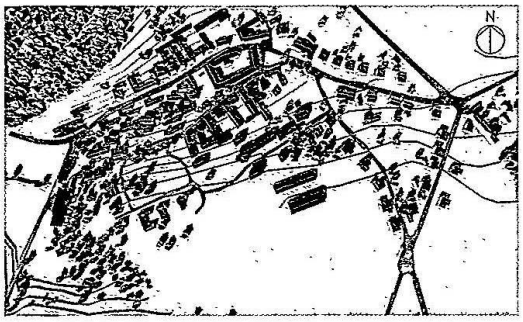
Candidate 2 evidence

SECTION 1 — 50 marks

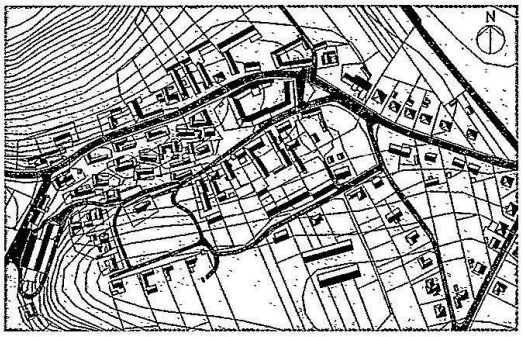
Attempt ALL questions

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

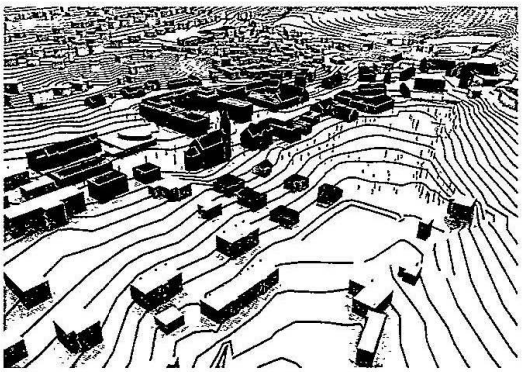
   A variety of graphics of the development are shown below.



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;

Graphic 1 is a topographical survey that will assist the developer in locating optimal positions for houses and if any trees etc need removed. The Graphic 2 is a drainage survey and it will be used by the developer to plan any additions of drains to the existing structure

(ii) the house buyer.

Graphic 3 as is a 3D render and so is more readily understood by a non technical audience - the buyer. It will show the house in context to them.

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:

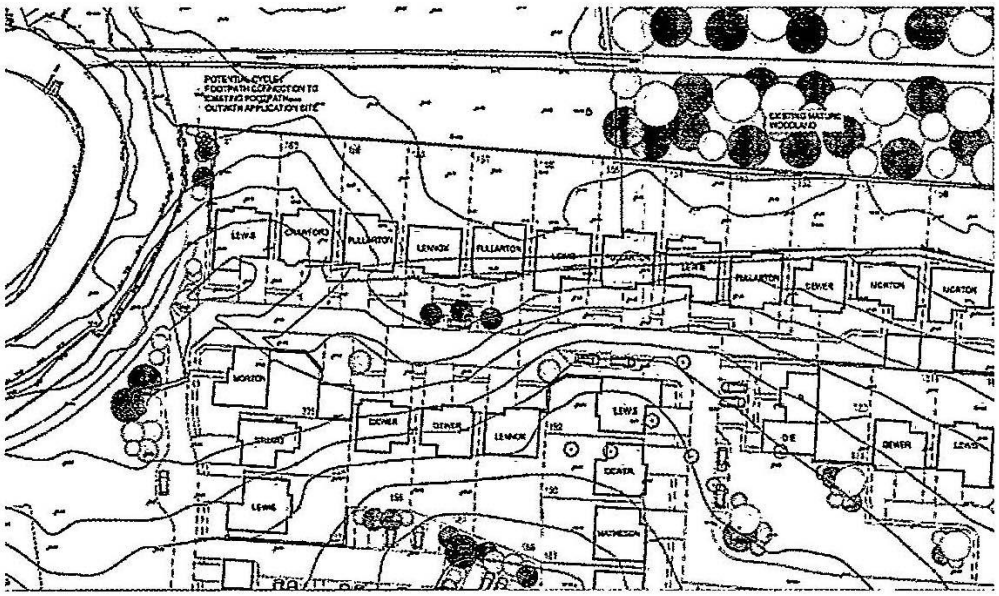
- 2D pictorial drawings
- 3D printed scale model of the development
- Animations.

