



Calderglen High School

Technical Department

Advanced Higher Graphic
Communication

Homework

The following homework has been comprised to enhance your knowledge for the Advanced Higher Graphic Communication course.

As it is at Advanced Higher level a lot of the study and homework will require a substantial amount of research to establish the answers. The K&I booklet has been updated but does not hold all the answers. A Power Point on Design Elements & Design Principles has also been created to assist. This can be found in the Shared Area under Advanced Higher 2015.

The CD of Graphics Products has good information on printing processes make sure your teacher gives you a copy.

The course is equivalent to the first year of university so therefore independent study is required, i.e. far less input from your teacher.

Q1 With the aid of sketches explain the difference between a Serif and Sans Serif typeface.

Marks 2

Q2 With the aid of sketches describe the following typographic terms:

- 'x' height
- ascender
- descender
- mean line
- base line

Marks 5

Q3 What are the main characteristics and differences between Bitmap and Vector images?

Marks 2

Q4 Describe (using sketches where appropriate) the following DTP terms:

Pantone™ Colours

Marks 5

Two-Colour

Crop Marks

Resolution

Photo-Resolution

Q5 What is meant by the following DTP terms and describe their use:

Marks 8

Font

Alignment

Handles

Running Headline

OCR

Orphan

Crop marks

Registration

Q6 With the use of sketches explain and show the following typographic terms.

Marks 5

Bleed

Text wrap-round

Camera-Ready copy

Widow

Radial Balance

Q7 With the use of sketches explain and show the following typographic terms.

Marks 5

Leading

Point size

The Rule of Thirds (use sketches to help answer)

Kerning (use sketches to help answer)

Grids

Q9 Portable Document Format (PDF) is a common file type used throughout the graphics industry.

Explain the advantages of using this format.

4 marks

The Architecture Observer logo has been reproduced as a vector graphic, to be used in both the existing website and new magazine.

(d) Describe **four** advantages of vector graphics compared to raster images.

4 Marks

Q11 The table below is taken from the Scottish Executive's information on the *Supporting People* initiative.

Marks 5

Supporting People Purple
Pantone matching system
2604
Four Colour set (CMYK)
C79%
M100%
Y0%
K6%
Web safe RGB reference for on screen applications
R 102
G 0
B 102
HTML reference
660066

The table describes the definition of the colour purple according to four different standards.

(a) Explain why four different colour standards are required.

(b) State what the initials CMYK stand for

(c) Outline the effect of four different standards being applied to the colour purple.

Q12 Word processing and Desk Top Publishing are normally used for producing documents. In general terms, distinguish between typical word processing and DTP software.

Marks 2

Q13 A software package is required by a small company for mixing text and graphics in order to produce *in-house* advertising and information leaflets. As a person who has some experience of using this type of software, you have been asked to advise on the type of package and features which would be most desirable.

Write a suitable specification for:

a) The type of package which should be purchased.

Marks 2

b) The features the company would find most useful for the purposes required.

Marks 2

Q14 Desk Top Publishing has much to offer in producing a range of items; from a school newsletter to a national newspaper.

Discuss 2 benefits of DTP in the production of an advertising leaflet.

Marks 2

Q15 During your CAG work, you may have used a *paint* package and a *Desk Top Publishing* package to produce promotional graphic items.

(a) For each package, identify two main features which you consider desirable. *Note: Four different features are required.*

Marks 4

(b) Why is it important to ensure that these packages are compatible with each other?

Marks 2

Q16 Subtraction and Reverse are terms used in Desk Top Publishing. Explain each term.

Marks 2

Subtraction

Reverse

Q 17 The Architecture Observer logo has been reproduced as a vector graphic, to be used in both the existing website and new magazine.

Describe four advantages of vector graphics compared to raster images.

Marks 3

Q18 Web Designers have blocked the option for users to download images from the website. However, it is also possible for consumers to "screen grab" an image.

Explain the disadvantages of screen grabbing.

Marks 3

Q19 Explain **two** of the issues relating to Intellectual Property Rights that the Architecture Observer may encounter when publishing its magazine.

Q20 Flexography is a common method of printing;

