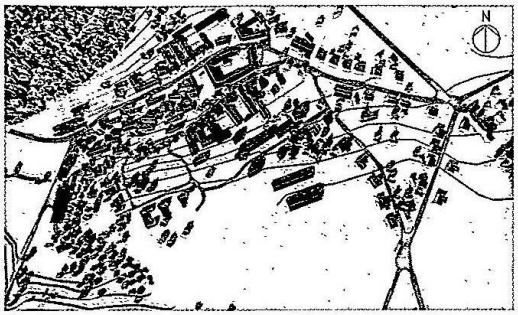
Candidate 6 evidence

SECTION 1 — 50 marks

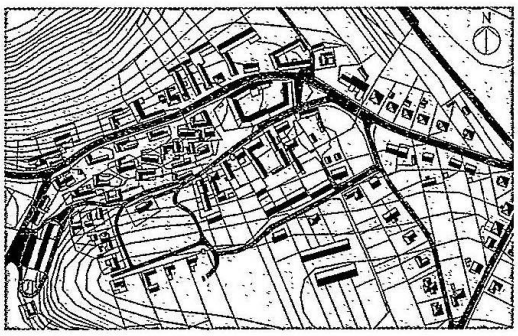
Attempt ALL questions

1. A planning proposal for a large housing development has been submitted by an architect to the local council.

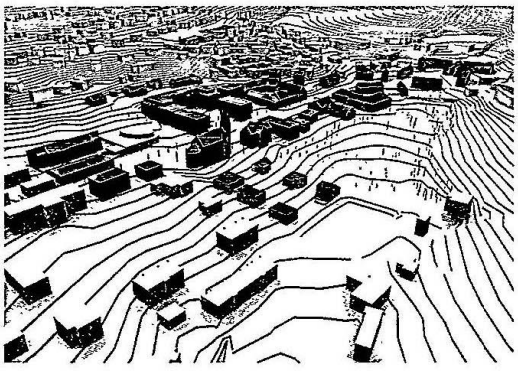
   A variety of graphics of the development are shown below.



Graphic 1



Graphic 2



Graphic 3

1. **(continued)**

(a) Describe, with reference to graphics 1–3, how these would be used by:

(i) the housing developer;

The housing developer could look at these and see where is best to build new properties ~~gra~~ the show the contour of the land and help the developer decide where is best.

(ii) the house buyer.

to view the geographic location of the land and how steep or contoured the land is it will enable the buyer to see if the houses will be built near a road and ~~see~~ surronding houses and buildings.

Before planning can be granted a public consultation must take place for local residents. The company produced a range of graphic communications to showcase the housing development, these included:

- 2D pictorial drawings
- 3D printed scale model of the development
- Animations.

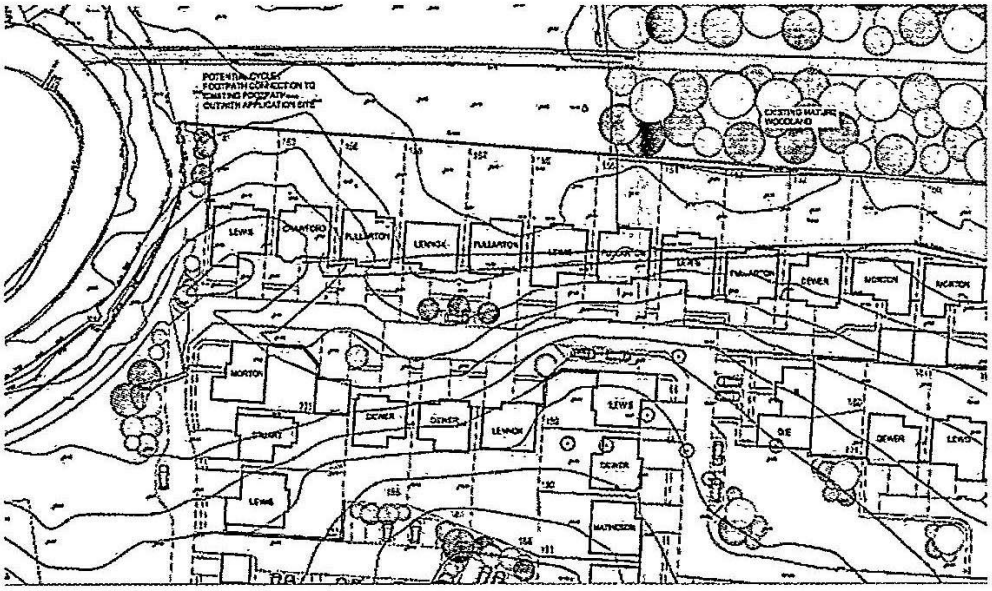
(b) Describe **two** ways in which these graphic communications could help the housing company achieve a positive public image.

