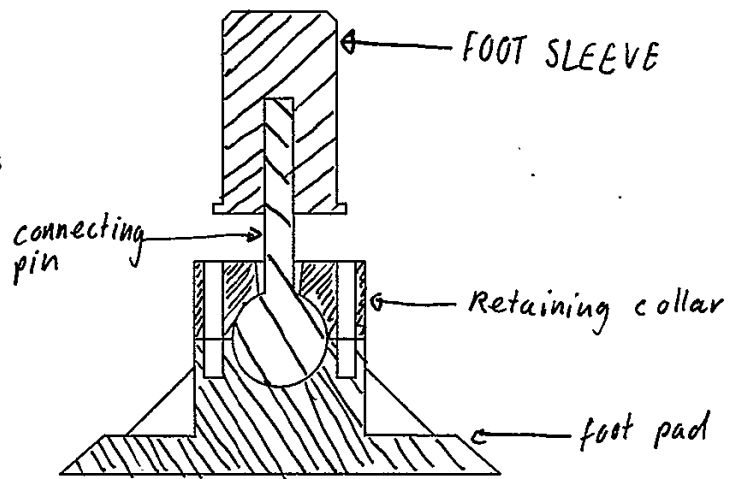
6. (e) (continued)

Identify the foot sleeve, retaining collar, connecting pin and foot pad by labelling the sectional elevation.

4



NOTE:
Centre lines
removed
for clarity

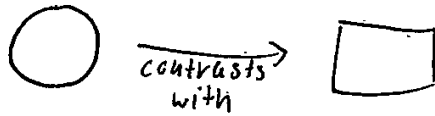


Sectional Elevation A-A

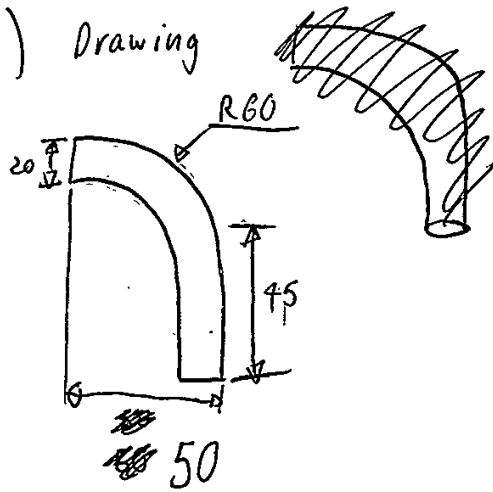
[END OF QUESTION PAPER]

ADDITIONAL SPACE FOR ANSWERS

(biii) The rectangular boxes and round features of the people, contrast well, because



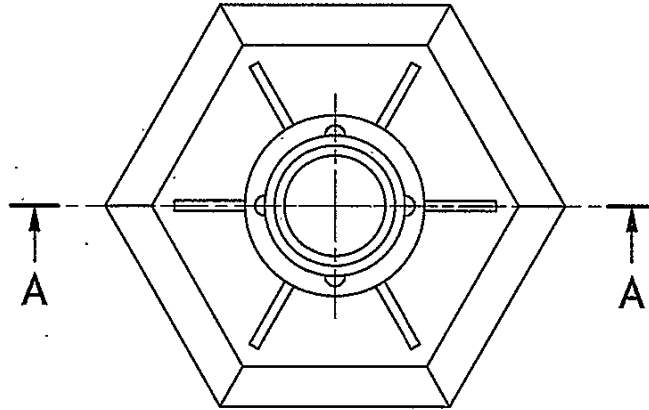
(2a) Drawing



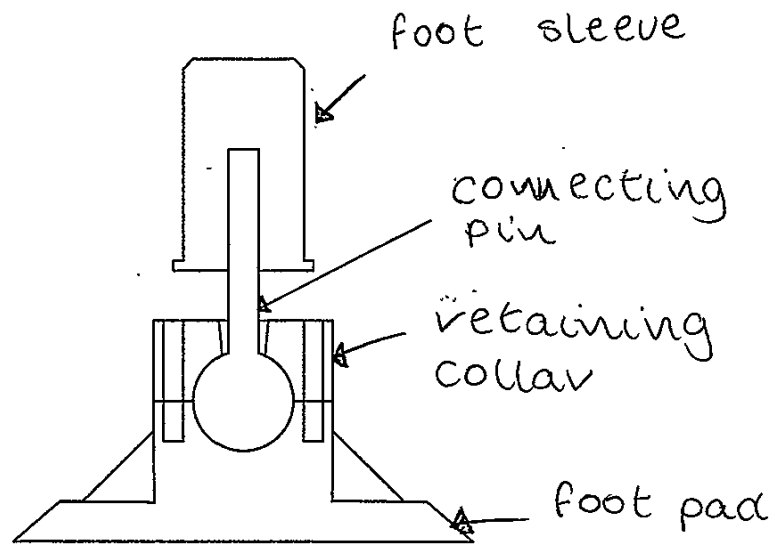
6. (e) (continued)

Identify the foot sleeve, retaining collar, connecting pin and foot pad by labelling the sectional elevation.

4



NOTE:
Centre lines
removed
for clarity



Sectional Elevation A-A

[END OF QUESTION PAPER]