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

The animation is very engaging so will keep the public focussed it also demonstrates the effort that the company is willing to put in to inform the public. The scale model is also very intuitive and can be viewed from any angle. this shows the company have nothing [Turn over to hide and which will reassure the public.

1. **(continued)**

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

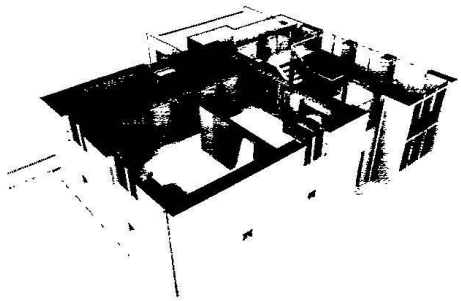


(c) Describe **two** reasons why this type of graphic is of value to the architect.

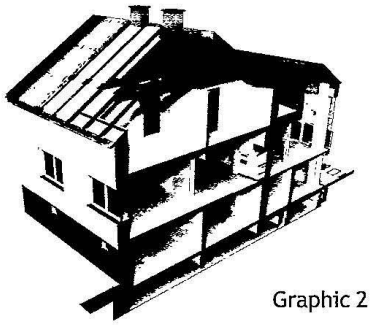
It shows the location of land features e.g trees. allowing the architect to find an optimal building site with minimal obstruction from. The survey also shows land relief. the contour lines will help the architect design a building that is on a slope as he will know the degree to which the land is contoured.

1. **(continued)**

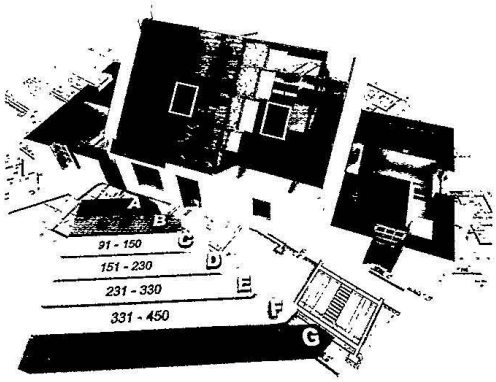
Various graphics of houses in the development are shown.



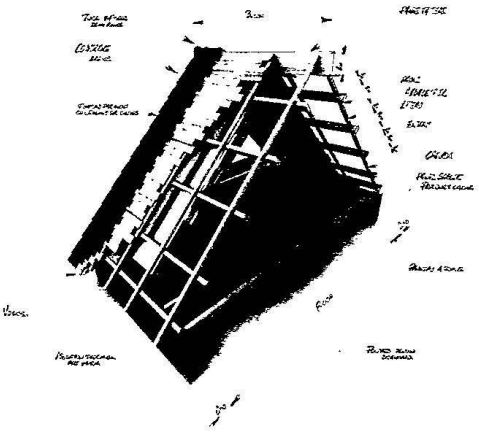
Graphic 1



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;

Graphic 4 shows the dimensions and materials used in the construction of the roof and so is essential for the construction. Graphics 1 & 2 are also useful as because they are sectional views they show the inner details which will inform construction.

(ii) the company sales team.

Graphic 5 shows the finished result in a 3D render that is understandable for non-technical audiences. ~~This~~ therefor it is perfect for marketing as shows the finished product.

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.

Websites and adverts would be very beneficial as the websites are environmentally friendly, cheap to make, accessible world wide and in multiple languages meaning a wider audience will see the project. Websites are also easily updated in case of any changes to the design. online Adverts are also accesible world wide and cheaper to make than print media promotionals, like flyers.

[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.

In motion tweening the start & end frames are set and the computer creates the motion. As the motion is very simple then this is perfect. It is also ~~This is~~ far faster and less labour intensive than other methods. ~~At the moment is also very simple then~~

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.

Create point light inside to house or ensure that the directional light from the ~~house~~ sun is directed through the windows.

1. (continued)

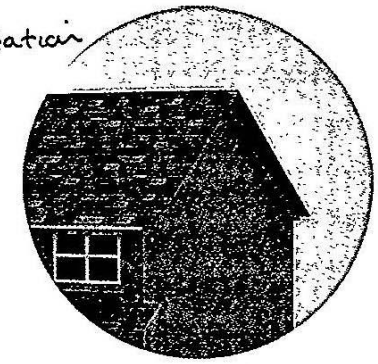
The company's Graphic Designer creates graphic representations of how the houses may look prior to construction.

