



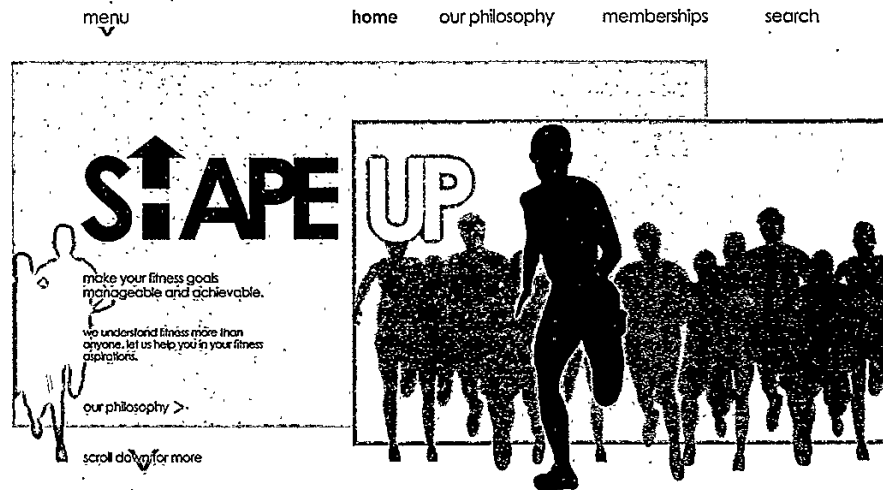
**Graphic Communication
(National 5): question paper**

Candidate evidence

Candidate 5 evidence

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

on the top of the page they have made an easy access point from the drop down ribbon.

the simplicity comes from the lack of detail in the silhouettes.

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

The paragraphs are lined to be left of the page.

The home option is aligned alongside the orange box.

(ii) Depth

2

They developed depth using the main site being bigger than everything else.

They also made the letters overlap the orange for sites as a created depth.

(iii) Contrast

2

The main site contrast strongly to the orange background.

The black letters and arrow allow for contrast with the gray giving the illusion of the word's shape.

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

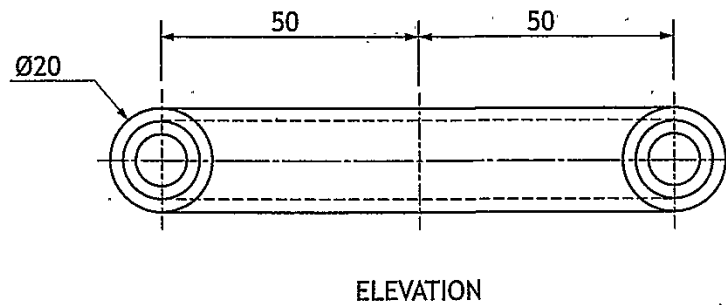
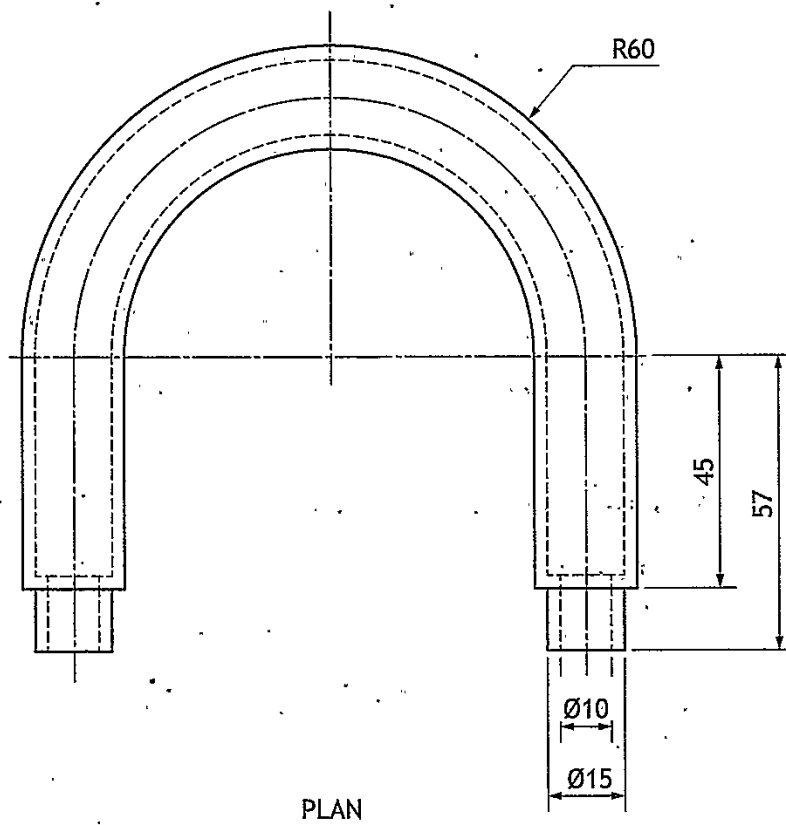
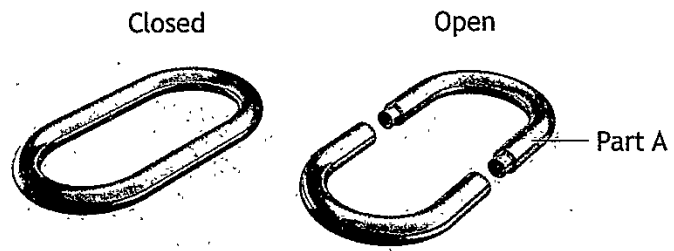
2

More people are online meaning it could be seen by a larger population.

It is also easier to edit the page if it's online.

