

# Candidate 1 evidence

Total marks — 90  
Attempt ALL questions

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1. Graphics of a new blender are shown below in Figures 1 and 2.

Figure 1

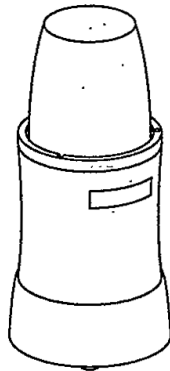


Figure 2

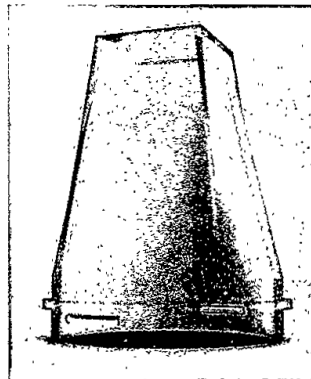


- (a) Describe two illustration/3D rendering techniques applied to produce the realistic looking graphic shown in Figure 2.

2

It has been put into an environment  
which then you can render with  
different textures

- (b) An alternative design is shown below for the plastic cup component. The CAD technician decides to produce this component in two stages.



Alternative cup design

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1. (b) (continued)



- (i) You must use the additional information provided on the supplementary sheet for use with question 1 (b) (i) to answer this question.


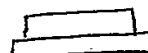
Describe, using 3D CAD modelling techniques, how the technician would complete Stage 1 as shown in the working drawings.

6

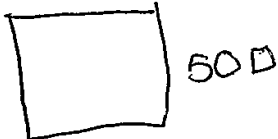
You may use sketches to support your answer.

Start Sketch.

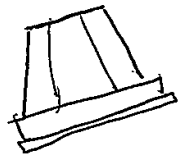
Sketch Profile   
Extrude by 4mm. 

On top of profile sketch  
another profile   
extrude by 10mm 

offset plane by 110 mm  
and on plane sketch Profile

 50

Loft square profile and  
circular profile

 Shell with  
thickness of 4mm

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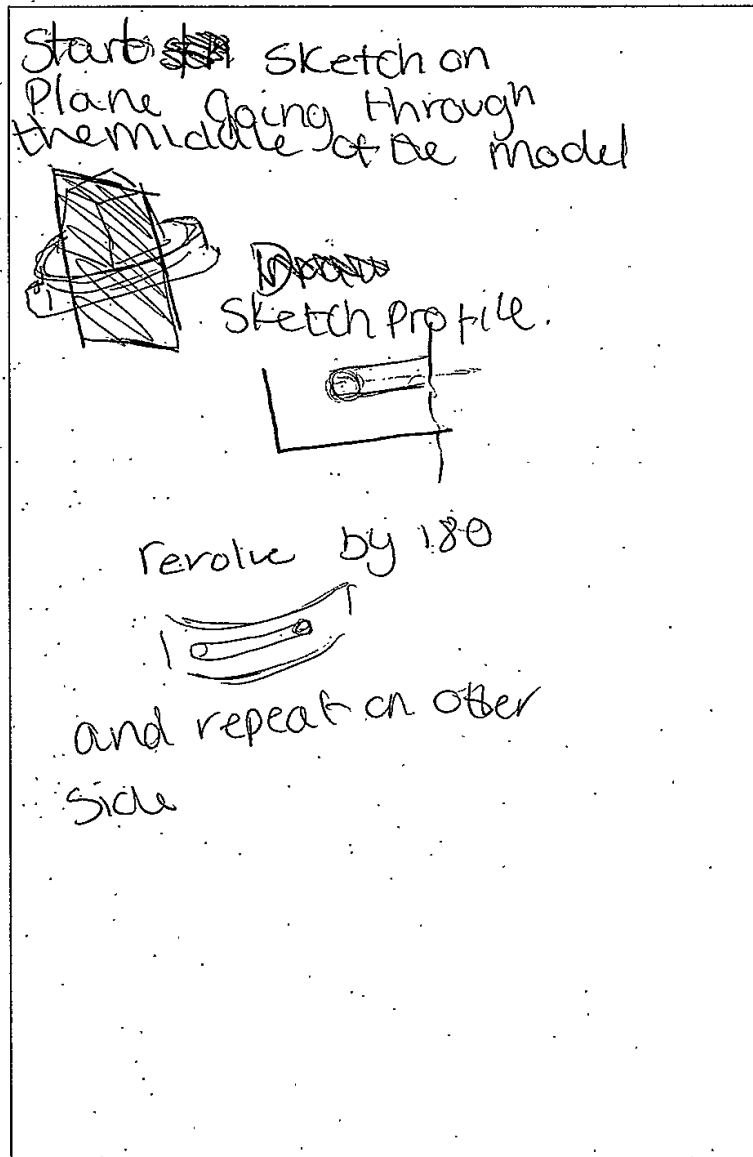
## 1. (b) (continued)

- (ii) You must use the additional information provided on the supplementary sheet for use with question 1 (b) (i) to answer this question.

The CAD technician adds additional features to allow the lid to lock into position, shown in red in Stage 2.

Describe how, using only the 'revolve' 3D modelling technique, the CAD technician created the additional features.