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

(i) Graphic 1

Technique 1

Texture map - to add the basic colour and representation of the materials used



Technique 2

bump map - grayscale image the simulates surface relief to make the ~~texture~~ texture appear 3D & more realistic

(ii) Graphic 2

Technique 1

(IBL) Image based lighting - realistic lighting applied to scene. to give realistic reflections and shadows

Technique 2

(HDRI) high dynamic range image - allows model to be placed in a 3D scene w/ scale and properties and perspective.

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.

Convert the 3D ~~A~~ Computer Model into an STL file as this is compatible with 3D printers. ~~Also~~

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

(i) the caravan designer;

~~3D CAD production and of Photographic drawings can be created from the model~~. Allows designer to better understand what the model will look like - can be used to show the client to help them visualise the ~~actual~~ design.

(ii) the caravan manufacturer.

Allows them to see ~~the actual~~ what the finished result should look like, just scaled up so will assist in the assembly and manufacture.

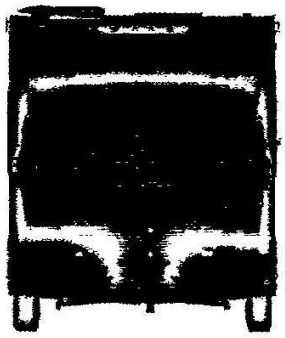
2. (continued)

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

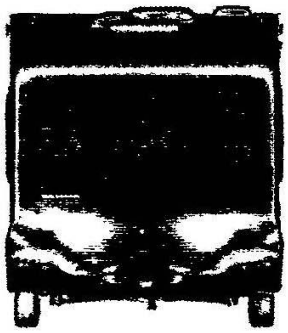
CFD - computational fluid dynamics.

FEA - finite element analysis

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 proves to the target market that the new Caravan Model is superior and tougher to competitors models therefor increasing the chances of a sale.

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.

- What furnishings are included
- the ~~state~~ size of the space inside -
- the materials used and if they look appealing.
- the lighting styles inside
- the overall aesthetic appeal of the exterior would be showcased aswell allowing the target market to decide if the like the design

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.

This is a virtual reality file type and so allows the user to see the whole caravan from a variety of angles. VRML is also interactive as the viewer must pan or click around so is therefore more engaging.

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

It suggests the company are technically advanced as they have moved into VR. It is also interactive as the viewer must pan or click around which makes the experience more engaging. This will give the viewer a more positive feeling towards the product making them more likely to buy it.

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.

When scaled up or down vector images experience no loss in quality whereas raster files do. Vectors file ~~types~~ sizes are also smaller than raster's so take up less memory space. Finally vectors can have transparent backgrounds which is especially useful for logos whereas only some raster files allow this.

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.

They could either use the colour picker to sample the colour. or they could use the pantone colour matching system where colours are standardised. this would mean they could use the exact same colour.

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.

Increase the papers opacity so it is less transparent. Use paper of a higher gsm as it will be thicker and stronger. Finally calander the paper so that it is smoother and gloss can be applied more easily.

3. **(continued)**

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

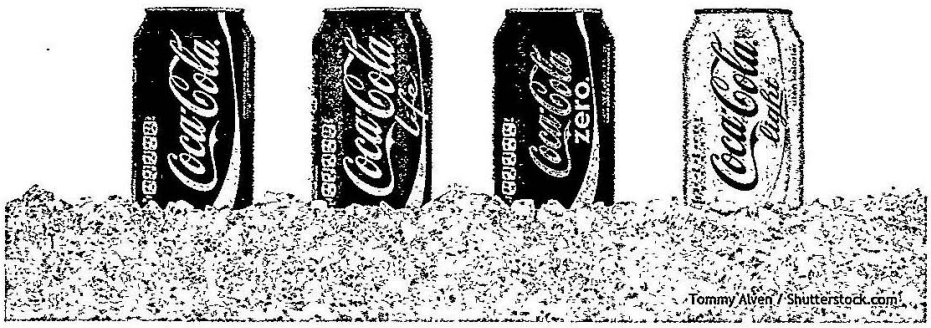
3. (continued)

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

First a stencil is created, then the ink is pushed through the stencil.

SECTION 2 — 30 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.

they have come to be well recognised as the brand of Coca-Cola and so when used the viewer will instantly recognise it. As these features are used across all coca cola products then they are easily identifiable as coca-cola.