Marks 2

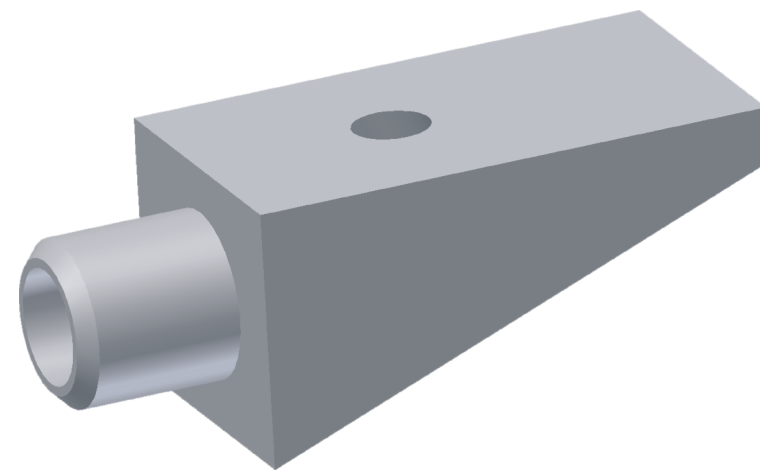
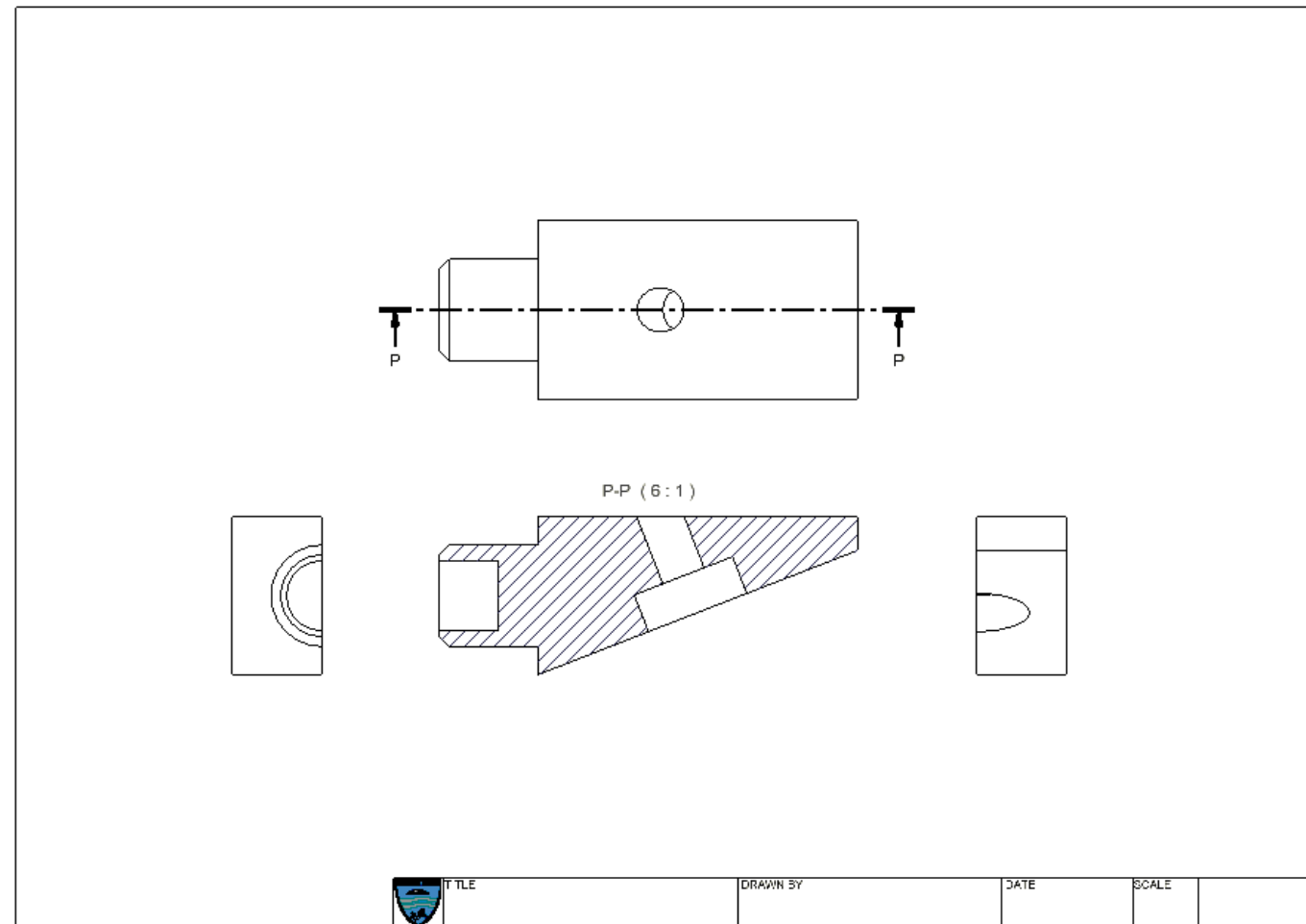
(a) Explain why this method is the preferred method for printing on plastic bags.

(b) What is the main disadvantage of this printing method.

Marks 2

Q21 Orthographic views of a component are shown below.

With the aid of sketches, explain how a 3D CAD Solid Model of the component can be produced.



Please Note:

Hidden Detail has been omitted

Use the space below

Q22 Paper is available in various qualities and finishes.

(a) Explain the difference between Newsprint and Calendered Papers.

Marks 2

(b) Explain the term Paper Opacity.

Why has opacity have to be considered before printing?

Marks 2

(c) What is the unit of weight of paper measured in?