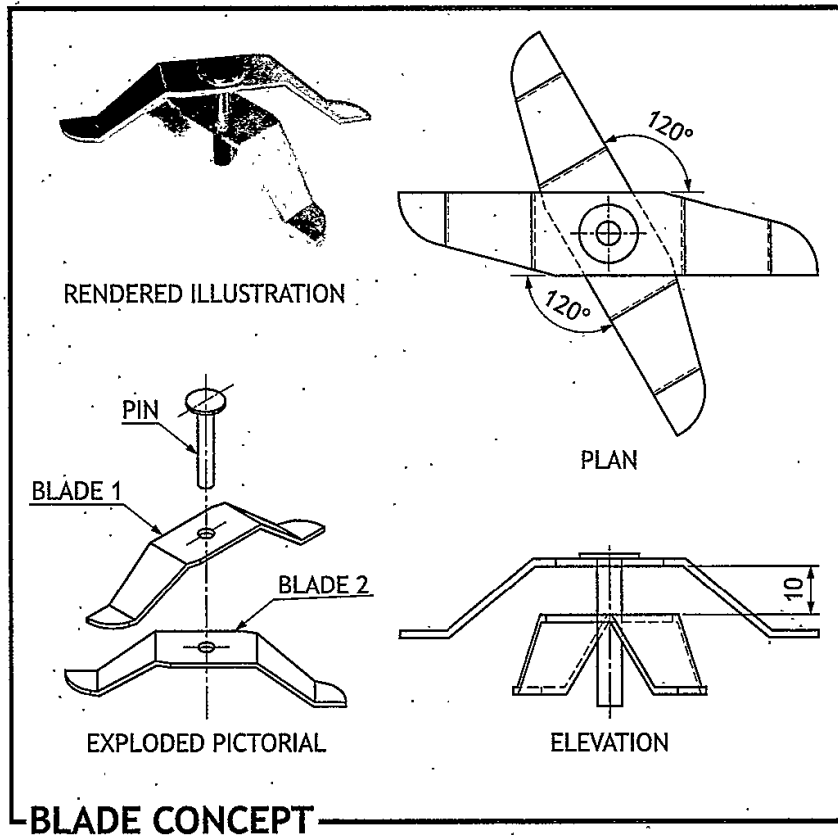
5



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1. (continued)

- (c) A concept design for the blade sub-assembly for the blender is produced. The two blades shown have been constrained to the pin using 3D CAD modelling software.



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## 1. (c) (continued)

Describe the steps required to constrain the blades and pin to each other. You may annotate Figure 1 to help with your answer.

4

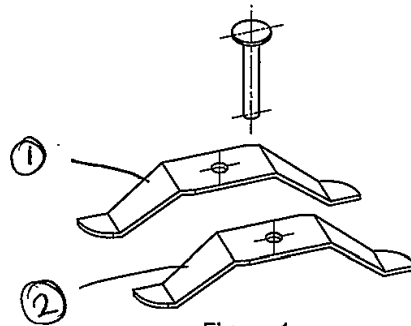
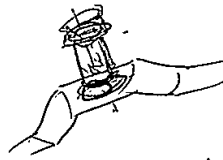
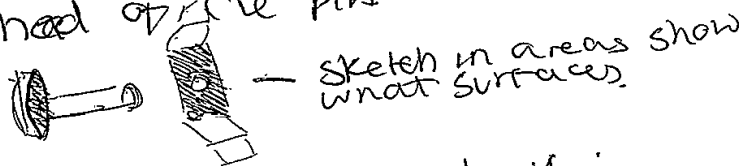


Figure 1

Mate the centre of blade  
① and the pin.