[Turn over

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

Select work plane

draw a circle 20mm diameter

click finish sketch and extrude along a path after choosing the path click done

Select the ^{user} circle faces and start a new sketch

draw a second circle 15 ϕ

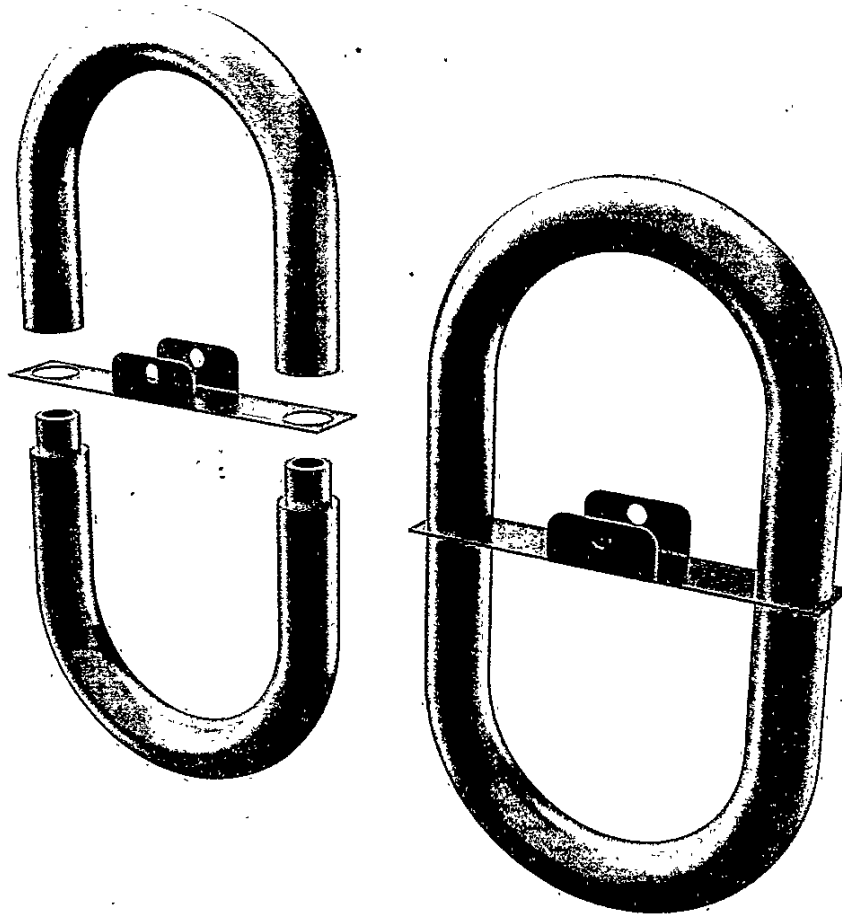
Extrude the circle by 12mm

to make it hollow use the shell option

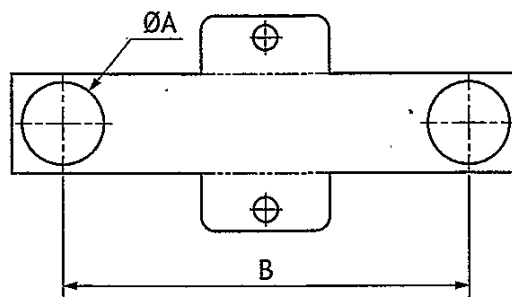
The diagram shows a series of hand-drawn sketches illustrating the steps to model a hollow part. It starts with a top view showing a circle with a diameter of 20mm. The next sketch shows a curved path, likely representing the extrusion direction. A third sketch shows a side view of the part with a hole, indicating the selection of the circular faces. The final sketch shows a top view with a second circle of diameter 15mm drawn inside the first one, representing the shell operation. The text provides step-by-step instructions for each stage.

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 15 mm 1

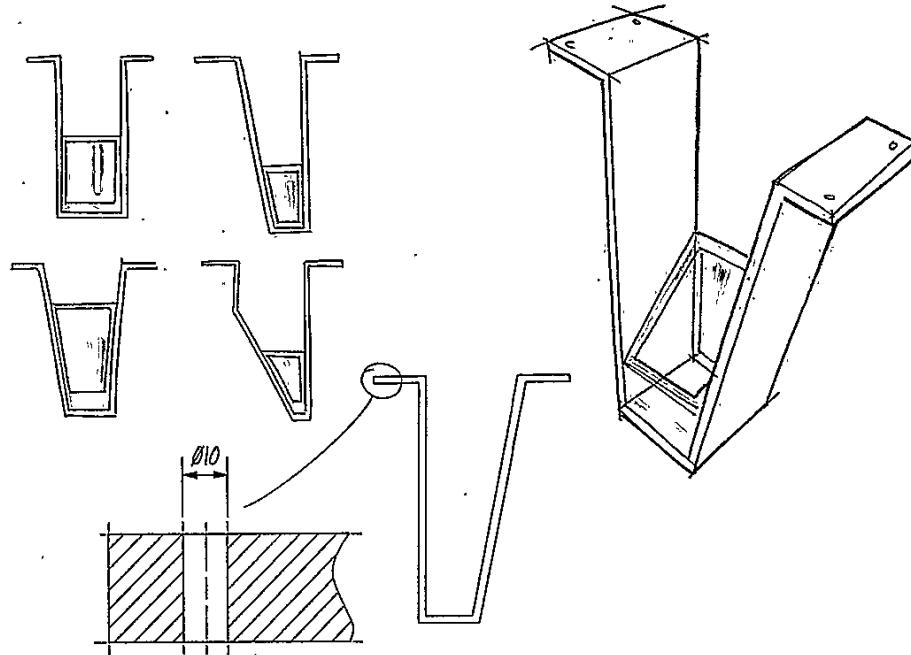
(ii) length B 100 mm 1

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

you could remove the toxic substances sticking of
to part b

[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 get a rough idea of what the product does
and looks like

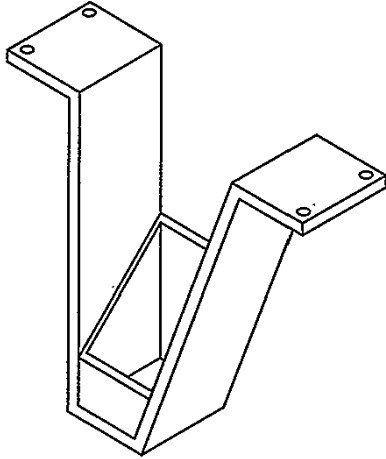
- (b) State two input devices that could be used to make a digital copy of the preliminary sketches.