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.

So that no other companies can steal their branding in an attempt to fool customers. Also so no sub standard products can be sold under their branding which would lower customers opinion of Coca Colas products as a result. Finally so that their brand easily recognised by consumers.

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.

Target market The target market for graphic 1 - normal coke is children as they usually are less concerned with health and more concerned with fun and games. Graphic 2 is for coke zero and is aimed at adults who are more concerned with staying healthy. Graphic 3 is for ~~those who~~ coke life and is aimed at those who care for the environment and nature.

Colour The red and black colour in graphic 1 stand out and therefore emphasise the theme of "play on the side of life" which is what appeals to children. The black bakground in graphic 2 adds drama and intrigue to the design implying that coke will provide this. The green colour in graphic 3 is associated with nature and life and so reinforces the "green" theme.

Social responsibilities

Graphic 1 - ~~the~~ Kids have less social responsibilities and so targetting normal coke (less healthy) at them is a good move as they aren't as concerned with matters of health

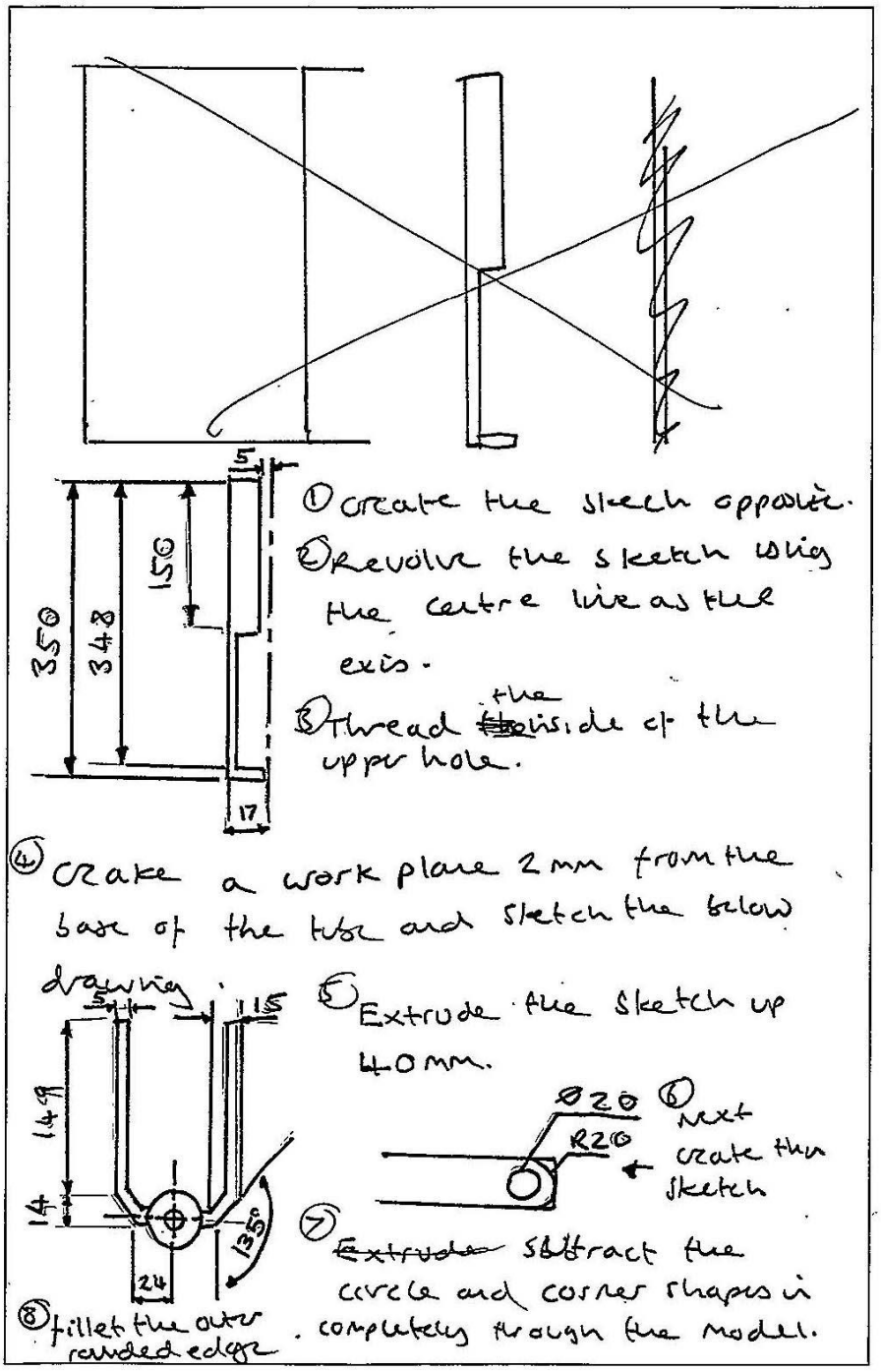
graphic 2 - & targetting & diet coke at an older audience is also a good move as they want to stay healthy in order to perform their social responsibilities.