then mate the top surface  
to the underneath of the  
head of the pin



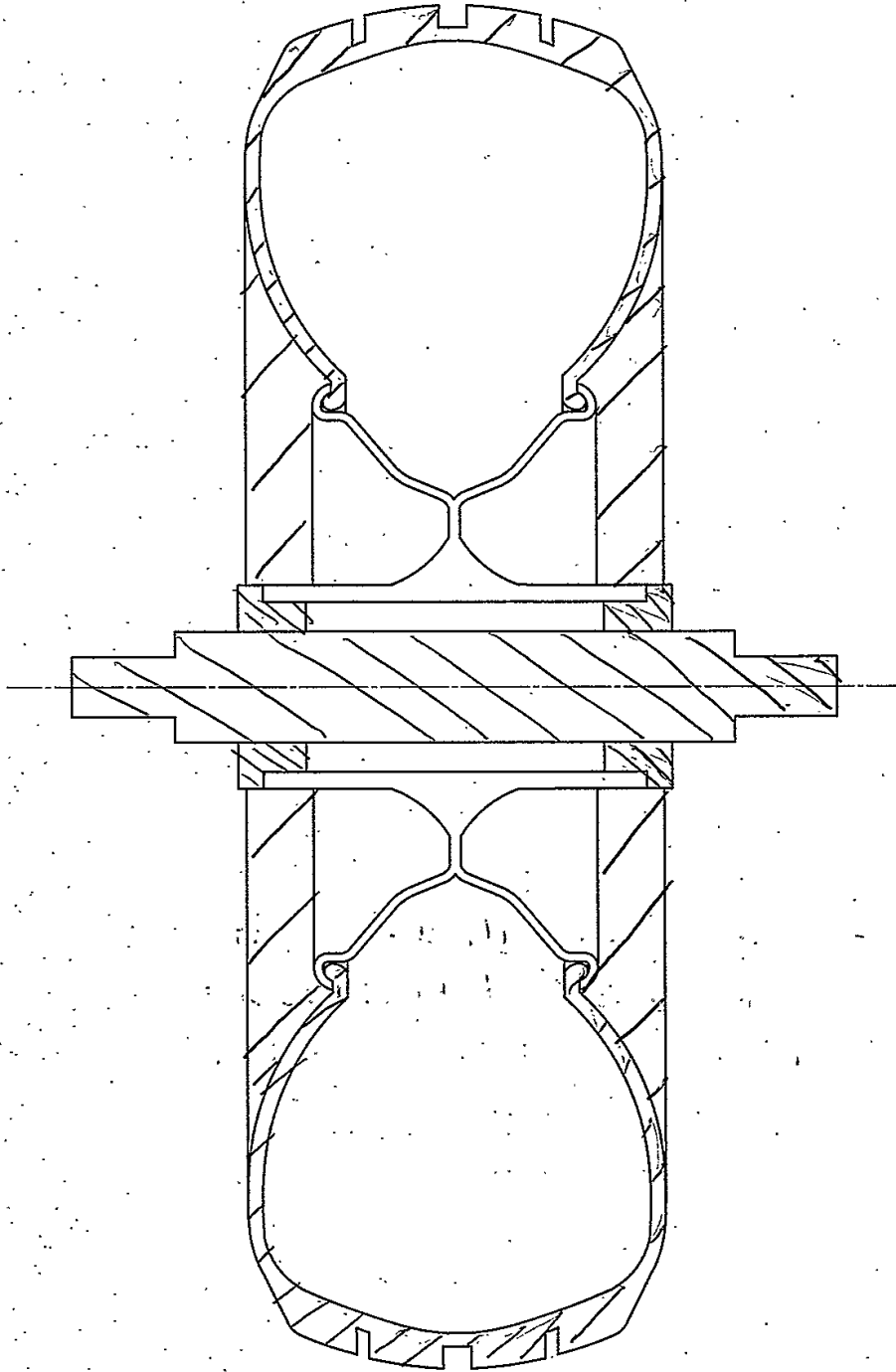
rotate by  $120^\circ$  clockwise

align the centrelines on pin and  
blade ② then distance  
blades by  $\frac{10}{10}$   
rotate by  $120^\circ$  anticlockwise

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2. An incomplete enlarged sectional view of a wheel assembly is given below. Using the information provided on the supplementary sheet for use with question 2, complete the sectional view by adding appropriate hatching.

4



SECTION A-A

3. A graphic designer is producing content for Scotrock, a new Scottish music festival. The logo designs below are exported as vector files.

Version 1



Version 2



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- (a) (i) Describe two advantages of exporting the logo shown in the vector format, as opposed to raster. 2

1. You can import the image  
with out a Background  
2. You can zoom in and it  
woud get Pirilated.

- (ii) State the name of a vector file extension which the logo could be exported as. 1

PNG

- (iii) The graphic design company operate a paperless office. Describe two advantages for the company of operating a paperless office. Do not include environmental benefits from reduced paper. 2

1. Easy access to files  
2. You can Import and  
Share with other colleagues  
3. You can be more Corrcet  
and have the labels one.

[Turn over

3. (continued)

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A draft graphic for the festival security passes is shown above.

- (b) (i) Describe two instances where the designer has used line to enhance the layout of the graphic.

2

line has been used to separate the 2 blocks of text.

It has also been used to create balance as it separates the 2 boxes.

- (ii) Describe two instances where the designer has used alignment in the graphic.

2

'Artist' is aligned to centre of the box and horizontally.

The black text at the right hand side is right justified.

- (iii) Explain how the designer has used balance in the graphic.

2

to create balance the designer has used a line throughout the centre of the page.

## 3. (b) (continued)

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- (iv) Describe two instances where the designer has created contrast in the graphic.

2

The designer has created contrast by using reverse text and has a contrast in shapes to emphasise the logo.

- (c) The designer presents a proposal for a bus timetable design as shown below.



- (i) State two advantages of using a sited environment when presenting desktop publishing work to clients.

2

It allows the client to see how well it will be presented to the public and see if it will be noticed.

- (ii) The festival organisers decide to use digital screens to display the bus timetable instead of printing them. Describe three advantages to the festival organisers of using digital screens over traditional printed timetables.

3

Using digital screens allows changes to be made easily.  
It won't be damaged by weather.  
It will be updated easily.

## 3. (continued)

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(d) You must use the graphic provided on the supplementary sheet for use with question 3 (d) to answer this question.

- (i) Describe how the designer has used texture to enhance the impact of the graphic.

2

Texture was used to create a contrast by adding in the metal. This allows it to be more eye-catching.

- (ii) Describe two ways the designer has used depth within the publication.

2

The designer created depth by layering the elements on one another and adding drop shadows to emphasise text and heading.

- (iii) Describe two ways the designer has used emphasis within the publication.

2

The designer used emphasis by placing the logo graphic at the top and making it dominant.

- (iv) Describe two ways the designer has used unity within the publication.

2

unity has been created by creating groups of geometric shapes.

The colours have all been taken from the graphic and only has been carried out. This makes it easier for the consumer/public

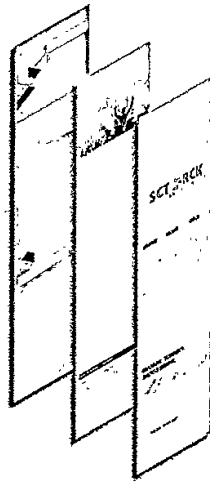
## 3. (d) (continued)

- (v) Explain two ways the designer has used grid structure within the publication.

2

With the overall layout there  
are 3 rows which separate  
the page. The text in the middle  
has been put into 3 columns making  
it all easier to find.

The layout was produced using layers in desktop publishing software.



- (vi) Describe two advantages to the graphic designer of using layers to produce this layout.