2

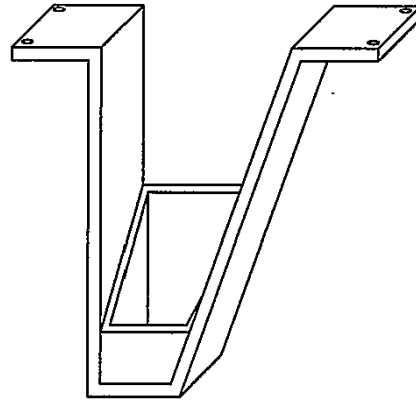
taking a photo
or using a Scanner

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

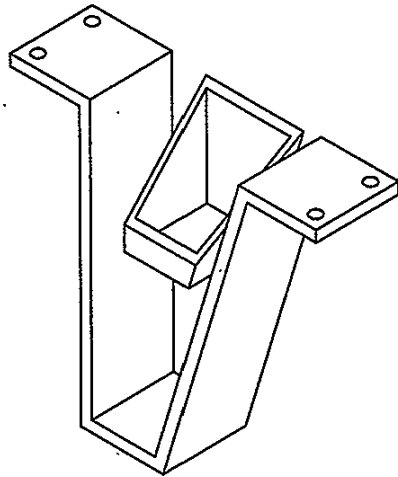
Pictorial A Isometric view

Pictorial B elevation

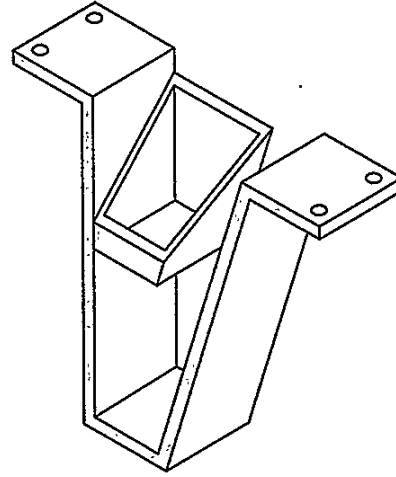
[Turn over

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

FLUSH

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

2

JOIN

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

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

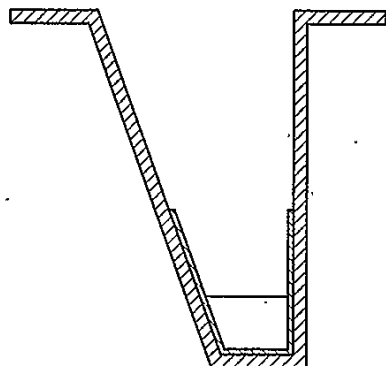
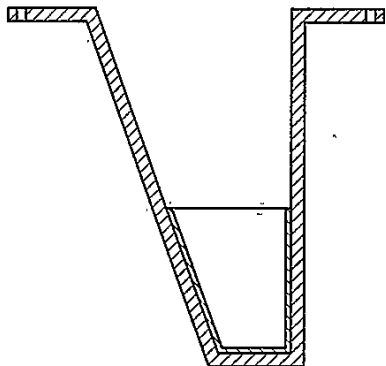
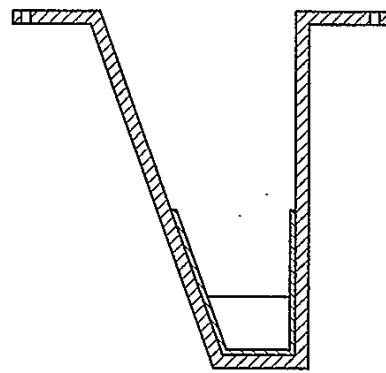
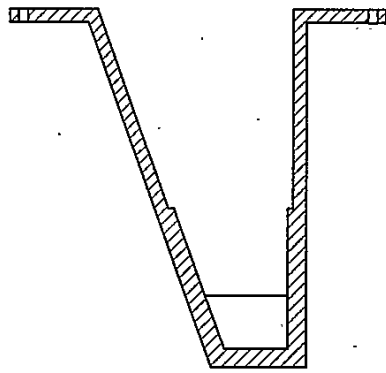
1

It saves time as they don't have to keep redrawing
objects

3. (continued)

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

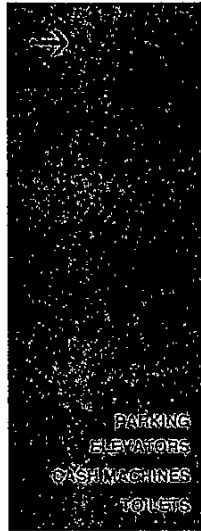
1.



[Turn over

3. (continued)

Two ideas for the airport signs are shown below.