A 3D printed scale model of the development can help show how big the housing development will be as it is to scale and Animations will help achieve a positive image as the public will be able to see the housing development in relation to people (simulation)

[Turn over

1. **(continued)**

A topographical survey was produced for the area. An example of this type of graphic is shown below.

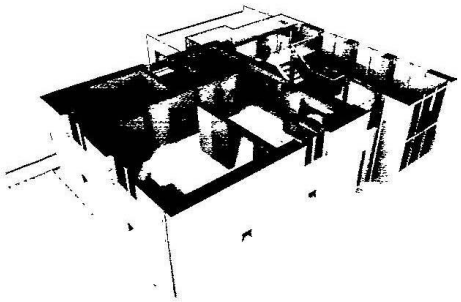


(c) Describe **two** reasons why this type of graphic is of value to the architect.

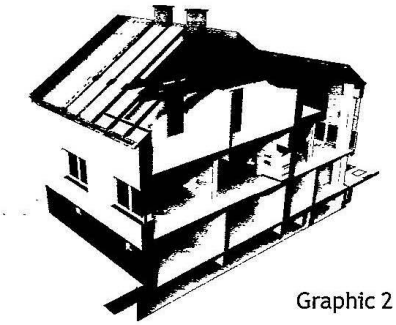
the contour lines shows the hills and how steep the landscape may be and can therefore design accordingly. It also show existing buildings and landscape so the architect can design around the landscape easily.

1. (continued)

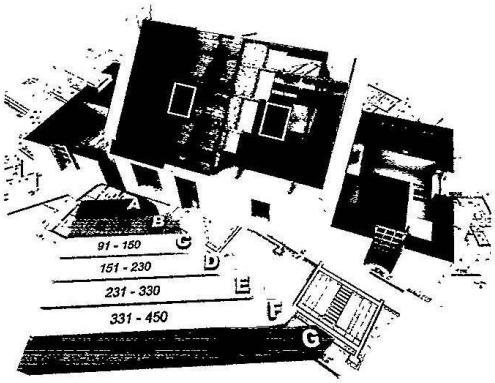
Various graphics of houses in the development are shown.