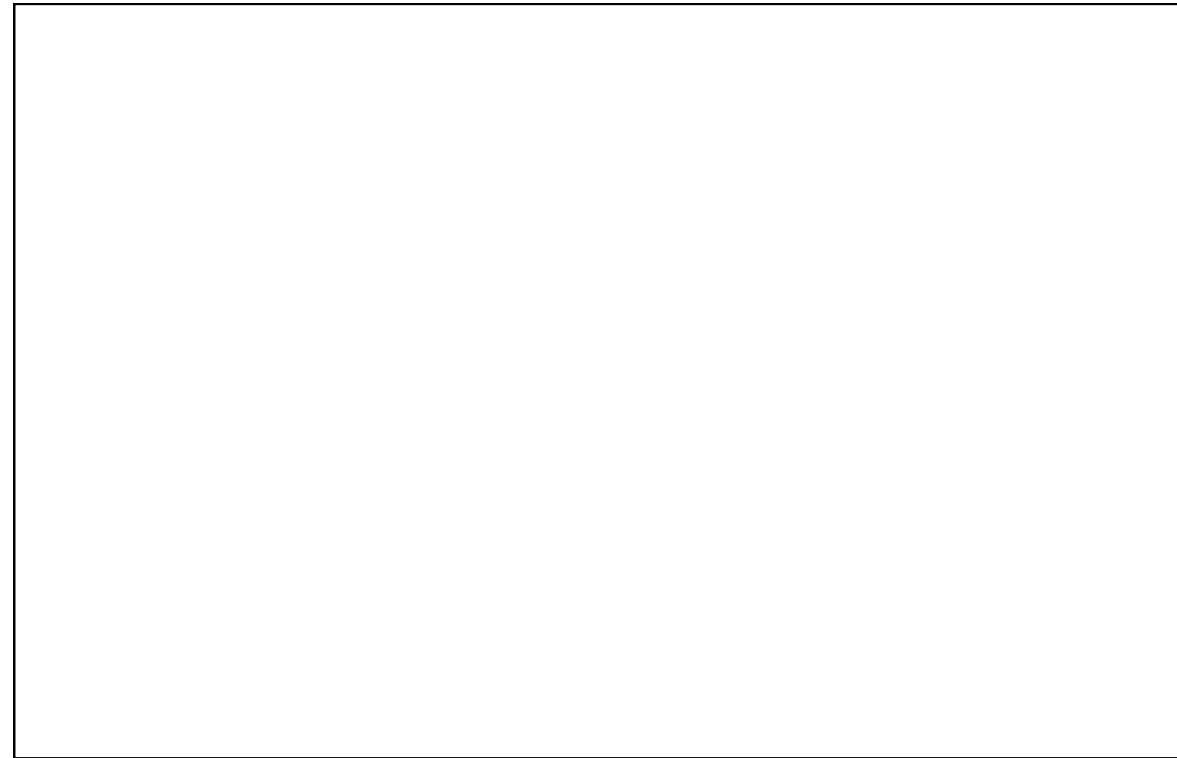
Marks 1

Q23 An identity Card for every 16 year old in Scotland is being considered. The card will contain the following information:

- The title of the card - Scottish Age Card
- The name of the holder
- An image of the holder
- The dates when the holder will be 16 & 18
- A graphic which will identify the card as Scottish

(a) In the space below; sketch a visual of a card that includes the afore mentioned details, giving consideration to Design Principles and Design Elements.

Marks 5



(b) State and explain one design principle and design element you have used in the card you have produced.

(i) Design Principle

Marks 1

(ii) Design Element

Marks 1

Q24 The fire safety flier shown below is poorly designed.

In the page opposite, sketch an alternative design incorporating improvements based on three design principles.

Annotate your sketch with an explanation of the three design principles you have included in your design.

What to do if there's a Fire

If your smoke alarm went off in the middle of the night would you know what to do?

1. Raise the Alarm.



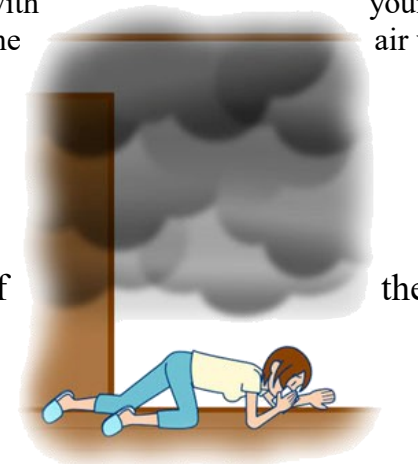
If the smoke alarm goes off while you are asleep, don't investigate to see if there is a fire. Shut to wake everyone up, get together, follow your plan and get out.

Check doors with the back of your hand - if they are warm do not open them - the fire is on the opposite side. If there is a lot of smoke, crawl along with your nose near the floor where the air will be cleaner.



2. DO NOT GO BACK INSIDE YOUR HOME

Call the Fire Brigade from a mobile phone, a neighbours house or a phone box. Give the address of fire. Don't stop or go back for anything.



To save your life in a fire

- If your smoke alarm goes off in the night don't investigate - wake others and get out, following your plan
- Don't open any doors that feel warm
- Don't stop or go back for anything - phone the fire brigade and
- If you can't get out, stay in one room together, close the door and wait to be rescued

Marks 5

Q25 Explain how the following design elements are used in DTP.

(a) Texture

Marks 1

(b) Mass/Weight

Marks 1

Q26 In Computer Aided 3D Modelling, lights are frequently used to enhance a rendered object.

(a) Describe the following lighting types.

(i) Distance

Marks 1

(ii) Spot

Marks 1

(b) The following lists terms associated with the lighting types given in (a) in the opposite page.

- Ambient
- Intensity
- Attenuation

Explain the meaning of each of the above terms.

Ambient

Marks 1

Intensity

Marks 1

Attenuation

Marks 1

Q27 Type faces are generally classified into two major groups, Serf and Sans Serif.

(a) Explain, with the aid of sketches, the difference between the two type face groupings.

Marks 2

(b) State the purpose of serifs.

Marks 1

(c) Justify the use of Sans Serif type face.

Marks 1

(d) From the given list, label the text below with the correct Typography term.

Marks 5

Terminology

The following lists six typography terms

- X-Height
- Counter
- Descender
- Mean Line
- Baseline
- Ascender

Q28 White Space and Reverse are terms associated with Promotional Graphics.

Explain each term and give a reason for its use and an example where.