Sign 1



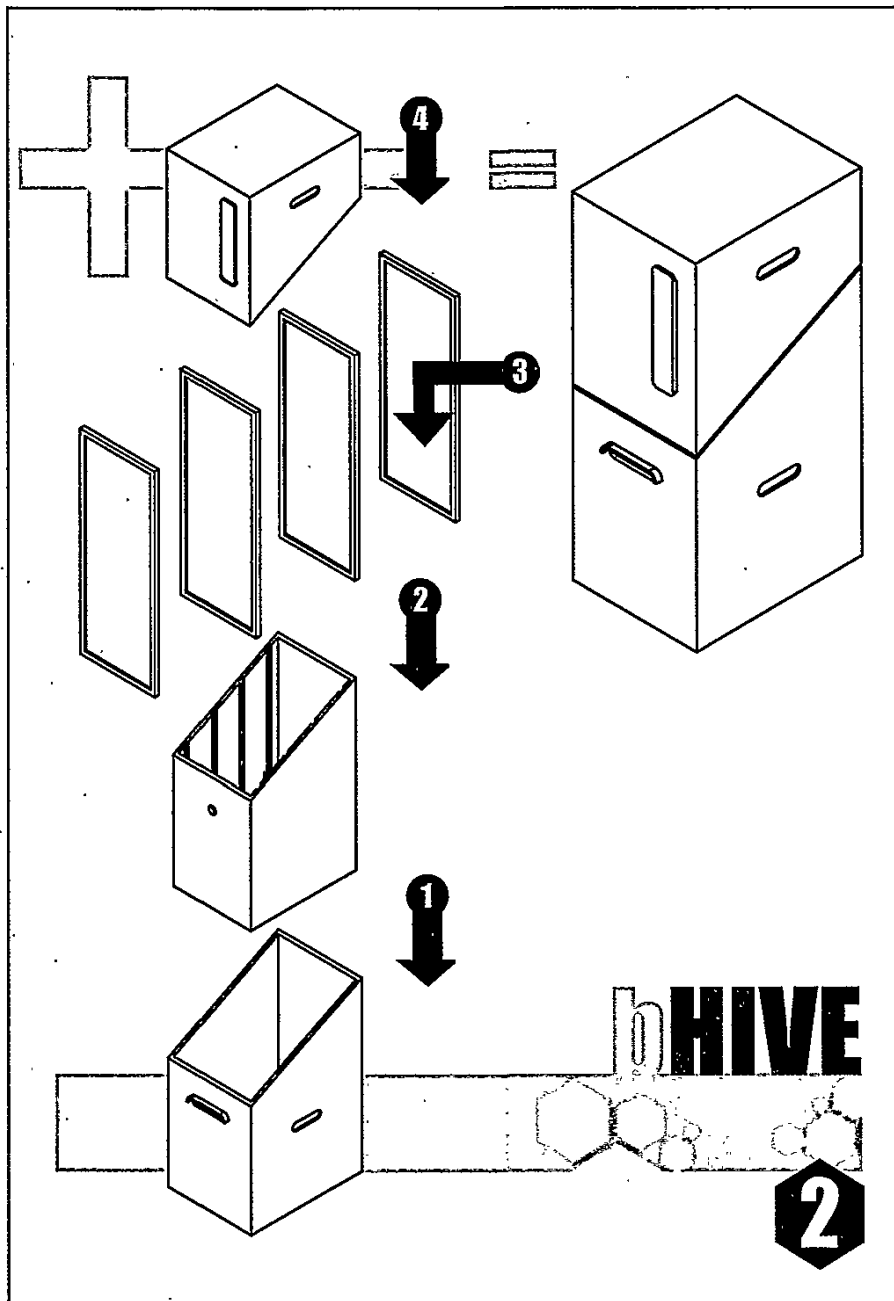
Sign 2

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

2

*It is quicker and easier to read in a rush
as you could be running late for your plane*

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 the user will have an easier time understanding what they have to do

(ii) Manufacturer it will help them save on ink and time 1

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

they could make the black a lighter color

color

[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

green

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

State the name of a suitable colour.

1

blue

- (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

yellow

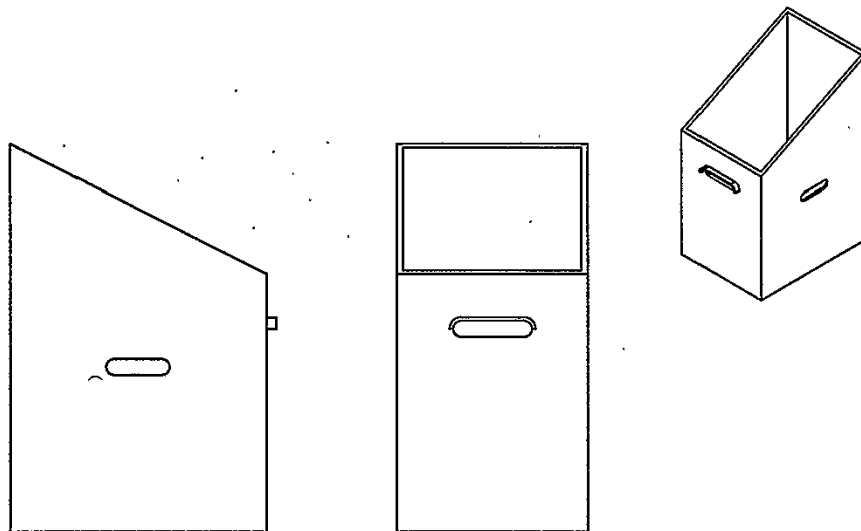
- (ii) Explain why primary colours are suitable for a school garden.

1

they are more noticeable and bright

4. (continued)

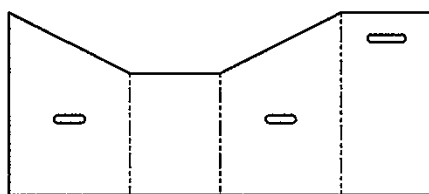
A range of vinyl wraps are being created for the beehive.