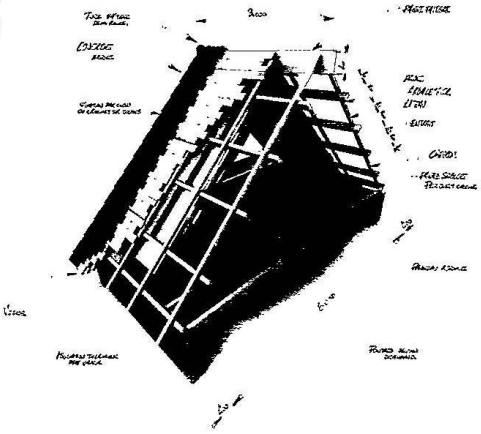
Graphic 1



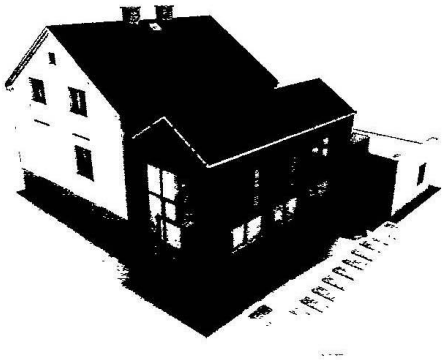
Graphic 2



Graphic 3



Graphic 4



Graphic 5

1. **(continued)**

(d) Describe, with reference to the graphics 1 to 5, what information can be gained that would be relevant to:

(i) the construction trades;

From Graphic 4 the materials used is shown and the relavant measurements

(ii) the company sales team.

from Graphic 5 it shows a fully rendered version of what the development will look like when it's finished. Graphic 1 shows the layout of the house which would be important for potential buyers

The housing market is very competitive. Promotion of new developments is a high priority for the company.

(e) Explain **two** ways in which internet based **graphic communications** could be beneficial to the housing company.

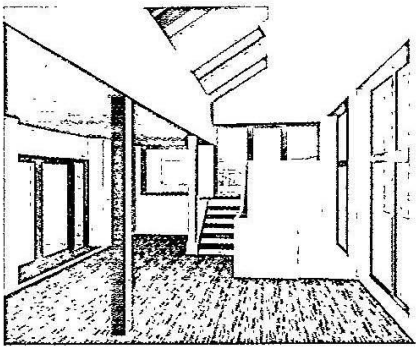
Internet based Graphics is a lot easier to view and share so more people would be able to see the houses.

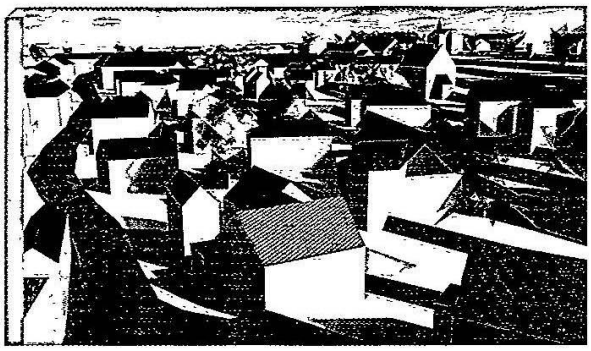
More software can be used on internet based graphics like simulation and animation compared to paper graphics (printed)

[Turn over

1. **(continued)**

A fly-through of the available house styles and a virtual tour of the housing development are available for the target market to view.





(f) State **two** advantages of using motion tweening in this style of graphic communication.

It is realistic and provides a more detailed tour of somewhere instead of pictures, you can see how fit for purpose the house is it terms of flow of people.

When the architect runs the fly-through a problem is encountered. When entering the building the animation plunges into darkness.

(g) Describe how the lighting in the animation could be changed to rectify this problem.

The attenuation changes so the light isn't as dim

1. (continued)

The company's Graphic Designer creates graphic representations of how the houses may look prior to construction.

(h) Explain the use of the different illustration techniques used on the promotional work for the graphics shown.

(i) Graphic 1

Technique 1

Texture mapping a 2D texture image placed on a 3D object to create a more realistic/life like graphic

Technique 2

Bump-mapping

(ii) Graphic 2

Technique 1

Reflection, creating a shadow, emphasising directional light and emphasising the 3D rendered house.

Technique 2

placing a model into a picture background to make it more realistic

2. A caravan manufacturer is releasing their new range of caravans in time for the spring season. A computer model is produced of the caravan shell prior to manufacture.

(a) Describe the process of converting a 3D computer model into a 3D printed model.

The model is made first on CAD and exported to a different file format. and the printed in 3D form.

(b) Explain, other than digital testing methods, a benefit of producing the 3D printed model for:

(i) the caravan designer;

the designer can see what they like/ dislike and change the design if needed before the manufacture, saving time, money and improving the functionality of the design.