Negativity/White Space

Marks 1

Reverse

Marks 1

Asymmetrical Contrast

Marks 1

Kerning

Marks 1

Focal Point

Marks 1

Justification

Marks 1

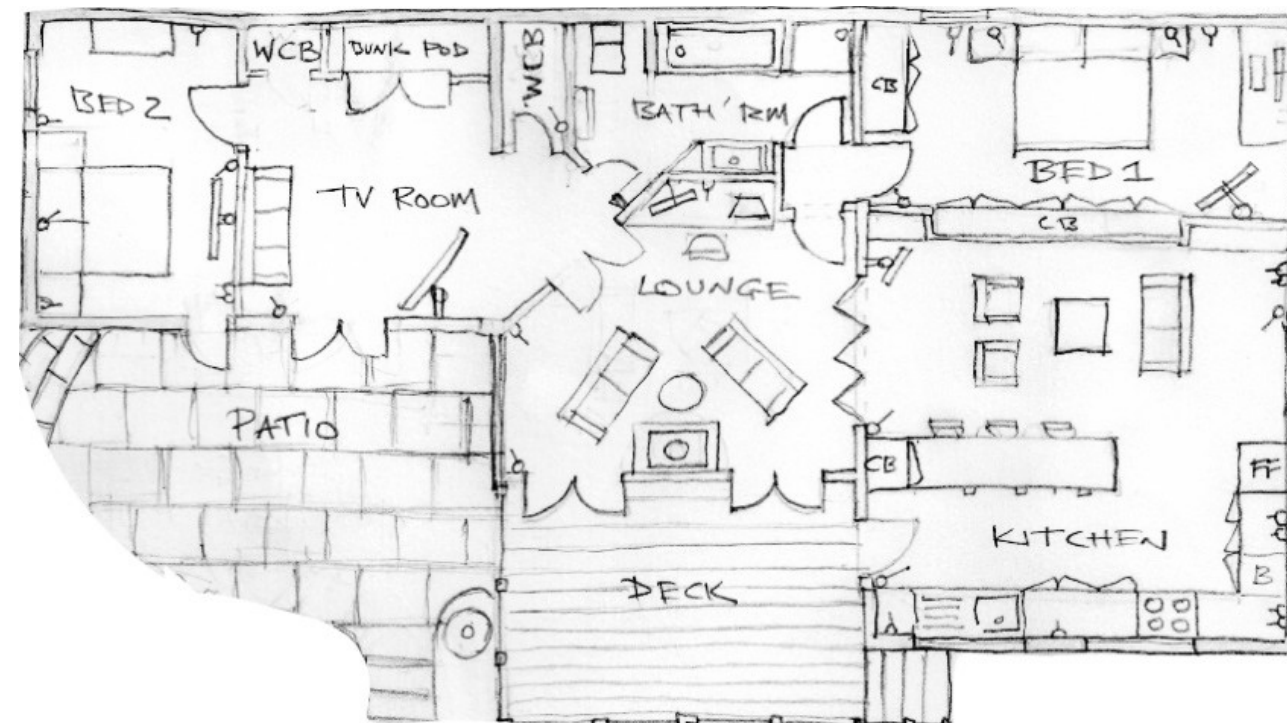
Format

Marks 1

Q29 A client has requested that the following features be incorporated into the design for a new holiday home:

- One building that can be used as one holiday home or separated into two independent living quarters when separated
- Each independent living quarter is to have its own point of entry and kitchen/dining facilities
- Both will have an open plan living area
- Both will open onto private outside living space
- The two living areas will have a communal meeting place that can be used if required

After a discussion with the client, the architect has produced the sketched floor plan and garden shown below.

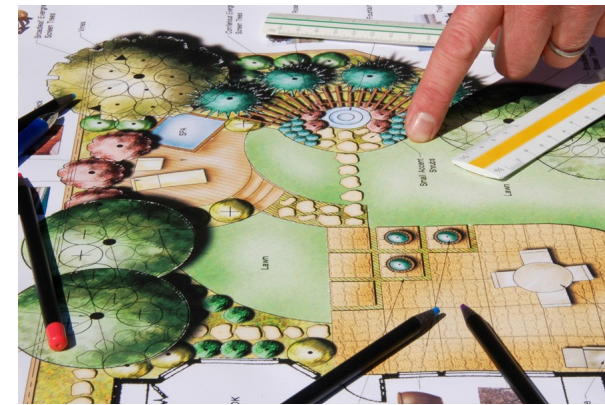


Analyse the architect's sketched floor plan above.

(a) Describe three ways the architect has implemented the client's request by making reference to rooms and/or features.

Marks 3

Q30 A range of professionals has created a variety of graphic communications to present information relating to a new house and associated landscaping. The images shown above were created by a landscape architect to present proposals for garden layouts. Describe three ways the images created by the landscape architect could help the client visualise the design.



Marks 3

Describe three ways a 3D CAD model of the house could be used to evaluate aspects of the design, prior to construction.

Q32 Explain the purpose of producing thumbnail sketches and visuals when designing a DTP publication.

Thumbnail Sketches

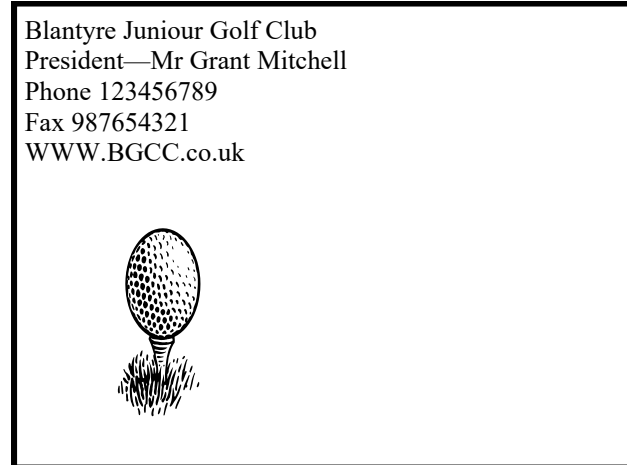
Visuals

Q33 The Blantyre Junour Golf Club business card shown below is considered to be poorly designed.

Sketch, in the space provided below, an improved design and justify improvements made in terms of line, colour and texture.

Note: The given text and graphic item must be incorporated into your improved design. Additional graphic items may be added to enhance the overall design.

