

Candidate Name	Centre Number	Candidate Number
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**GCSE**

4101/01

**DESIGN AND TECHNOLOGY**

**UNIT 1**

**FOCUS AREA: GRAPHIC PRODUCTS**

P.M. WEDNESDAY, 25 May 2011

2 hours

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Question 1	
Question 2	
Question 3	
Question 4	
Question 5	
Question 6	
Question 7	
Question 8	
<b>TOTAL MARK</b>	

**ADDITIONAL MATERIALS**

You will need basic drawing equipment, coloured pencils and a calculator for this examination.

**INSTRUCTIONS TO CANDIDATES**

Use black ink or black ball-point pen.

Write your name, centre number and candidate number in the spaces at the top of this page.

Answer **all** questions.

Write your answers in the spaces provided in this booklet.

Where the space is not sufficient for your answer, continue the answer at the back of the book, taking care to number the continuation correctly.

**INFORMATION FOR CANDIDATES**

The number of marks is given in brackets at the end of each question or part-question.

## Section A

Marked out of 60 60 minutes

1. This question is about Product Analysis. It is worth a total of 15 marks.

The photographs show a package for a children's cutlery set.  
The questions that follow are about the package.



The Logo used on the package.

- The package is 100mm wide, 190mm long and 20mm thick.
  - There is a plastic window in the front.
- (a) The package is made from 500 micron folding boxboard.
- (i) State **one** property of 500 micron folding boxboard that makes it the most suitable material for the package. [1]  
.....
  - (ii) The boxboard is a DUPLEX board. State what this means. [1]  
.....
  - (iii) Suggest a suitable plastic material for the window in the front of the package. [1]  
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(b) Before starting to design the package a design specification was written.

State, with as much detail as you can, what you think was the most important design specification point for each of the following aspects.

(i) The purpose of the package. [2]

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(ii) The environmental impact of the package. [2]

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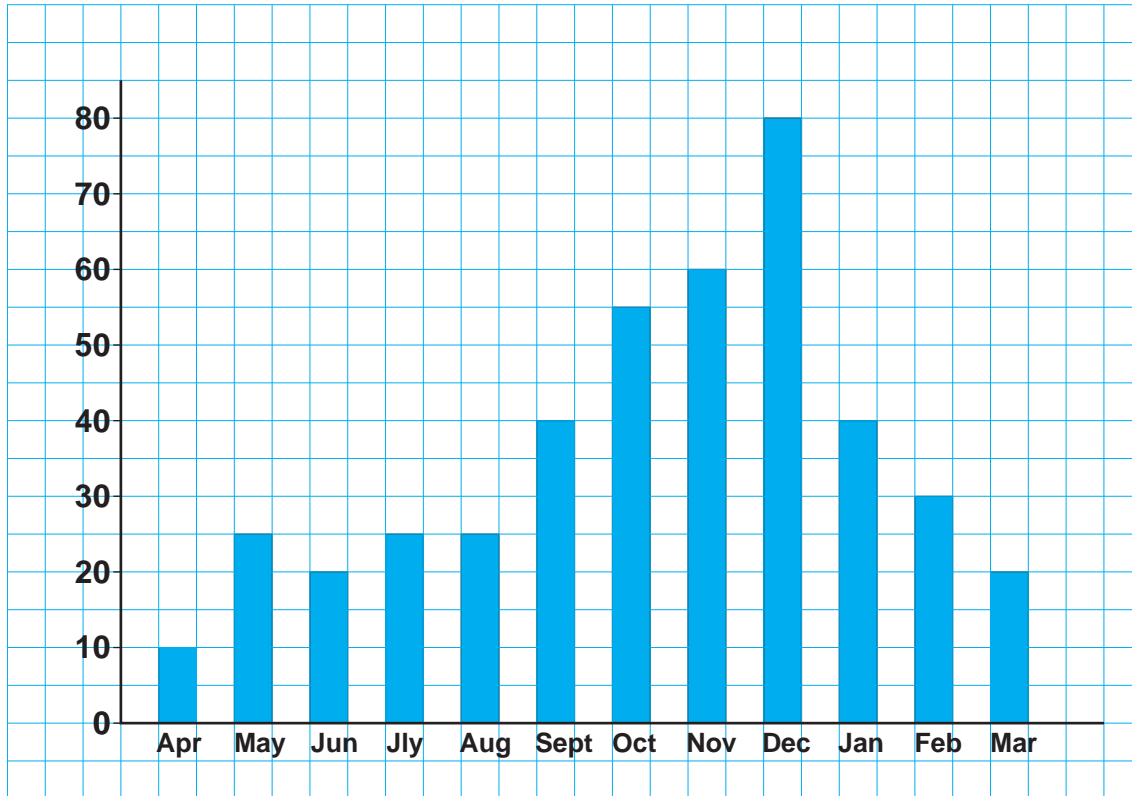
(c) The package was made using batch production.  
Explain why this is the most suitable scale of production. [2]