(ii) the caravan manufacturer.

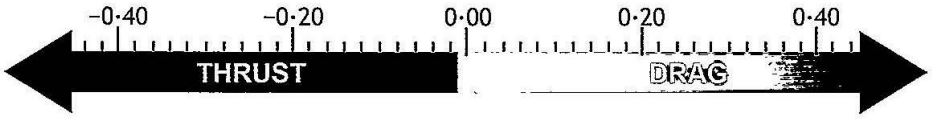
to see what the caravan may actually look like and if there are any faults before the manufactur of the caravan.

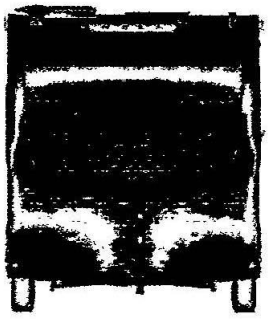
2. **(continued)**

(c) State two digital testing methods that could have been applied to the 3D computer models.

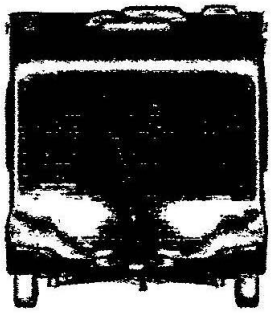
FEA and CFD testing the model on enviromental factors (sustainability) and air flow to how people would live/work.

The results of the digital testing are shown below. The images show the forces that act upon the caravan while in transit. The red areas show the greatest drag forces.





New Caravan Model



Competitor Model

(d) Explain **two** advantages of this type of information to the target market.

It shows the target market that what they are investing in is a full proof product that has been well designed and thoughtout and show the new model of caravan has less drag so the target market can compare the two and choose the best.

2. (continued)

Rendered 3D computer models of the caravan interior and exterior were included in the promotional material.

(e) Describe what information could be gathered from the rendered images which may be of interest to the target market. 4

- the materials used to make the exterior of the caravan and if they are sustainable.
- the layout of the interior to see is space has been maximised for the best functionality
- the finished look of the caravan

2. (continued)

Digital advertising is becoming an increasing part of promoting and selling products. The website designers intend to use VRML within the website to promote the new caravans internal **and** external details.

(f) Explain **two** advantages of using this format over other graphic media files.

It has a better/more realistic finishe it offers advanced things like virtual tours which other graphic media may not offer.

(g) Describe how using a VRML format may increase interest for the product and create sales for the company.

It give a more realistic look and offers virtual tours.

3. A major publicity drive is being conducted by the Blood Transfusion Service to raise awareness of the importance of Giving Blood in Scotland. They plan to organise a range of 5K and 10K races across the country.

Graphic Designers have been tasked to design and produce a range of graphic communications to promote the event.

The event "Blood Run" logo has been produced as a vector graphic, to be used in the online and printed advertising.

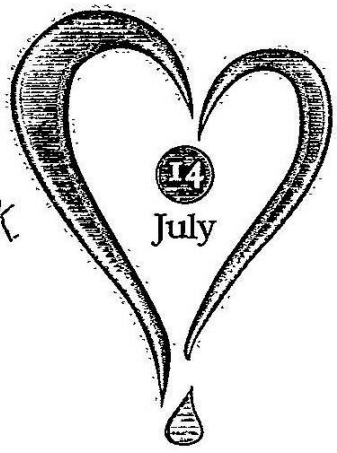
(a) Describe **three** advantages of vector images compared to raster images.

- Vector images are much smaller in size compared to raster
- You can zoom in on arcs, lines, curves and ~~spl~~ splines infinantly and not lose image quality
- CMYK model is converted perfectly
- Vector images can be sawed and later modified without losing image quality.

The colours used within the promotional work must incorporate the colours used in the existing Give Blood logo.

(b) Explain how the Graphic Designers can ensure an exact colour match is achieved.