2

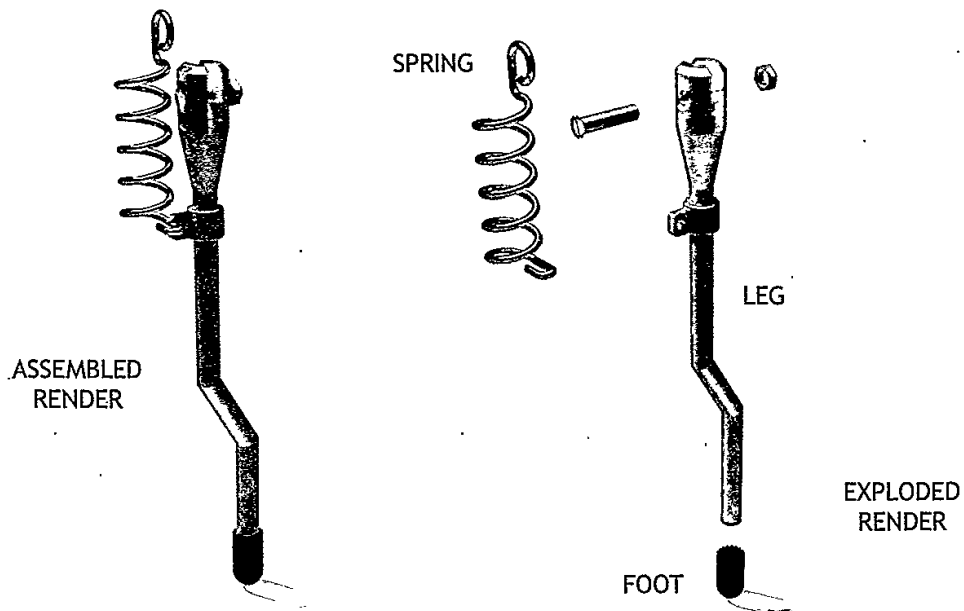
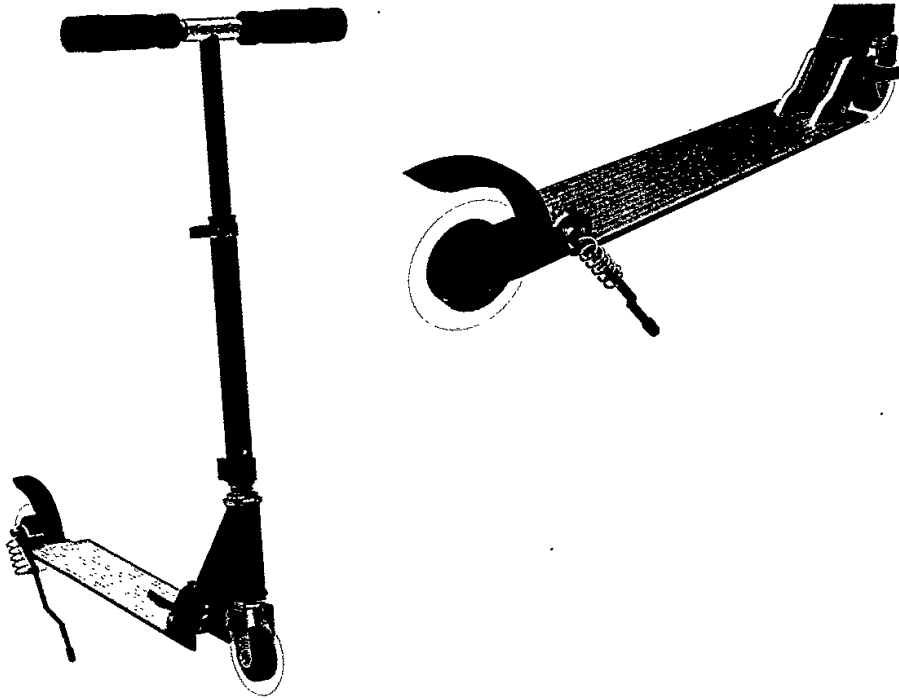
If the text needed to be changed  
it would be easy to go into the  
layer and fix it.

If it were to be duplicated you  
could have a master layer that  
would have the same thing for  
all of them.

[Turn over

4. Parts for a retractable kickstand for a scooter are shown below.

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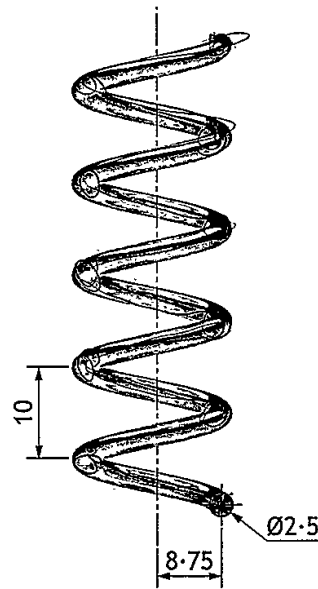


## 4. (continued)

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- (a) The spring was modelled as a separate component using 3D CAD.  
Describe the 3D CAD modelling technique used to model the spring.  
You must make reference to the dimensions given.  
You may use sketches to illustrate your answer.