graphic 3 - shows that coke is taking on the responsibility of being green and environmentally friendly.

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.

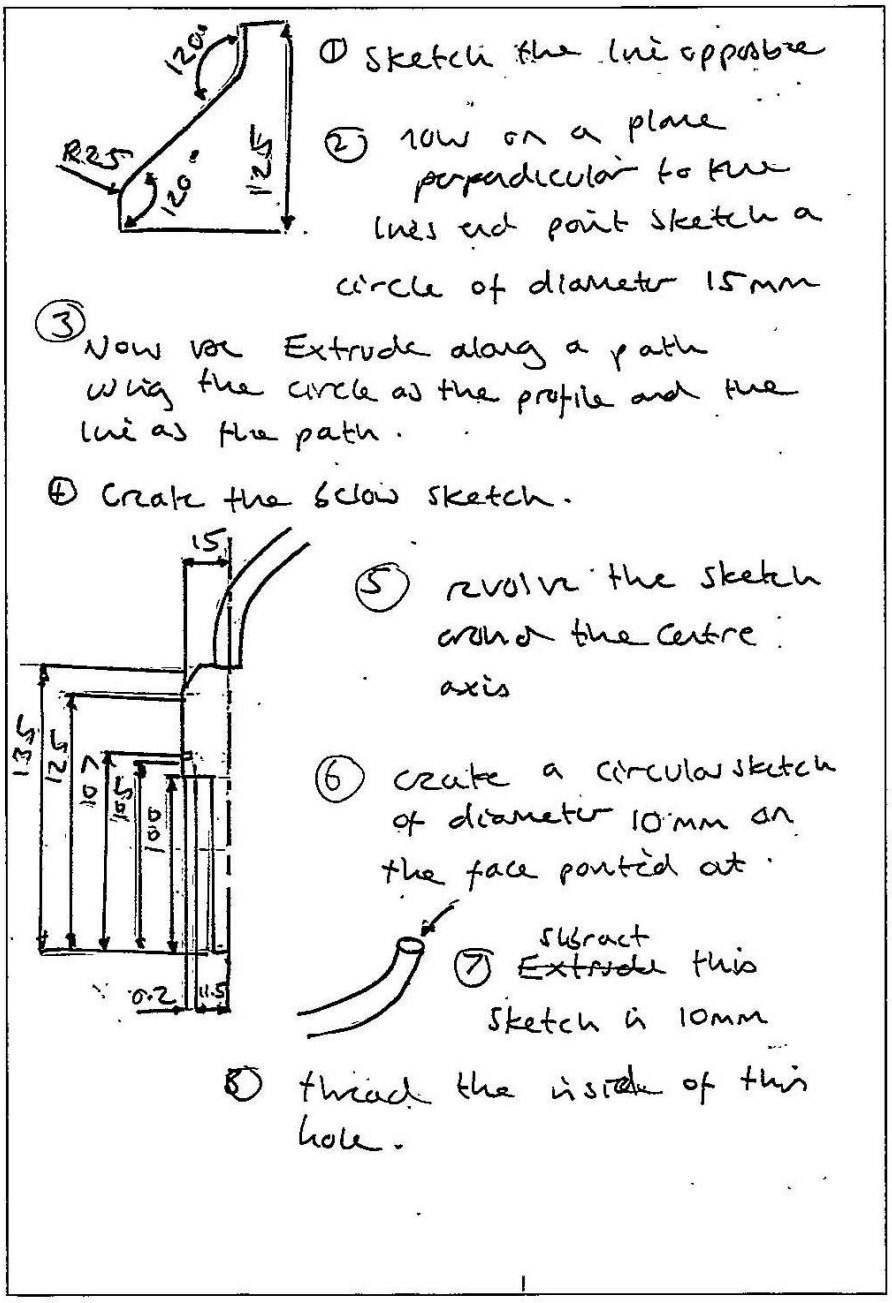
You may use sketches within your answer.