- To ensure that they have set their colour model to match the printer
- To convert RGB to CMYK



3. (continued)

When the client viewed the pre-production print of the flyer, they were disappointed with the paper and quality of product.

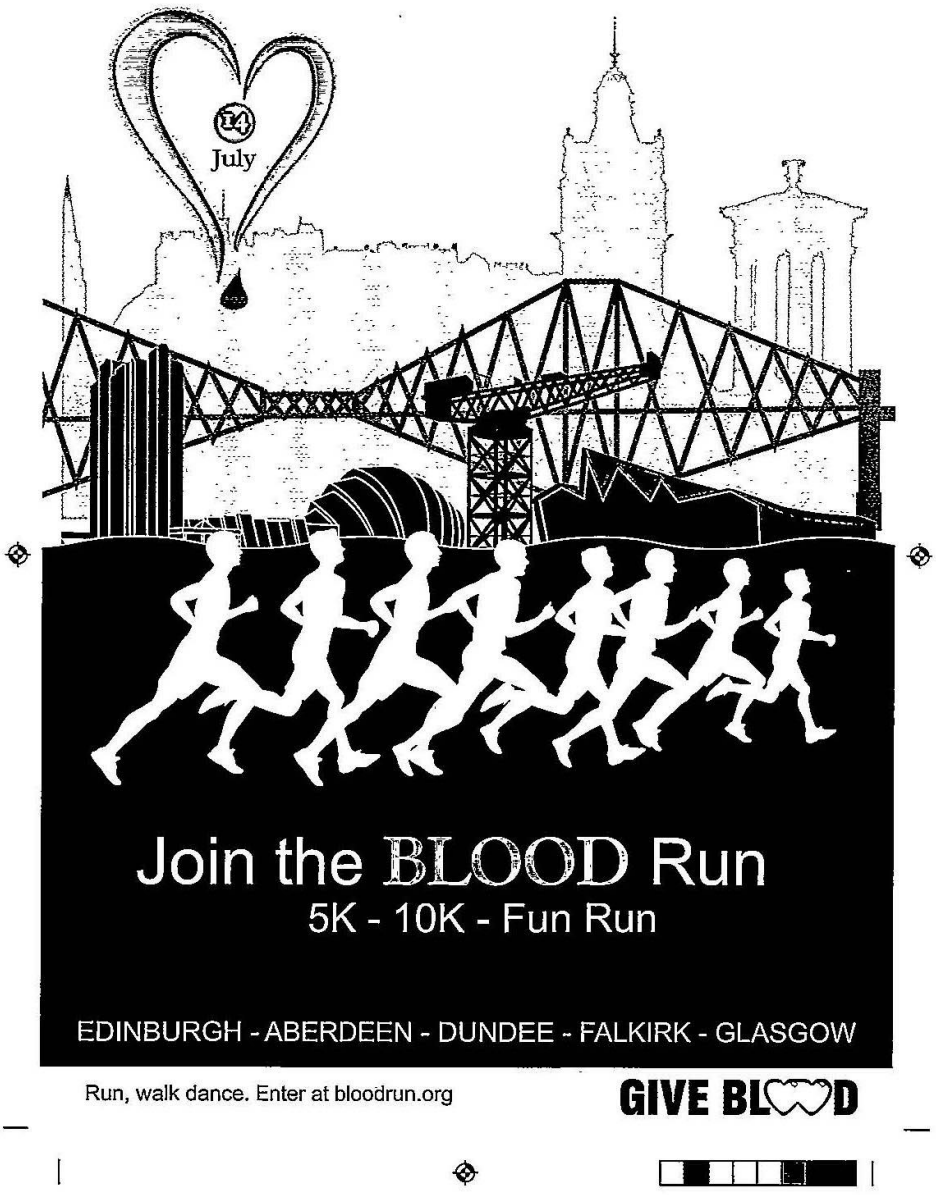
(c) Describe **two** changes that could be made to the paper to improve the quality before going to final print.