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(d) Explain why the logo and the package will appeal to the parents of young children. [3]

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- (e) The chart shows the number of cutlery sets sold during each month of a year. Study the chart and answer the questions that follow.



- (i) State the total sales of the cutlery for the period October, November and December. [1]

- (ii) Calculate what percentage of the year's sales has taken place for the period October, November and December. Show all your workings and state your answer to two decimal places. [2]

2. This question is about the general issues of Design and Technology. It is worth 10 marks.

Designers of sustainable products think about the SIX Rs: Rethink, Reuse, Recycle, Repair, Reduce, Refuse.

(a) (i) Below are three of the Rs and explanations of what they mean. Use lines to join the R to the correct explanation. [3]

<i>R</i>	<i>Explanation</i>
RECYCLE	When a product stops being useful the materials are used for another purpose.
REUSE	When a product stops working it is mended.
REPAIR	When a product has been used its materials are reprocessed for use in a new product.

(ii) Explain how a Graphic designer could RETHINK when designing Graphic Products. [2]

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(b) Briefly explain what the British Standards Institution (BSI) does. [2]

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(c) Explain what you understand by the term Life Cycle Analysis. [3]

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3. This question is about the Designers that you have studied. It is worth 10 marks.  
During your course you have studied the work of Peter Saville and David Carson.

(a) Study the information below.  
State the name of the designer that matches the information. [2]

***DESCRIPTION*** ***NAME OF DESIGNER***

(i) Born in Texas in 1952.  
Worked as a teacher.  
Was a professional surfer in the late 1970s.  
Worked as the designer for surfing and  
music magazines. .....

(ii) Born in Manchester in 1955.  
Studied Graphic design at Manchester Polytechnic.  
Started working as a designer in Manchester in 1978.  
Worked as the designer for Factory Records. .....

(b) Select either Peter Saville or David Carson and write a short essay in the space below to:

- describe the designer’s work identifying the main features;
- discuss the influence that your chosen designer has had. [8]

*Marks will be awarded for the content of the answer and the quality of written communication.*

Name of designer: .....

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4. This question is about the Design Process and how it is used. It is worth a total of 25 marks.

(a) The designing process includes the stages listed below.

Developing      Presenting the solution      Researching      Planning the make

(i) State which of the stages listed above would be done first. [1]

.....

(ii) State which of the stages listed above would be done last. [1]

.....

(b) Suggestions for improvements to the product are made at the end of the design process. Give **one** reason for suggesting how the product may be improved. [2]

Reason: .....

.....

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(c) Explain how product analysis helps a designer write a design specification. [3]

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- (d) The Two Trees Hotel wishes to place two chocolates in its bedrooms as a gift for customers. The chocolates are to be in a small card box. Each of the chocolates is 25mm diameter and 20mm high.

A design for a card box is needed. The design for the card box must include:

- a suitable logo for the Two Trees Hotel;
- a suitable card box for the chocolates;
- the logo suitably positioned on the box;
- a method of opening and securely closing the box;
- a dimensioned **one** piece net for the box.