3



Sketch profile   $\phi 2.5$  



offset from centre line

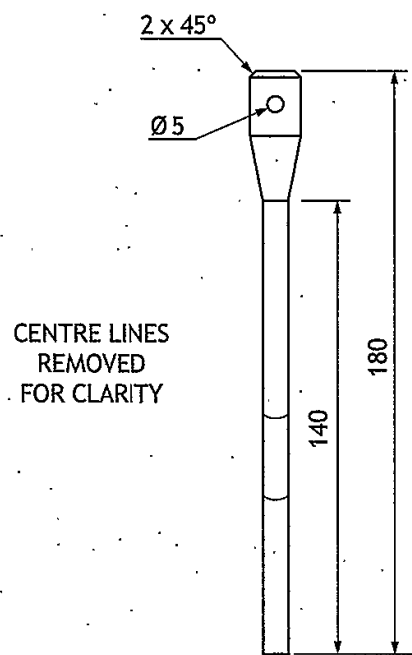
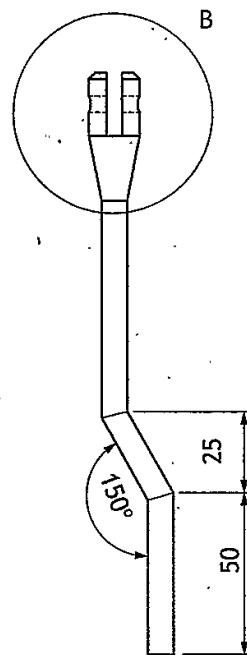
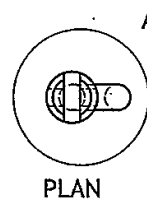
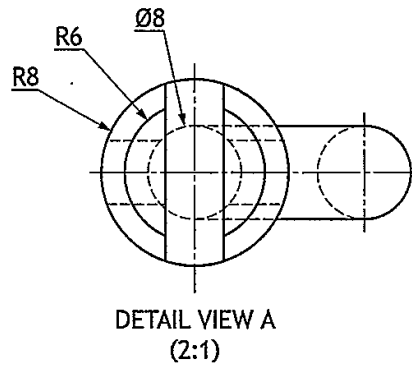
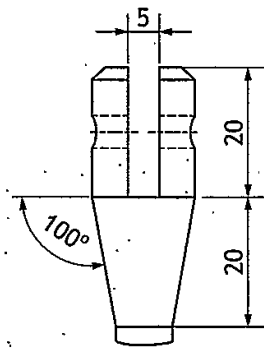
Use tool coil ~~at~~ with  
a distance of 10 and  
with  $\phi$  5 turns.

4. (continued)

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- (b) The leg was 3D CAD modelled as a single component.  
Describe the modelling techniques used to generate the component.  
You may use sketches to illustrate your answer.

6



CENTRE LINES REMOVED FOR CLARITY

SCALE 1:2

4. (b) (continued)

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On bottom plane sketch  $\odot$  profile by  $\phi 8$

on plane ② sketch line

then choose  $\odot$  profile and extrude along the path.

offset plane by 20 from the top and sketch profile  $\odot \phi 12$

and loft to the leg.

From the same plane you created the leg on top of the shape you just created, sketch profile

change edge by 2.

sketch  $\odot$  profile from centre and extrude both ways

4. (continued)

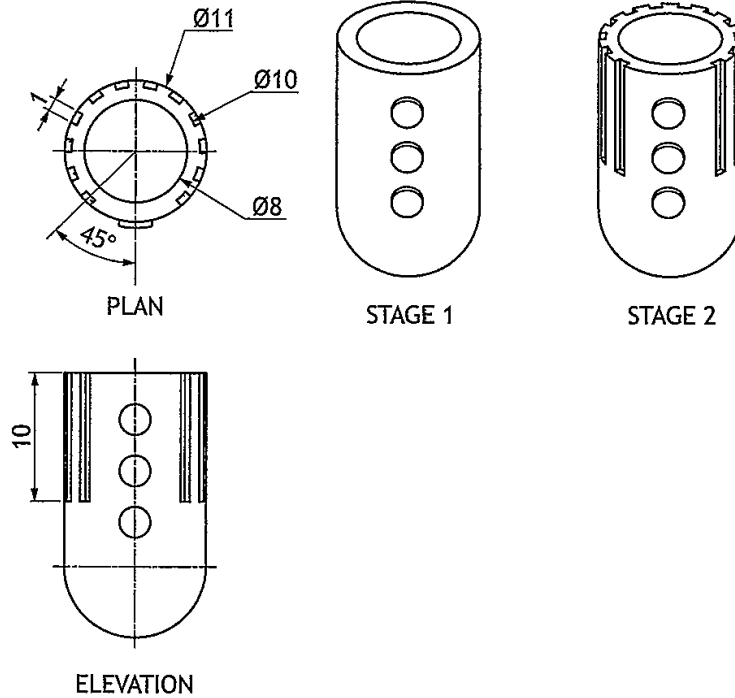
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(c) The foot was 3D CAD modelled using the revolve command.

Describe the modelling edit used to complete the component from Stage 1 to Stage 2.

You may use sketches to illustrate your answer.

3



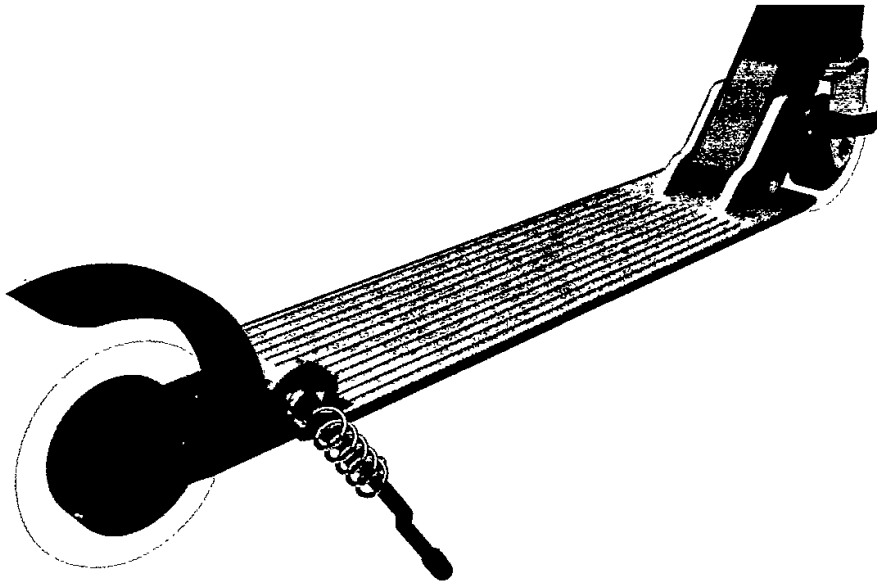
On top surface  
Sketch Profile  
1  $\square$