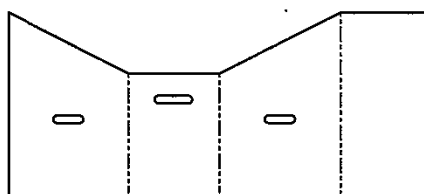


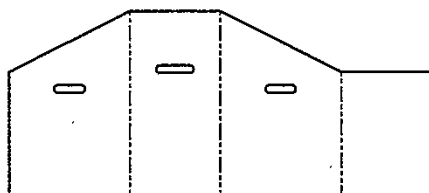
Base of beehive

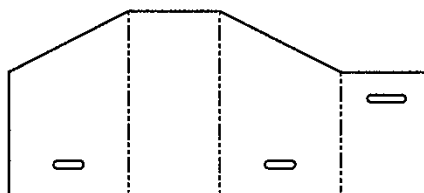
- (f) (i) Identify the correct surface development used to create the vinyl wrap for the base of the beehive by ticking (✓) a box below.

1



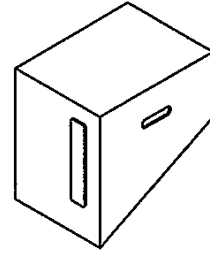
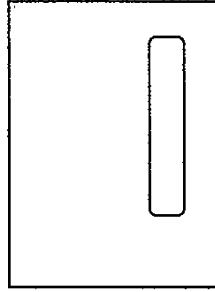
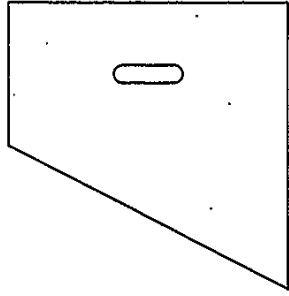






[Turn over

4. (f) (continued)

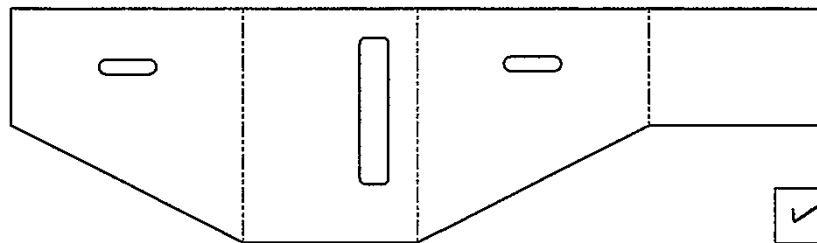
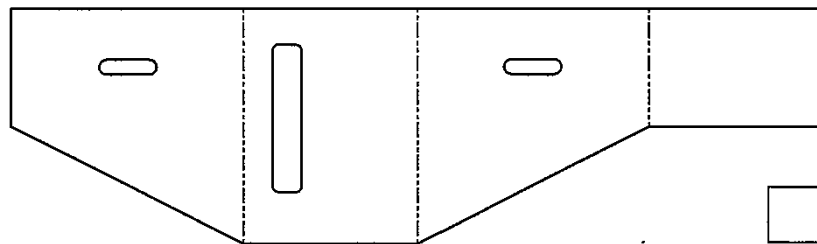
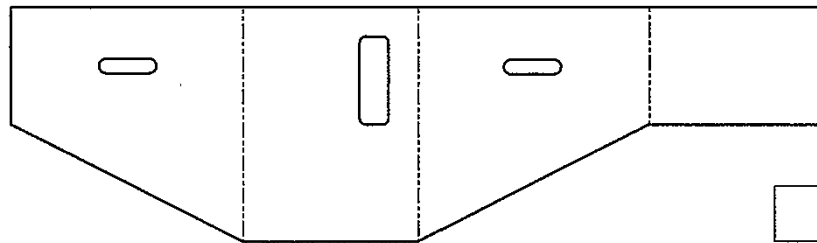
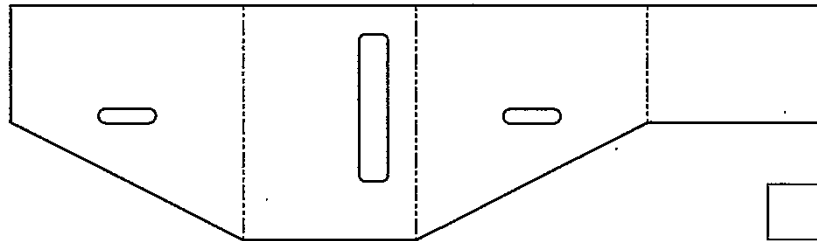


Lid of beehive

4. (f) (continued)

(ii) Identify the correct surface development to create the vinyl wrap for the lid of the bee hive 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.



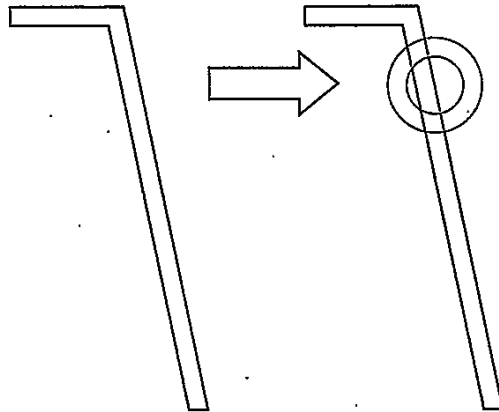
5. (continued)

MARKS

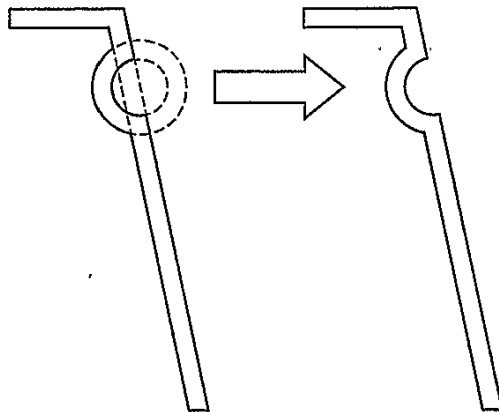
A series of 2D drawing tools were used when modelling the shaker.