- Use a paper with a higher paper weight to ensure sustainability
- Use a paper with a higher opacity to ensure no 'show-through' effects
- Use a paper with a gloss finish like ~~cal~~ ~~standard~~ calendered paper to ensure a fancy and high quality finish.

[Turn over

3. (continued)

The process Offset Lithography was used to produce promotional work for the event.



3. **(continued)**

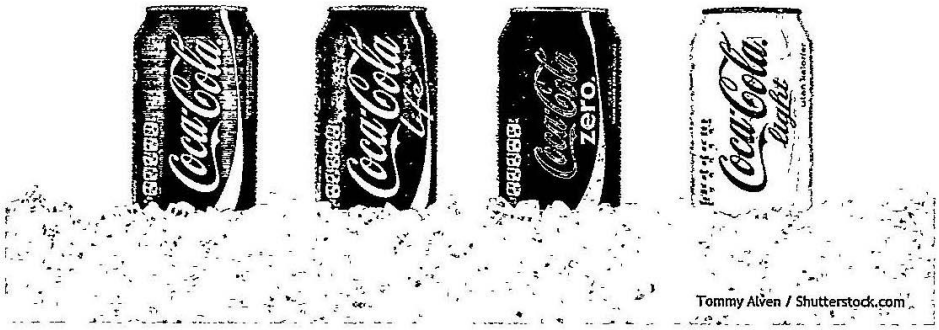
(d) Describe how the process would be used to produce the flyer shown opposite.

- The designer would work in layers to build up the flyer
- Images would be vector graphics
-

SECTION 2 — 30 marks MARKS

Attempt ALL questions

4. A selection of current soft drinks products are shown below.



The Coca Cola typeface and white wavy line are common features used in this product range.

(a) Describe the effect these common features have in maintaining a brand identity. 2

- The brand is easily identified and regognised
- It links all the different products to the same brand so they all carry the same similarity making them easily regonisable.

4. **(continued)**

Companies such as Coca Cola invest significant sums of money to ensure that their brands are protected.

(b) Explain, giving **three** reasons, why companies protect their intellectual property rights.

- Copyright to ensure that no one else can use the brand name/image without thier permission
- To ensure that legally no one can use anything that belongs to the brand to enhance the selling of thier business
- To have a patent so no one else can claim thier products ideas as their own.

[Turn over

4. **(continued)**

The company uses a variety of advertising to showcase their products.

(c) Explain, with reference to the graphics shown on the **Supplementary Sheet for use with Question 4 (c)**, how the company have considered target market, colour and social responsibilities. **6**

Target market In Graphic 3 the company have considered the target market as they are trying to attract those who care about health and the environment, "coke life" is a 'healthy' alternative to normal coke so to entise the target market they have used an image of a green healthy
(continued on back)

Colour In Graphic 2 the use of black links to the product and the potential target market with the reverse text it makes the important info and headings stand out. The repeated use of reds, blacks and white create unity throughout the product and advertising

Social responsibilities In Graphic 3 it shows the company have considered social responsibility as they encourage ~~co~~ customers to be healthy and look after the environment between the colours of greens and whites the text used and the image it is clear that the company are not only promoting their product but the are encouraging healthy/beneficial lifestyles.

5. A range of pictorial and orthographic views of a new design for a trailer jockey wheel assembly are shown on the **Supplementary Sheets for use with Question 5.**

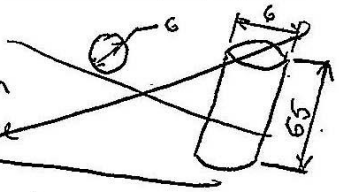
(a) Describe the 3D CAD modelling techniques used to create component "A" **in the most efficient and economical way.** Make reference to the dimensions from the drawings in your answer.

You may use sketches within your answer.