Marks 3



Original Design

Alternative Design

Marks 1

Line

Colour

Marks 1

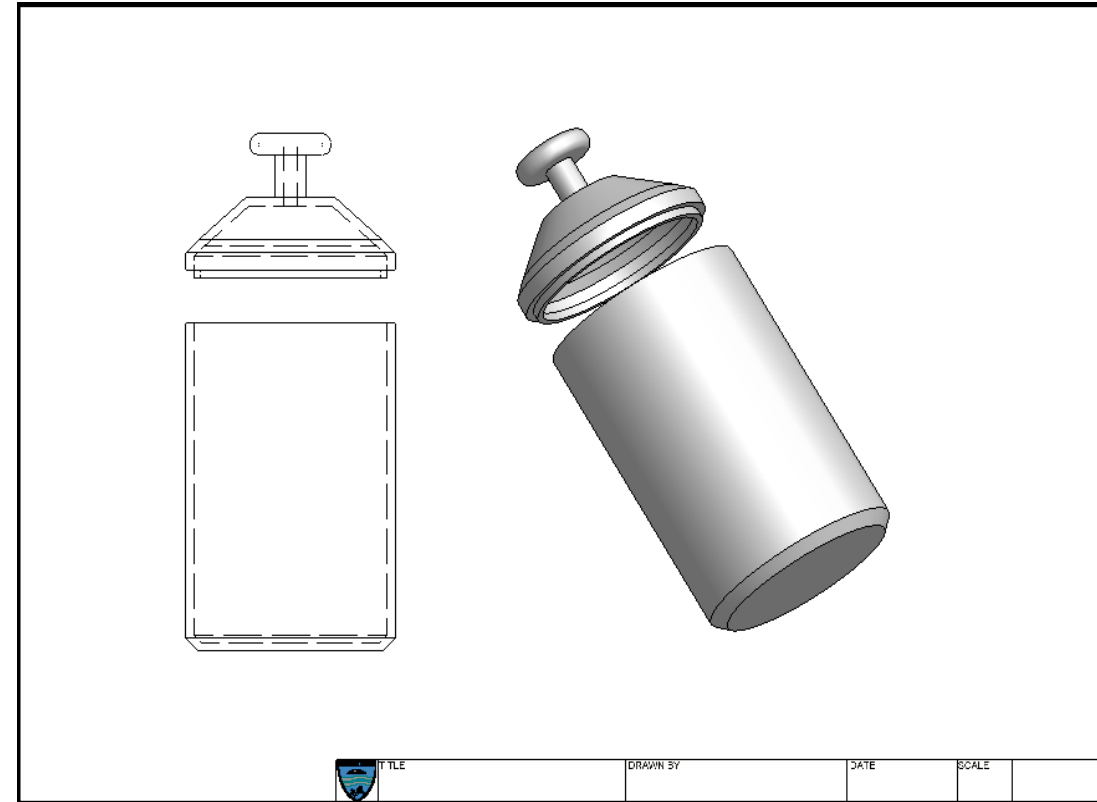
Texture

Marks 1

Q34 A pictorial view and elevation of a water bottle and cap are shown.

Describe, with the use of sketches and appropriate terminology, how to produce a 3D CAD solid model of the bottle and the cap using only 3D Primitives and Boolean operations.

Marks 5



Q35 Vector and Bitmap images can be used in the production of desk top publications.

(a) Describe with the aid of sketches, the difference between a Vector and a Bitmap image.

Marks 2

(b) Explain the advantage to a desk top publisher of using a Vector image in comparison to a Bitmap image.

Marks 2

(c) State the type of image best suited to:

(i) Vector format

Marks 1

(ii) Bitmap format

Marks 1

Q36 "Offset Lithography" and "Flexography" are two common methods of industrial colour printing.

(a) Describe the most common use of Offset Lithography and explain why it is used in this way.

Marks 2

(b) Describe the most common use of Flexography and explain why it is used in this way.

Marks 2

(c) Complete the steps in the Lithography process.

(i) Separated image has been exposed to film through a halftone screen.

Marks 3

(ii)

(iii)

(iv)

Q37 Explain the following DTP terms, using sketches where appropriate.

(a) Orphan

Marks 3

(b) Silhouettes

(c) Focal Points

Q38 A Headline should attract attention and be easy to read. The following factors affect the impact of a headline.

- Typeface and type size
- Alignment
- Uppercase
- Tracking
- Kerning

Explain how any three of the above factors contribute to the production of a good headline

(a) Factor 1

Marks 3

(b) Factor 2

(c) Factor 3

Q39 A wardrobe clothes rail bracket is to be manufactured.

A CAD technician is employed to produce a 3D CAD model of the bracket, to enable testing prior to manufacture.

The CAD technician created the 3D CAD model shown above.

The bracket is required to hold a maximum specific load. An appropriate digital testing method has been applied to the 3D CAD model, before submitting the file for manufacture. The simulated graphic result from the digital test is shown in Figure 1 below: State the digital testing method applied to the 3D CAD model. 1

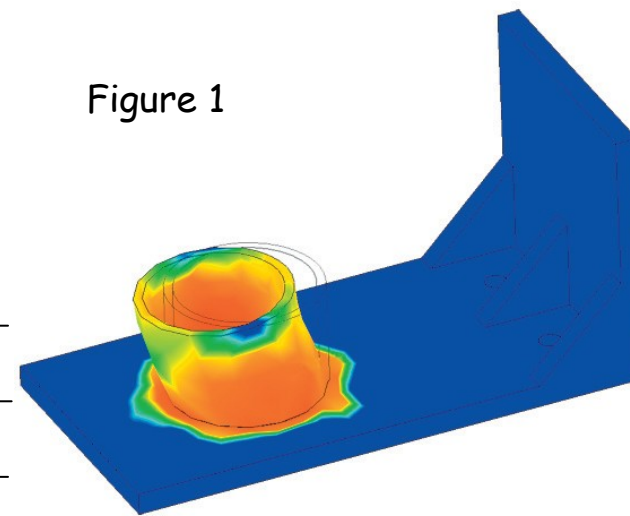


Marks 1

Describe **four** characteristics of this digital testing method.