the circular array x 12,  
with a spacing of 1.  
then extrude down by 10

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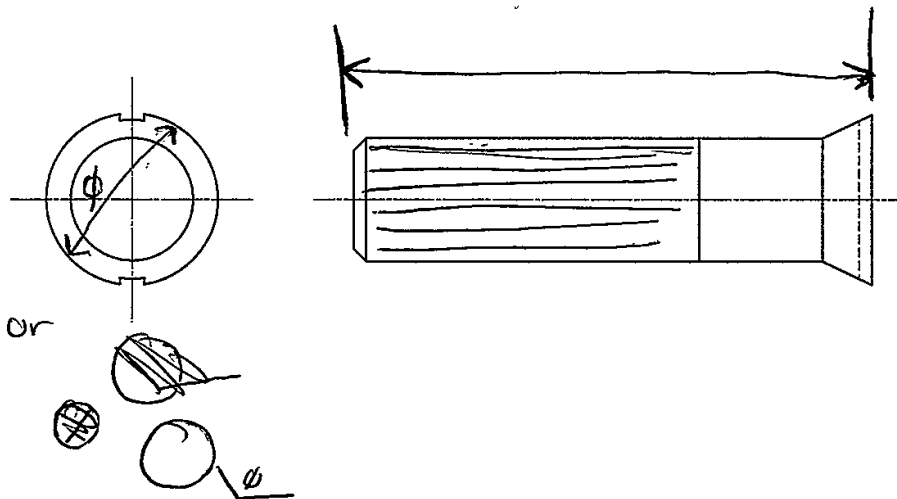
4. (continued)

The kickstand is connected to the scooter by an M5 countersink head screw. The length of the thread is 14mm.



(d) Apply to the views below the correct British Standard conventions for

- (i) the diameter of the bolt 1
- (ii) the length of the thread 1
- (iii) the convention for a thread. 2



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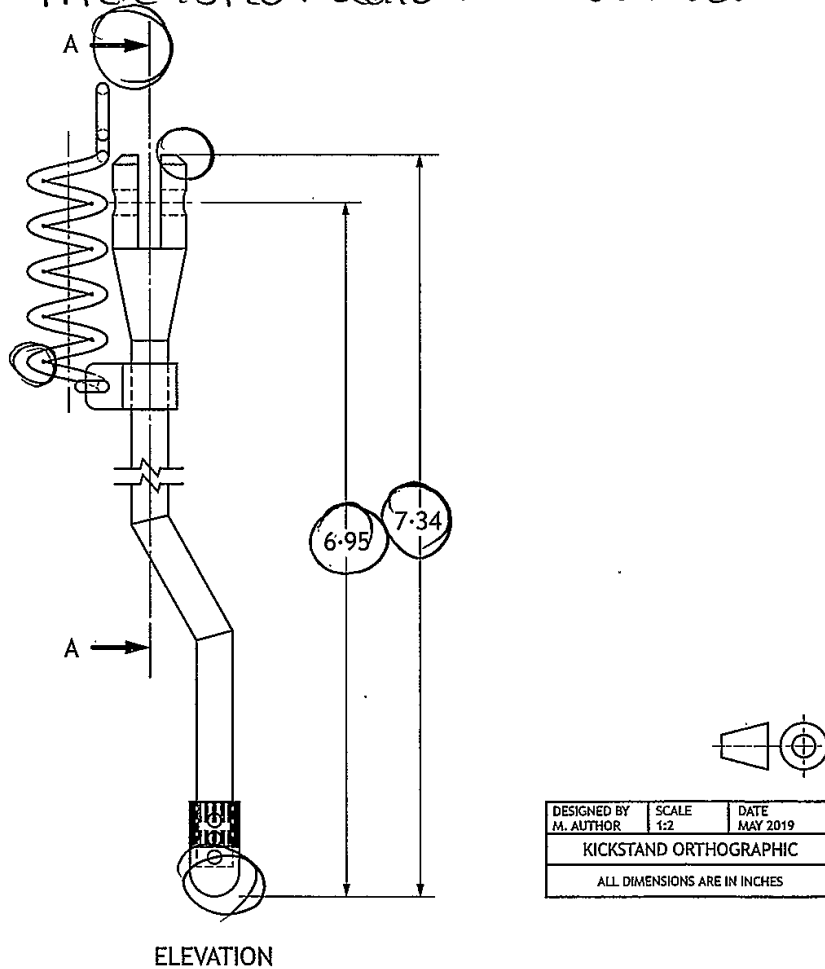
4. (continued)

- (e) The assembly technician downloads an orthographic drawing from the company network. The technician immediately notices some issues with the drawing.

Identify from the drawing, five errors which are not correct to British Standard conventions.