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

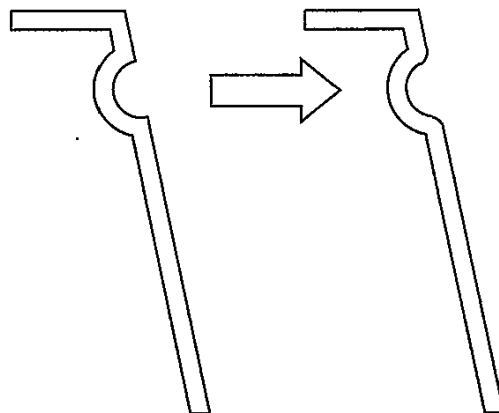
3



(i) tool used: circle



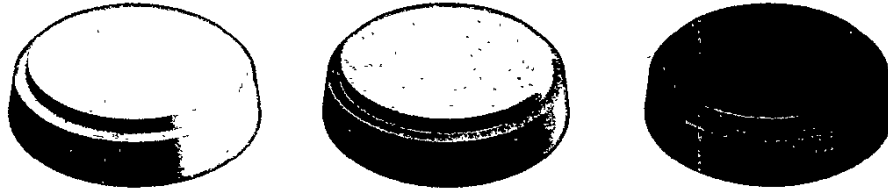
(ii) tool used: trim



(iii) tool used: Fillet

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

textural

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

2

they are easy to make

don't take as long as making it

The initial renders were dark, pixelated and poor quality.



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

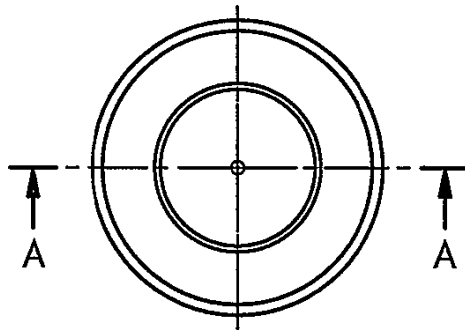
1

increase the DPI

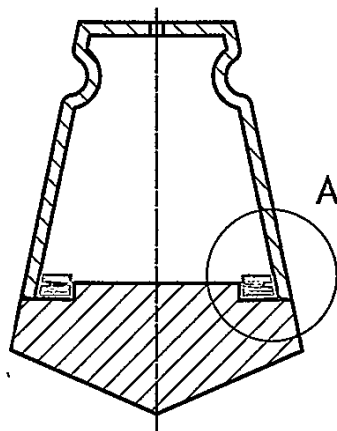
5. (continued)

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

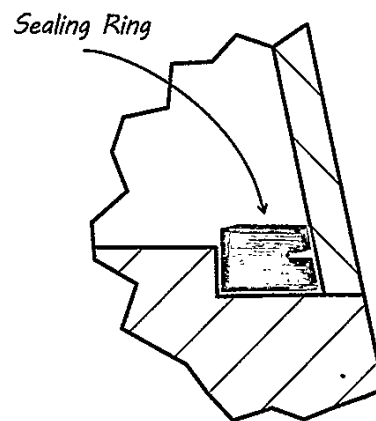
The designer's development sketches for the changes are shown below.



PLAN



Section A-A



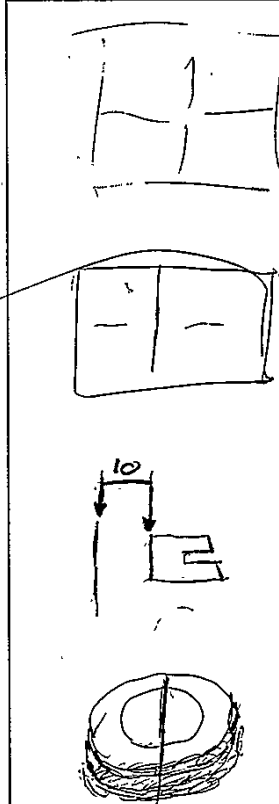
Detail A

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



Select work plane

draw an axis

draw profile of
Sealing ring 10mm
away

revolve around
axis

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

write on a dark colour

- (ii) Line 1

the letters follow the curve of orbit

- (iii) Unity 1

the white lettering unites the badge

- (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 easy to read for a badge

6. (continued)

Detail from badge 3 is shown below.