Marks 4

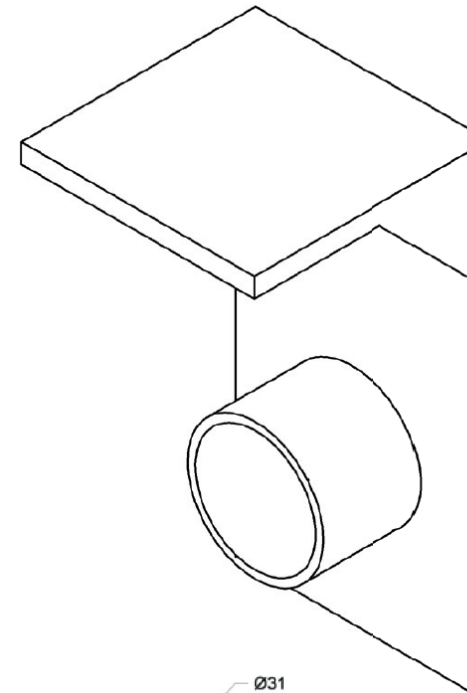
Figure 1



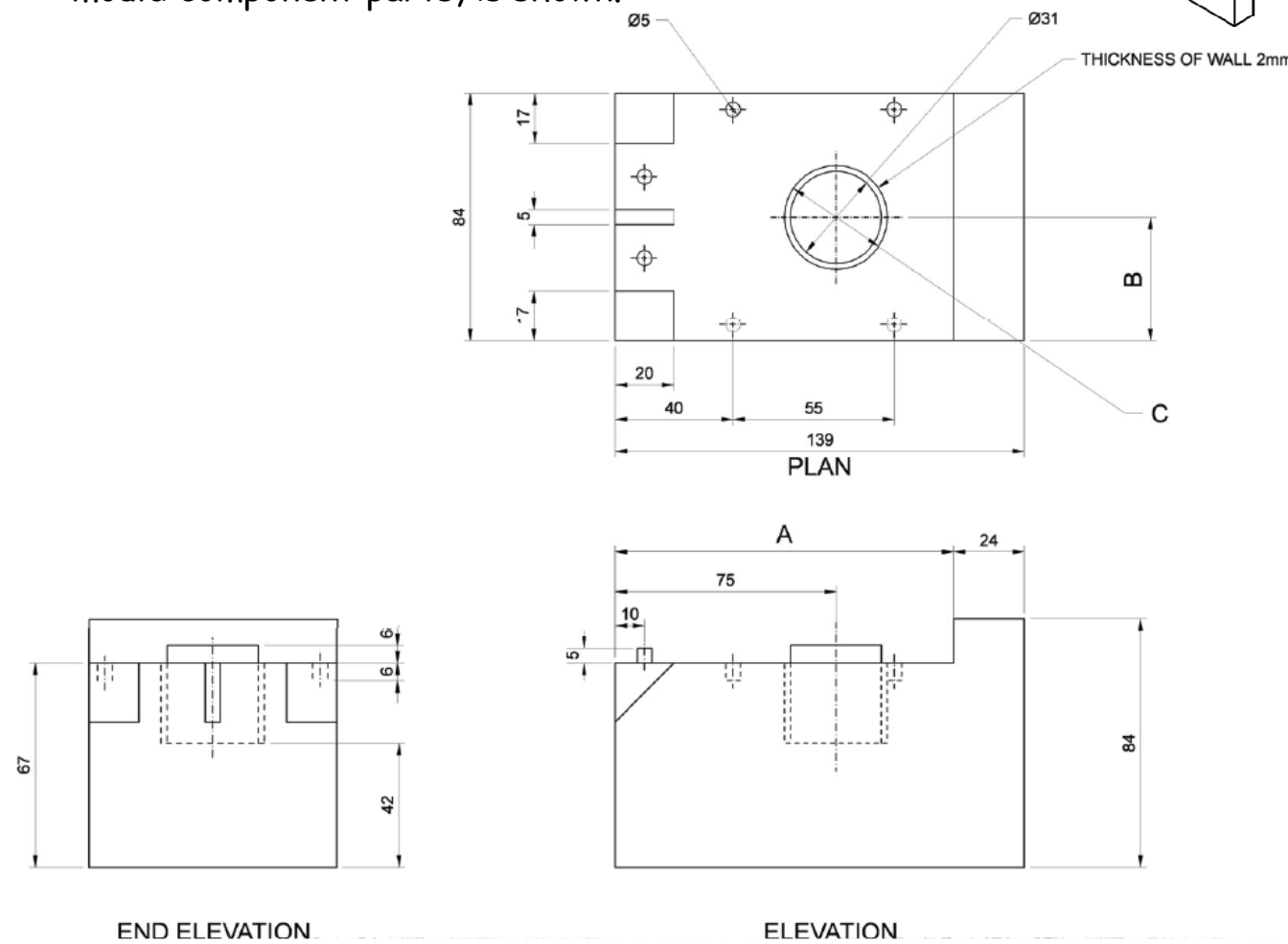
Q40 The digital testing method has revealed that the boss feature would fail under the required load.

Describe the feature that could be applied to the boss to reinforce the component. You may not alter the dimensions of the boss. You may sketch upon the drawing below to support your answer.

Marks 2



Q41 A 3D CAD model of the bracket and its mould, together with the production drawing for one of the mould component parts, is shown.