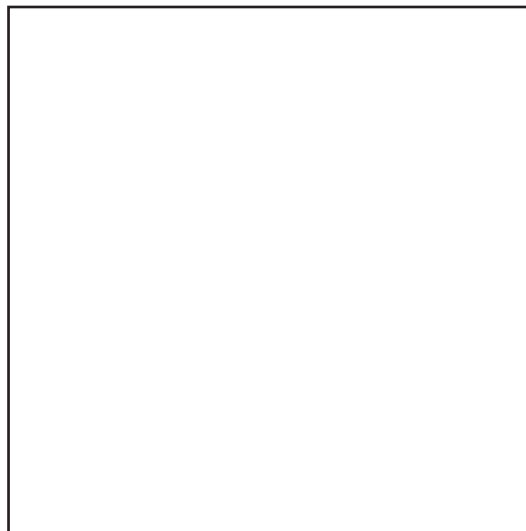
- (i) Design a logo for the hotel that:

- uses only **two** colours;
- is a symbol to represent the name of the hotel.

Marks will be awarded for:

- |      |                                              |     |
|------|----------------------------------------------|-----|
| I.   | a symbol to represent the name of the hotel; | [2] |
| II.  | using <b>two</b> colours;                    | [1] |
| III. | the quality of the presentation drawing.     | [3] |

Draw your logo to fill the space below and show the colours used alongside the logo.



Colour 1

Colour 2



- (ii) Design a box that:
- will hold **two** chocolates each 25mm diameter and 20mm high;
  - has the logo suitably positioned on the box;
  - has a method of opening and securely closing the box;
  - is made from a **one** piece net.

Sketch and annotate your design for the box in the spaces below.

Marks will be awarded for:

- |      |                                                                     |     |
|------|---------------------------------------------------------------------|-----|
| I.   | showing the sizes of the box so it will hold <b>two</b> chocolates; | [2] |
| II.  | positioning the logo;                                               | [1] |
| III. | a method of opening and securely closing the box;                   | [3] |
| IV.  | showing a useable <b>one</b> piece net for the box;                 | [3] |
| V.   | the quality of the communication.                                   | [3] |

Your design for the box

Opening and closing the box

The **one** piece net (*Scale drawing not needed*)

**Section B**

*Marked out of 60*

*60 Minutes*

5. This question is about Commercial Manufacturing Processes. It is worth a total of 10 marks.

(a) Producing a printed product, like a magazine, uses a three stage process. The names of the stages are listed below.

FINISHING      ON PRESS      PRE-PRESS

State which is the first stage.

.....

[1]

(b) Study the photograph below that shows a label from a box of cheese. The label is printed on paper that is stuck to the top of the box.



(i) State the name of the commercial process that would be used to cut out the label.

.....

[1]

(ii) State the minimum number of inks that could be used to print the label.

.....

[1]

(c) The photograph shows an image that is to be used in a printed advert for paint. The designer wants the image to be matt but the red paint to be glossy.

State the name of the process that would be used to do this.

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[2]



(d) Multi page documents can be bound in a number of different ways.

(i) Examine the way that your examination paper has been bound. State the full name of the binding process that has been used. [1]

(ii) The photographs shows a book and details of the binding.



State the full name of the binding that has been used.

[1]

(e) An A4 size magazine is not printed on A4 paper. Explain in as much detail as you can why this is done. [3]

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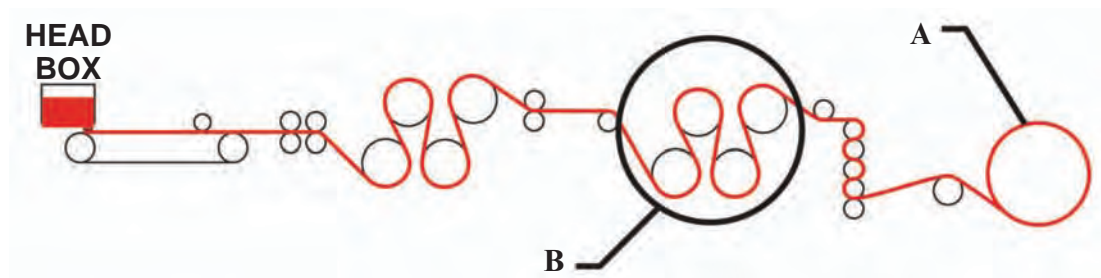
6. This question is about Materials and Components. It is worth a total of 15 marks.