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

2

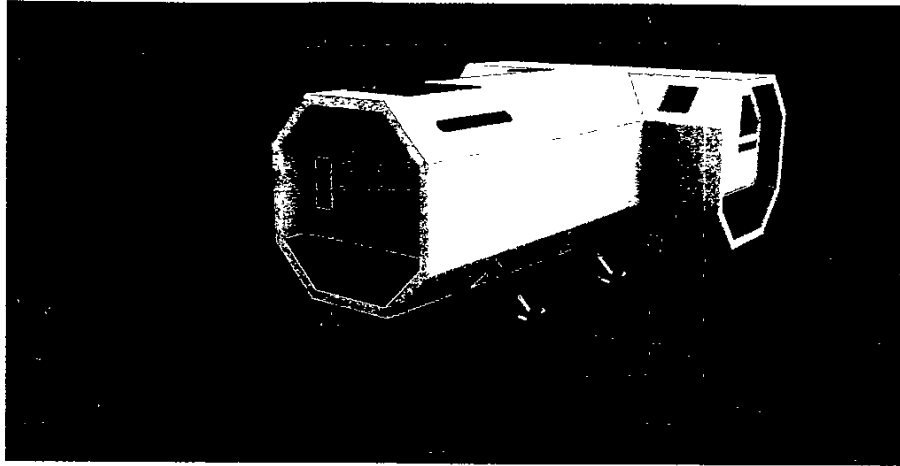
Technique 1 Font

Technique 2 wrap text

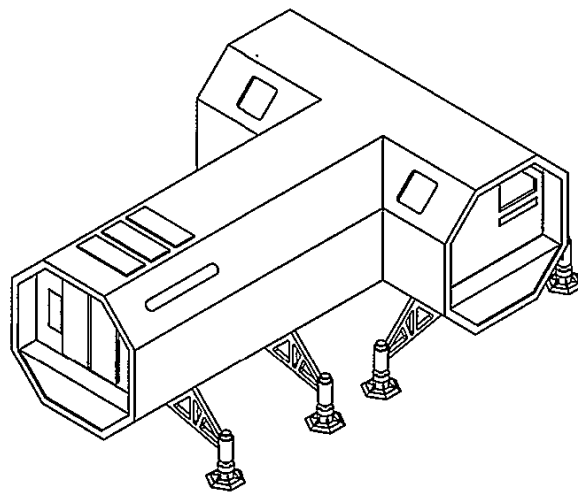
[Turn over

6. (continued)

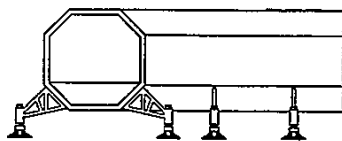
It is proposed that a Mars base will be constructed using identical pods arranged in different ways.



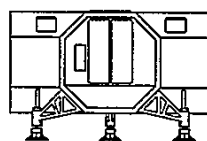
Orthographic elevations and a pictorial view of a single pod are shown below.



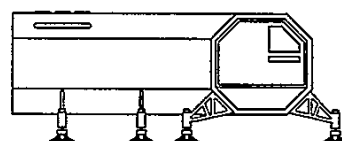
Pictorial View



End Elevation



Elevation



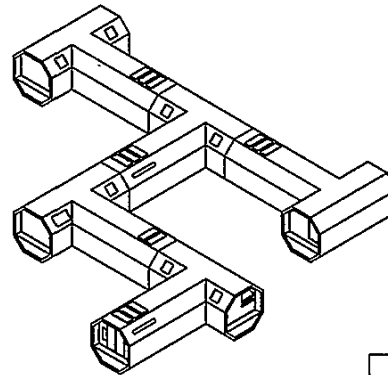
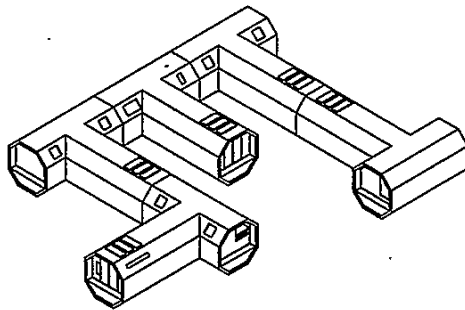
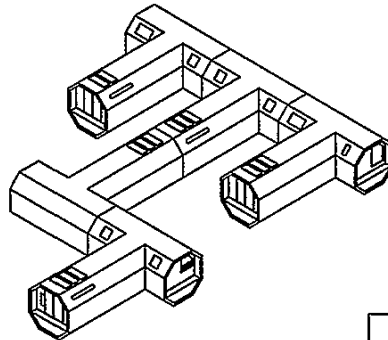
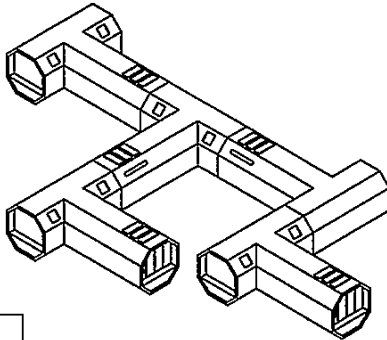
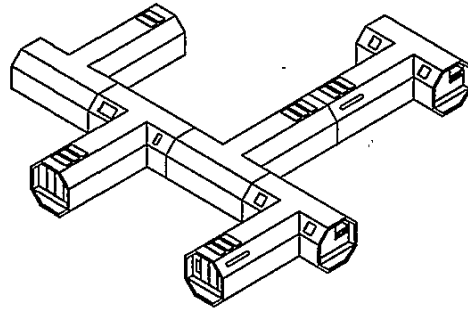
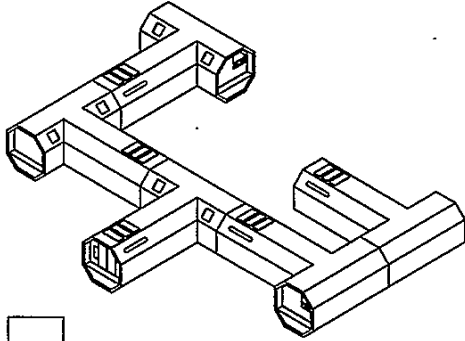
End Elevation

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.