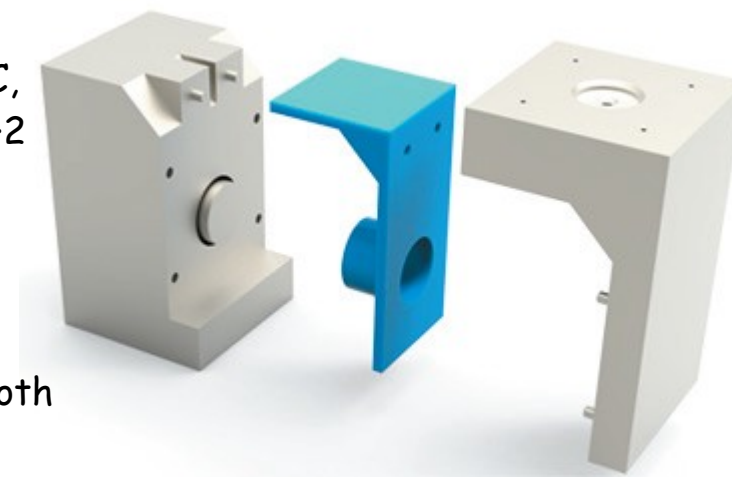
Calculate the maximum and minimum dimensions for A, B, C, allowable tolerance of: +0.1 -0.2

A MAX = MIN =

B MAX = MIN =

C MAX = MIN =

The component requires a smooth surface finish.



Marks 3

- (ii) Apply the British Standard symbol to the orthographic drawing on previous page.

Marks 1

Q42 The stages in the creation of a realistic CAD illustration are shown above.

Three different techniques have been applied — one at each stage.

Explain the use of the different techniques applied at each stage.

Marks 6



Q43 The Head Teacher of Calderglen High School would like a new design for the Certificate of Merit scheme to reward students for hard work, positive attitude

The Head Teacher has issued the following specification for the certificate

- It must be A4 format (portrait or landscape)
- It should incorporate the school badge
- It should be formal in appearance
- It should reflect the aims of the Certificate of Merit scheme



School Badge

(a) In the space opposite, design a Certificate of Merit to meet the specification laid out by the Head Teacher.

You may wish to consider including items such as the date, signature of the Head Teacher, the name of the school, the name of the recipient, and what the certificate is for.

Marks 4

(b) Explain, in the space below, two design principles and two design elements you have used to meet the specification above.

Design Principle 1

Marks 4

Design Principle 2

Design Element 1

Design Element 2

Certificate of Merit, which is issued to students. The aims of the Certificate and contribution to the school community.

Certificate of Merit Design



Q44 (a) Explain why halftones are necessary when printing images.

Marks 2

(b) Describe two production methods used to convert images into halftones.

Production Method 1

Marks 1

Production Method 2

Marks 1

(c) Describe the term "Moire Patterns" and explain how they can be avoided.

Marks 1

Q45 JPEG (.jpg) and TIFF (.tif) are two examples of graphics file types.

(a) Give an example where each graphic file type is best used.

Marks 1

JPEG _____

TIFF _____

(b) State the advantage of using each of the above files types, when compared with the other.

Marks 1

Q46 In commercial printing, paper management is important.

- (a) A2 paper is 420mm x 594mm in size.
RA2 paper is 430mm x 610mm in size.
Explain why it may be necessary to use RA2 paper for the commercial printing of posters.

Marks 2

- (b) In publishing terminology, explain the term imposition and how it could affect the production costs of a publication.

Marks 2

- (c) In the space below, sketch a four-page signature for a pamphlet.

Marks 1

Q48 When designing a publication for a client the designer uses a number of techniques to arrive at a finished article. Explain in detail the following DTP processes (use sketches where appropriate):

Marks 4

Outline Specification

Thumbnails

Body text

Visuals

Q49 What do the graphic file format abbreviations below stand for and when are they used?

Marks 4

BMP (Bitmap)

GIF

JPG

TIF

Q50 Describe a laser printer and an ink-jet printer and give advantages and disadvantages for each.

Marks 4

Laser printer.

Advantages

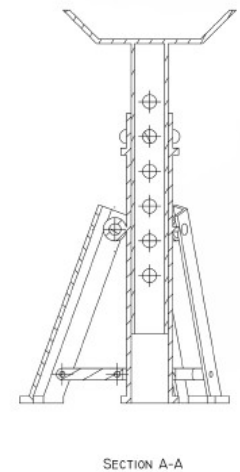
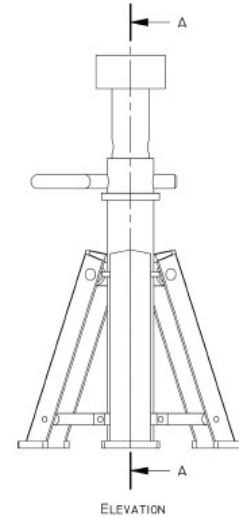
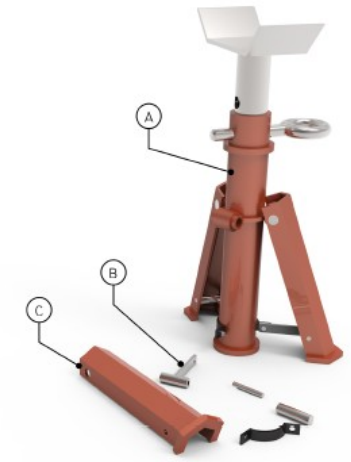
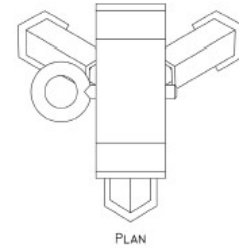
Disadvantages