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.

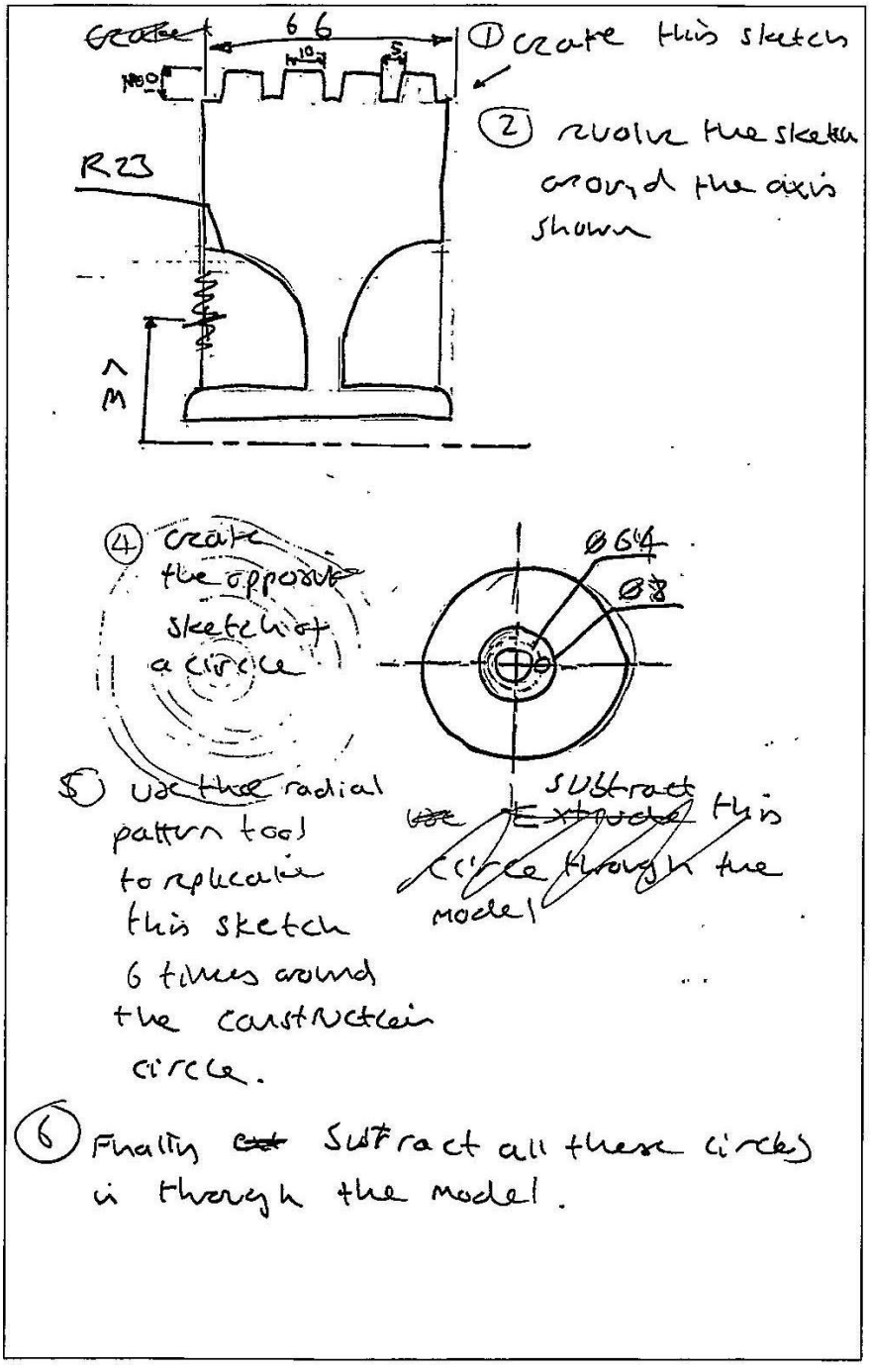
You may use sketches within your answer.



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.



5. (continued)

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

Constrain the centre axis of the bolt and hole in handle. Then constrain the ~~two faces~~ inner face of the hex bolt head to the outer face of the hole.