5

The 2 lengths ~~are~~ the dimensions  
are not parallel to the line  
There is no section view  
The coil does not show all circles  
one dimension touches the Model  
There is no radius or diameter



5. A design company has produced a range of graphics for a music festival. During the planning process three of the graphics were submitted.

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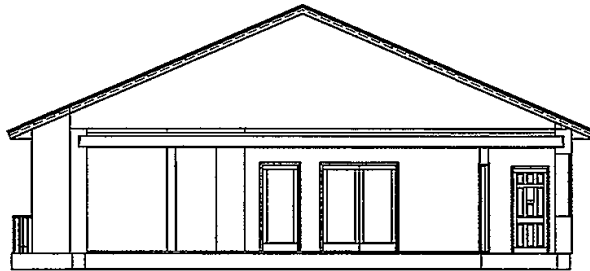


Figure 1

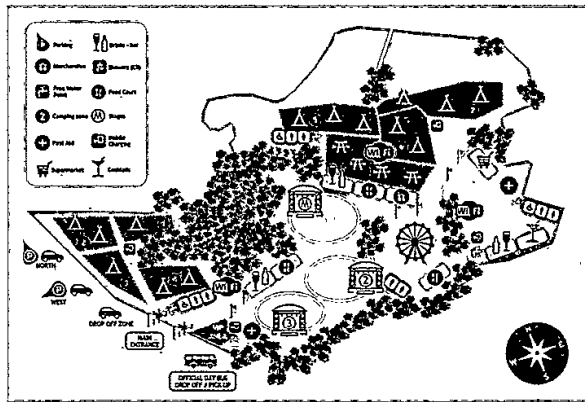


Figure 2

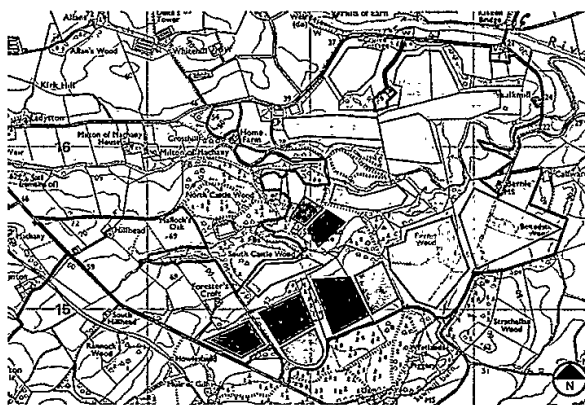


Figure 3

## 5. (continued)

- (a) Explain, with reference to preliminary, production and promotional graphics, the purpose of Figures 1, 2 and 3.

3

## Figure 1

Figure 1 is promotional it helps the client see what will be built

## Figure 2

Figure 2 is for the production helping the correct people see where they need to put certain things

## Figure 3

Figure 3 is preliminary, this shows where it will be built and how many

- (b) State three features which should be shown on a British Standards location plan.

3

Neighbouring trees, houses and street names, lights, sewage  
Street lights

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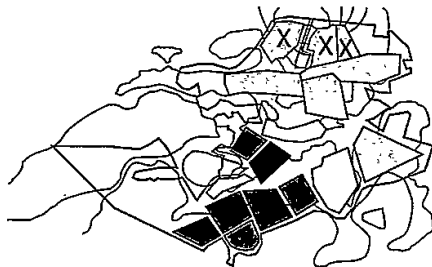
5. (continued)

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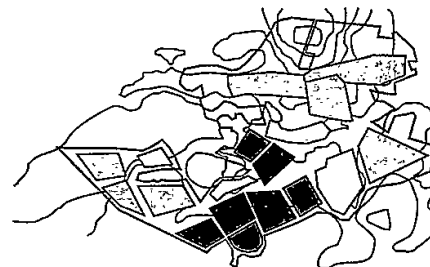
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(c) Changes, shown in the Proposed Plan and Final Plan, were made during the planning stage. With reference to the graphics below, identify two reasons the camping areas marked with an X have been relocated.

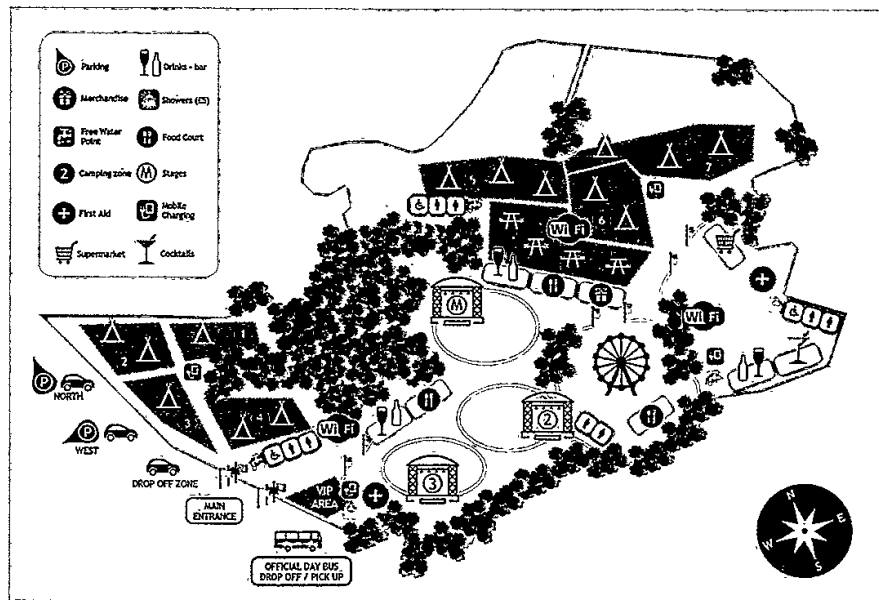
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PROPOSED PLAN