① Sketch a circle Ø6

② ~~Extrude~~ Extrude circle 65mm

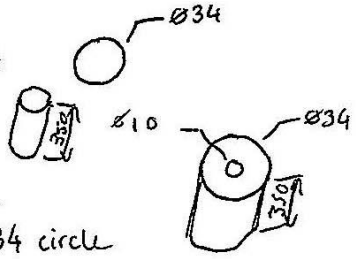
③ turn ~~off~~ on ~~work plane~~ and sketch ~~another~~ circle in the centre of 6mm on (new circle



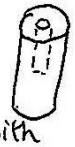
① Sketch circle Ø34

② Extrude 350mm

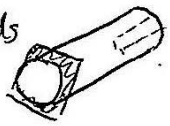
③ turn on work plane and sketch Ø10 circle from centre of ~~Ø~~34 circle



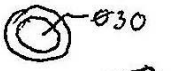
④ Extrude subtract Ø10 circle → 150 mm



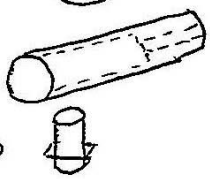
⑤ from opposite end of cylinder with Ø10 circle turn on a work plane and offset 2mm in towards the ~~Ø~~ cylinder centre



⑥ Sketch on workplane a Ø30 circle from center →



⑦ Extrude subtract Ø30 circle 198 mm →



⑧ Switch on workplane like so 2mm from the bottom (the Ø30 circle side)

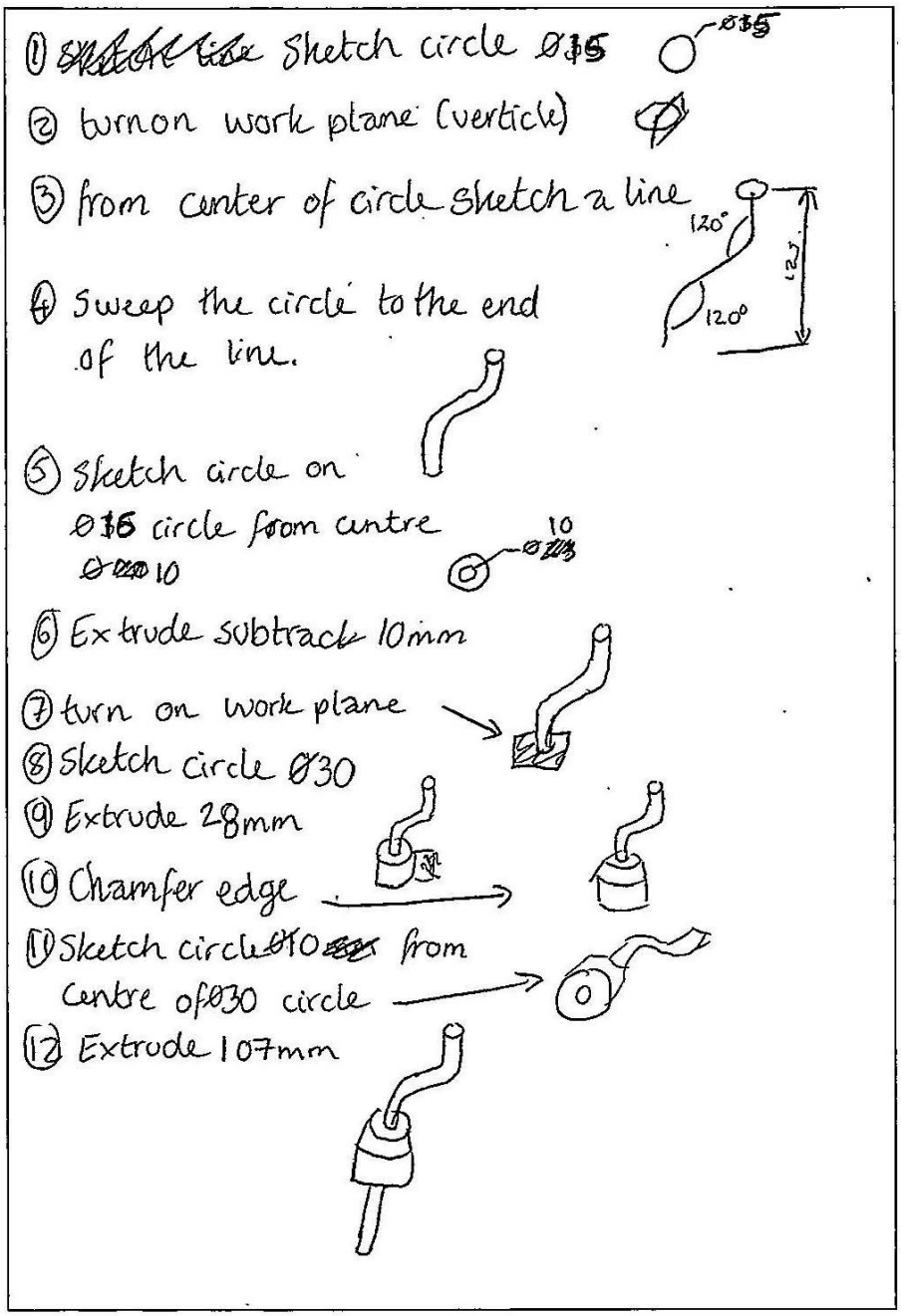
⑨ Sketch line from center of the circle 24mm