(a) State what size of paper is half the size of A3. [1]

A .....

(b) State a use in Graphic Products for layout paper. [1]

(c) The diagram represents a Fourdrinier paper making machine. The paper being made is shown as the red line.



(i) State the name of the part marked A. [1]

(ii) Explain what happens to the paper in the area marked as B. [2]

(d) The cover of a magazine is shown below with an enlarged detail. Fonts can be grouped as Oldstyle, Modern, Sans Serif, Slab Serif, Script and Decorative. State the names of the font groups of the indicated text.



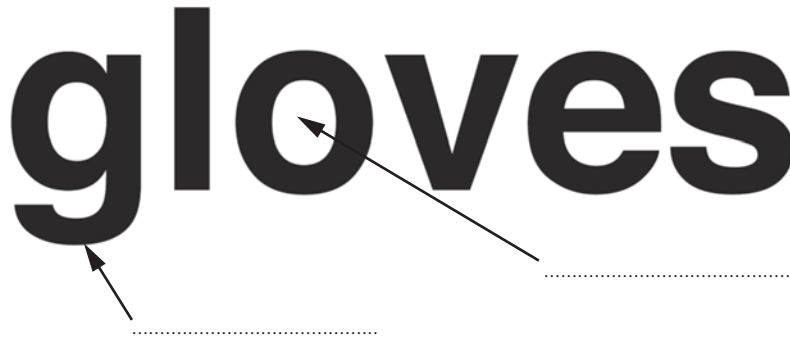
[1]

[1]

[1]

(e) State the names of the parts indicated on the font shown below.

[2]



(f) CMYK and RGB are abbreviations used to identify different colour systems.

(i) State the full name of the RGB colour system.

R ..... G..... B.....

[1]

(ii) State which colour system should be used when designing a web site.

.....

[1]

(g) One use of Microencapsulation in Graphic Products is in magazines where pieces of card are included that are samples of scent or perfume. Explain how microencapsulation allows these samples to work.

[3]

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7. This question is about Tools, Equipment and Making. It is worth a total of 20 marks.

(a)

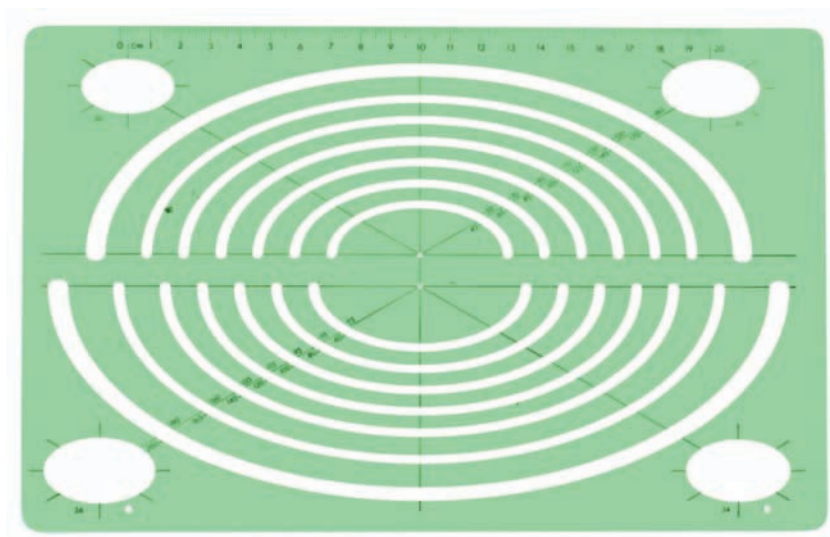


State the name of the drawing equipment shown above.

.....

[1]

(b)



State the name of the shape that the template shown above will help you to draw.

.....

[1]

(c) When cutting a straight line in card using a craft knife, rule and cutting board explain why a metal rule should always be used. [3]

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- (d) The photograph below is not of good enough quality for use. It needs to be edited to improve it.



Explain what changes each of the editing processes below would make to the photograph.

- (i) Adjust the levels: ..... [2]

.....