FINAL PLAN

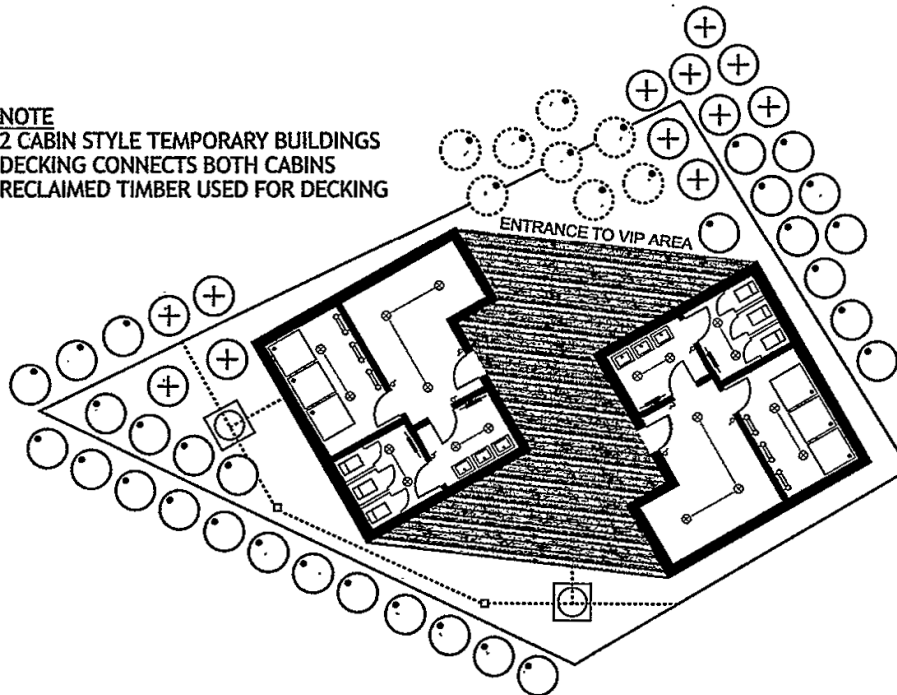


They have been relocated as there will be easy access to the drop off zone buses and Wifi. It also has mobile charging water supply and toilets

## 5. (continued)

The site plan for the VIP area is shown below.

**NOTE**  
2 CABIN STYLE TEMPORARY BUILDINGS  
DECKING CONNECTS BOTH CABINS  
RECLAIMED TIMBER USED FOR DECKING



Architects had to plan around the existing environment, to create two temporary buildings and an outdoor wooden decking area.

- (d) State how many existing trees are within the VIP boundary.

29

1

- (e) The site plan shows some existing trees had to be removed.

State a reason why this was necessary.

8, as there will be entrance to the vip area

1

- (f) Describe how the architect has considered the environmental aspect of the site.

as there are 12 proposed trees to be added, helping the environment and replacing the ones he took away

2

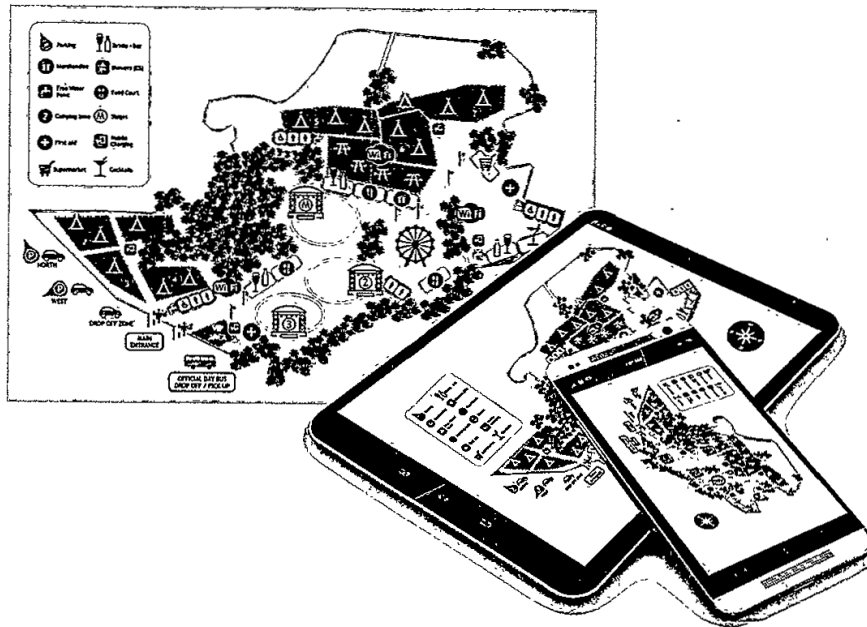
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## 5. (continued)

- (g) State two factors that influence the choice of scale in a floorplan.

2

The device you are on  
The size of the overall site



- (h) The company plans to have both a hardcopy and electronic version of the festival site plan as shown above.

State two things that the designer would have to consider when making the site plan suitable for a range of electronic devices.

2

1. It would have to be easy to read  
2. It would have to be clear  
on where things are, no  
clashes in colour.

## 5. (continued)

- (i) The company has set up a website and social media link for the event, allowing festival goers to connect with fellow attendees and those not in attendance.

Describe why the companies promoting and advertising the event may like this live link.

2

As it will give them more followers and attract more of a bigger audience making them wanting to attend, therefore gaining profit.

[END OF QUESTION PAPER]

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