Inkjet

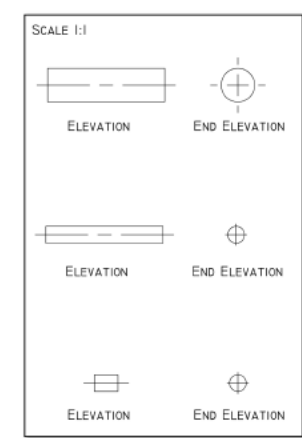
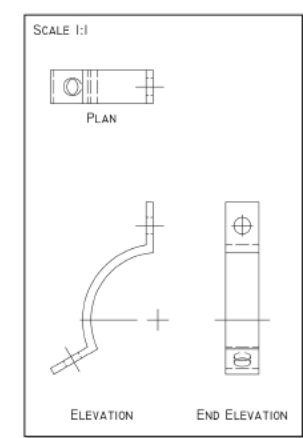
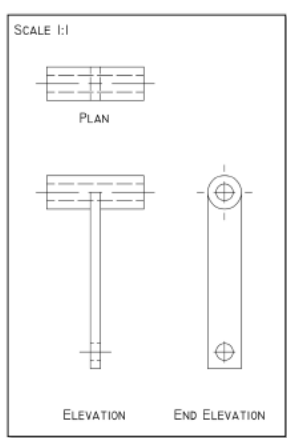
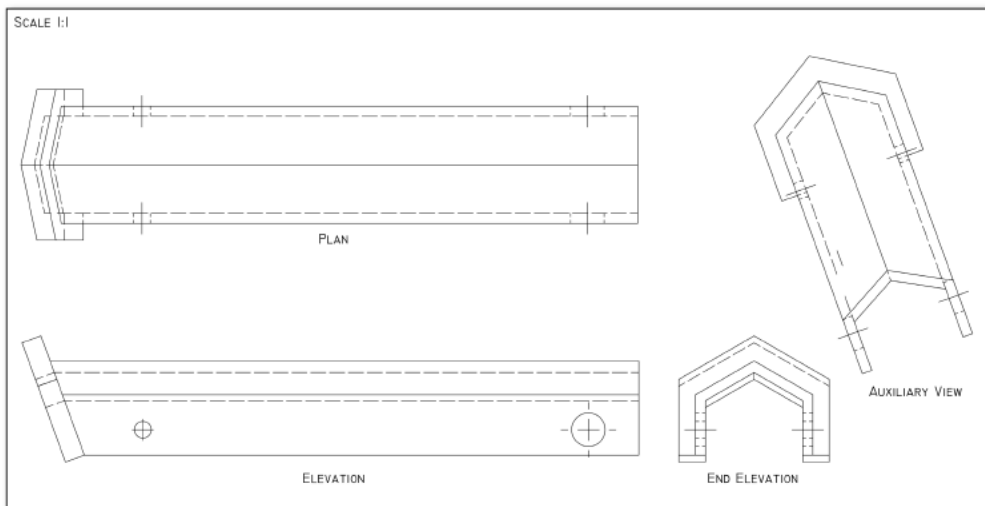
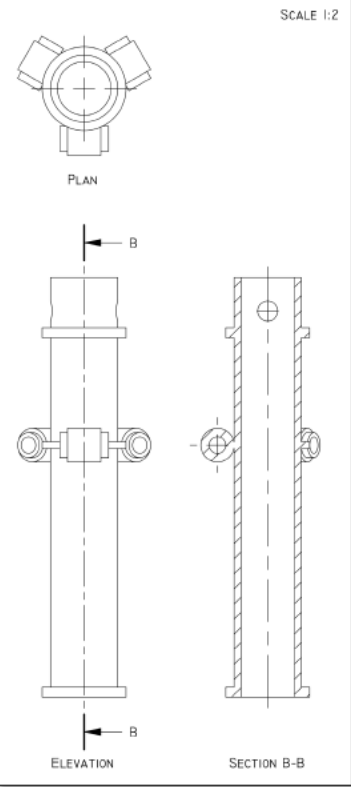
Advantages

Disadvantages

DRAWING TITLE	ASSEMBLY
QUESTION TITLE	AXLE STAND
COURSE	ADV. HIGHER GRAPHIC COMMUNICATION
DATE	2015
SCALE	VARIOUS
SHEET	1 / 2



DRAWING TITLE	COMPONENTS
QUESTION TITLE	AXLE STAND
COURSE	ADV. HIGHER GRAPHIC COMMUNICATION
DATE	2015
SCALE	VARIOUS
SHEET	2 / 2



Q52 The official logo for the 2014 Commonwealth Games in Glasgow is shown below.

Explain why the Commonwealth Games Federation would seek to produce a logo with a purpose and meaning. You should make three different valid points.



Marks 6

20 The Glasgow 2014

Commonwealth Games will be the 20th Games. We used this number in the outer ring of our brand identity, breaking a circle into 20 equal parts to work out the proportional measurement of the other numbers. The ring, which encompasses the others, is a strong, vibrant red - "True Red" from the Commonwealth Games Federation (CGF) colour palette.

17 The next ring of the brand

identity, in an orange-gold - 'Triumph Yellow' from the CGF palette - which echoes the glint of the winning medals, represents the number of sports at the games. It's just over three quarters of the full circle.

1 host City - Glasgow. So, at the heart of our brand identity, like a target's bull's eye, is G for Glasgow, in a bright green, that dear place to be, the place to come to, the place where it's all going to happen.

11 23 July - 3 August; 11

days of competition when Glasgow will be at the centre of the sporting world with all the buzz and excitement of results, reports and rising stars. These 11 days are represented in the ring of the logo, rendered in an optimistic summer blue - 'Heritage Blue' from the CGF palette - and clock up just over half of the full circle.

Answer to Q52

Point 1

Point 2

Point 3

Q 53 A selection of past and future Commonwealth Games logos is shown in the previous page.

Each of the logos has common elements within its design, which are used to promote the Games.



(a) Describe **two** effects that these common elements create.

Marks 2

(b) Each host city of the *Games* is required to protect the Commonwealth Games brand.

Explain why the brand requires protection. You should make reference to **two** separate reasons. **Marks 2**

Q54

Dynamic effects

Marks 1

Golden Ratio

Marks 1

Negativity

Marks 1

Value

Marks 1