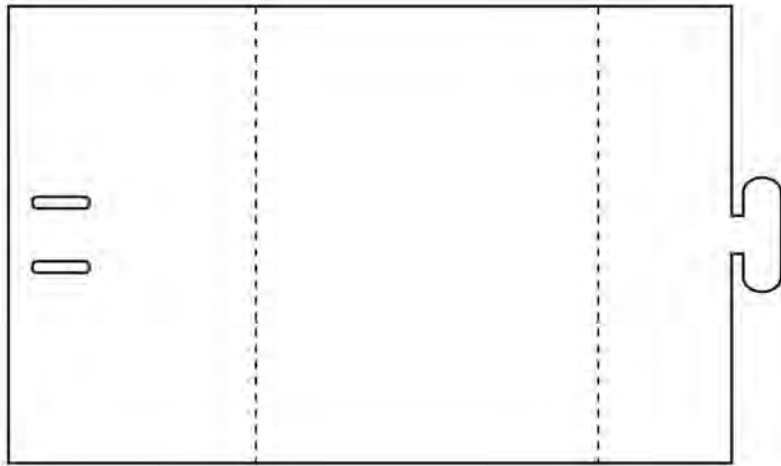
.....

- (ii) Crop the image: ..... [2]

.....

.....

- (e) The drawing below shows a net for an advertisement that is to be sent through the post. The net has been drawn using CAD software.



- (i) A prototype is needed to prove that the net works when made using 350 micron card. Explain how you would make the prototype by hand.

Step 1: Printing: ..... [2]

.....  
.....

Step 2: Cutting: ..... [2]

.....  
.....

Step 3: Scoring and Folding : ..... [2]

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(ii) In the space below draw a sketch to show how the prototype locks shut for posting. [2]

(f) Discuss the advantages a vector drawing programme has when compared with an image manipulation (bitmap) programme when designing a logo. [3]

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8. This question is about ICT, CAD, CAM, Systems and Processes. It is worth a total of 15 marks.

(a) Shown below are two photographs of the same object printed to be the same size. Both photographs were clear and sharp when taken. Information about the photos is given alongside.

PHOTO 1

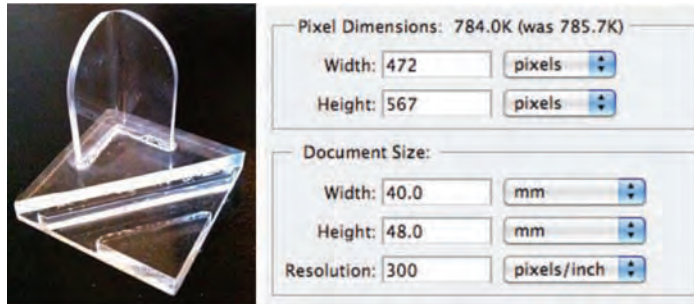
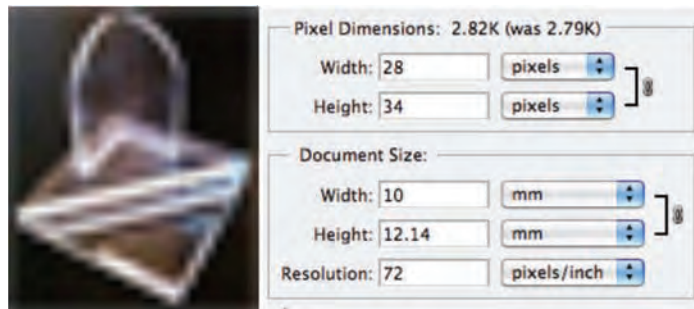


PHOTO 2



(i) Give **two** reasons why Photo 2 looks blurred.

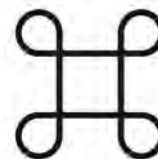
Reason 1: ..... [1]

Reason 2: ..... [1]

(ii) Give **one** reason why Photo 2 would be most suitable for placing on a web site. [2]

Reason: .....  
.....

(b) A drawn design, shown alongside, is needed as part of a logo. The design is made up of straight lines and circles that are tangents to the straight lines.