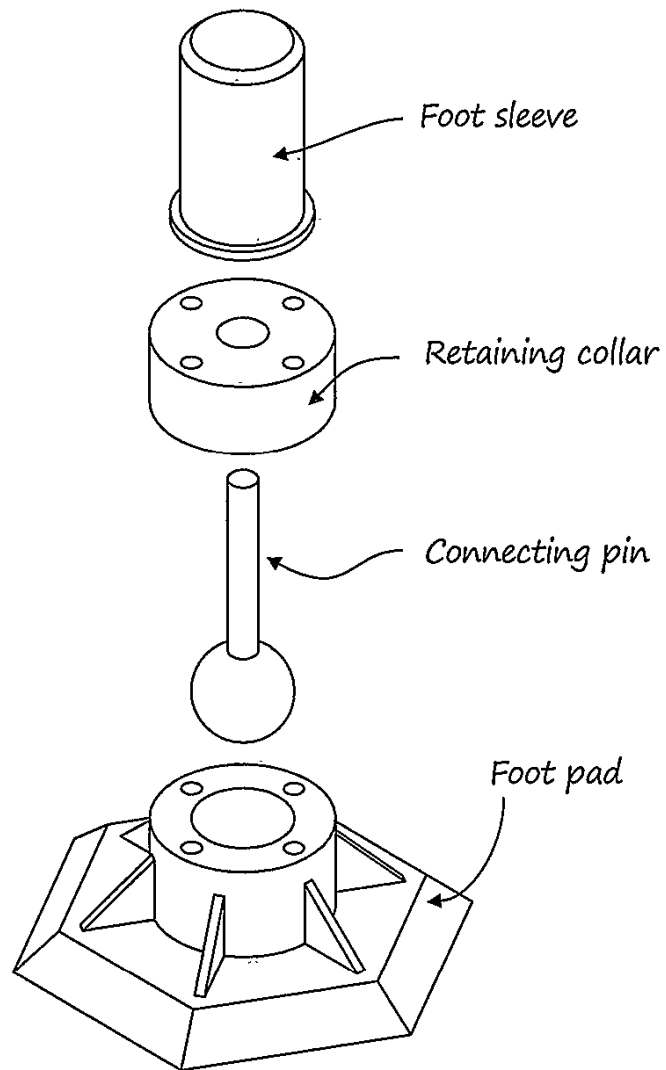
2



[Turn over

6. (continued)

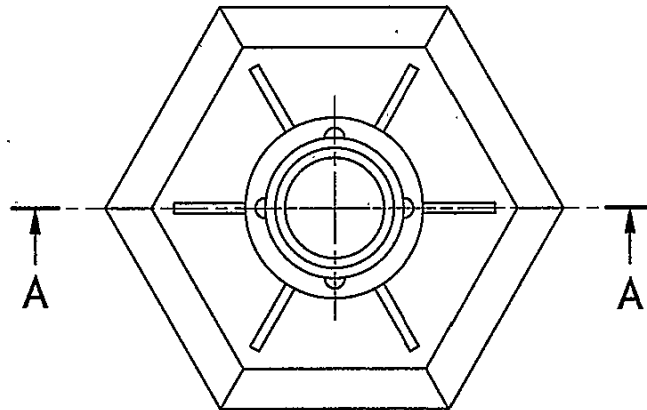
(e) An exploded pictorial of a pod leg is shown below.



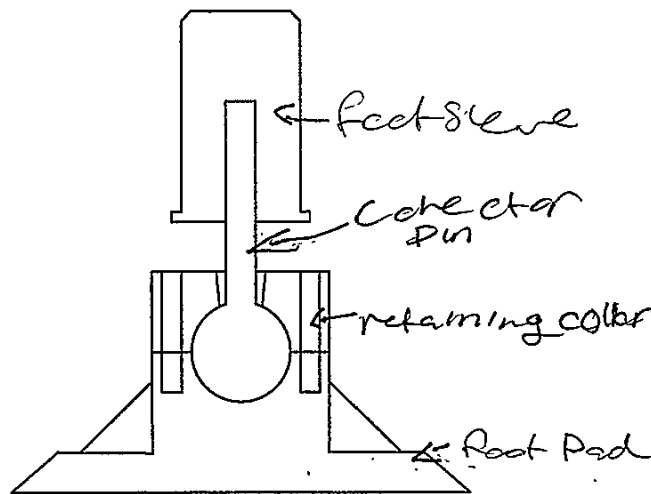
6. (e) (continued)

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

4



NOTE:
Centre lines
removed
for clarity



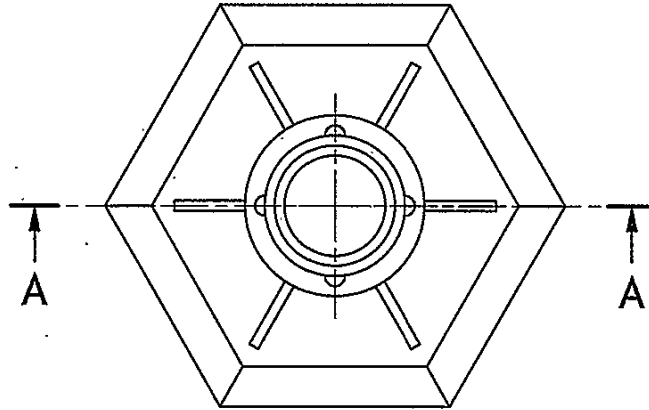
Sectional Elevation A-A

[END OF QUESTION PAPER]

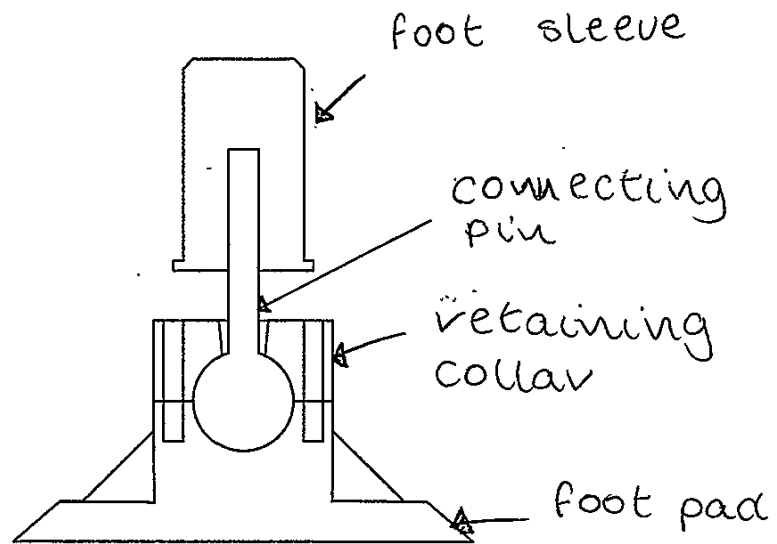
6. (e) (continued)

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]