continued on back

5. (continued)

(b) Describe the 3D CAD modelling techniques used to create component "B" **in the most efficient and economical way.** Make reference to the dimensions from the drawings in your answer.

You may use sketches within your answer.



5. (continued)

(c) Describe **the most efficient and economical way** of creating component "C". Make reference to 3D CAD modelling techniques and to the dimensions from the drawings in your answer.

You may use sketches within your answer.

1) Sketch a line larger than the component will be

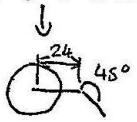
5. **(continued)**

(d) Describe the 3D CAD modelling constraints that would be used to assemble the hex-bolt to the handle. **2**

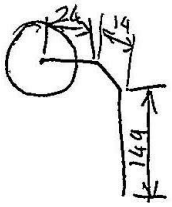
ADDITIONAL SPACE FOR ANSWERS AND ROUGH WORKING

4(c) Target market continued...
Plant earth and the slogan "Be on the green side of life" which ~~encourages~~ encourages people to be healthy but still buy theer product.

5a) (10) then sketch another line at a 45° angle from 24 mm line drawn in step 9 this line should be 14 mm long.



(11) then draw a line carrying straight on from that. this line should be 149 mm long

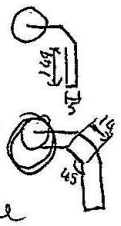


(12) ~~Extrude~~ then draw a line going horizontal to connect ~~the~~ the lines this should be 5mm long →

(13) Draw a line 149 back up →

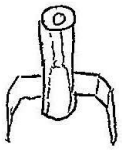
(14) Again draw 14 mm line at 45° angle →

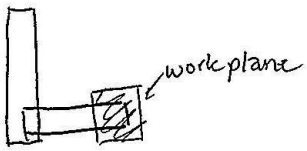
(15) Draw the 24mm line ~~and~~ horizontal



(16) Repeat for left hand side then extrude 40mm

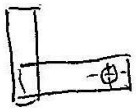
(17) ~~Switch~~ Switch on work plane for the verticle and offset 38 mm so your sketching on the edge of 149 line →





ADDITIONAL SPACE FOR ANSWERS AND ROUGH WORKING

(18) Sketch circle on work plane Ø20 in the centre of the 40 mm side



(19) Extrude subtract the circle 76 mm this should create holes on both sides

(20) Fillet edges with a radius of 20 mm