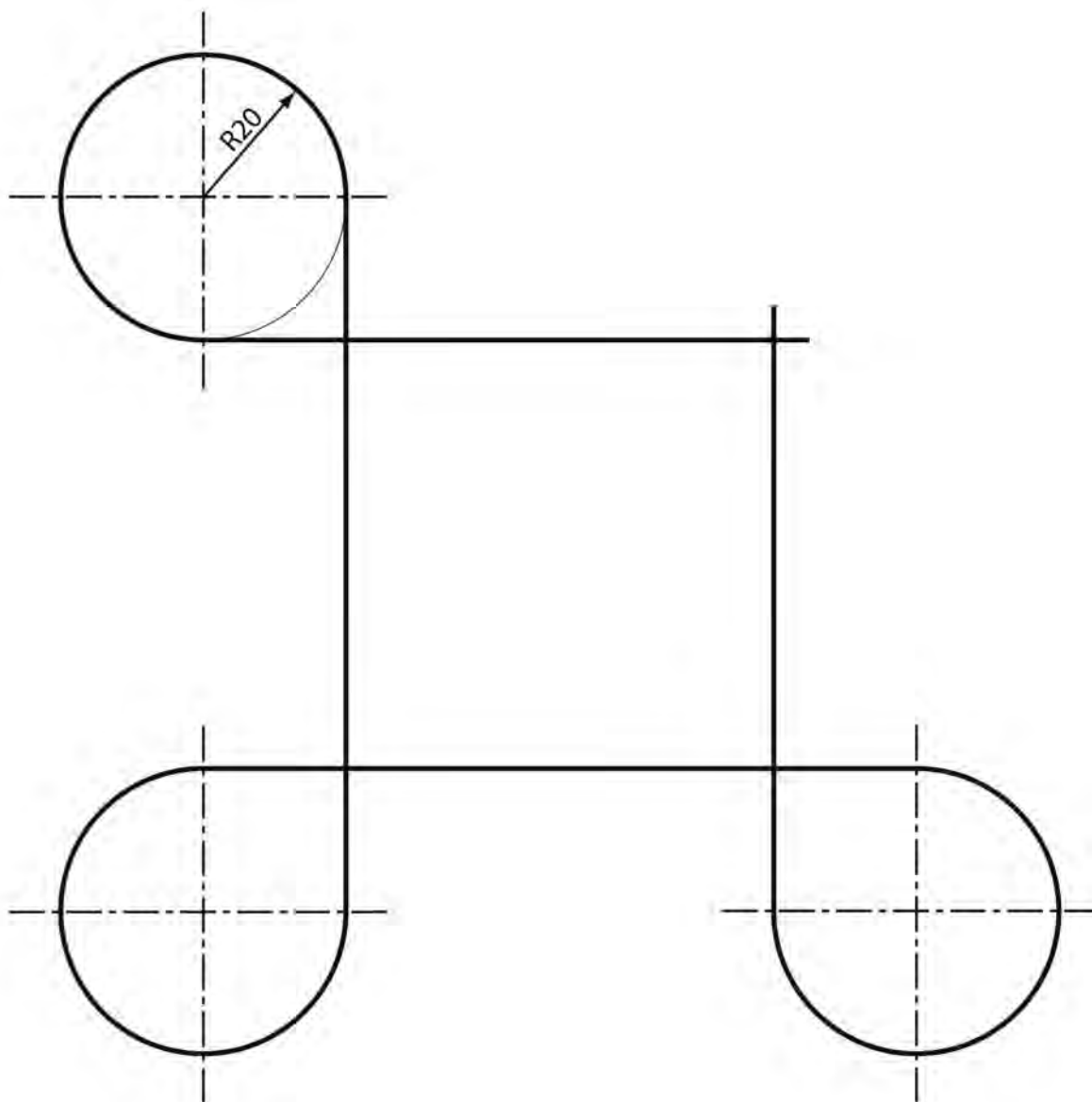
(i) The accurate drawing below needs to be completed to make the design.

Use drawing instruments to construct the final part of the design.

(Show all construction lines.)

Note: A freehand drawing will gain no marks.

[4]



(ii) Explain why it may be better to use CAD to make the drawing.

[2]

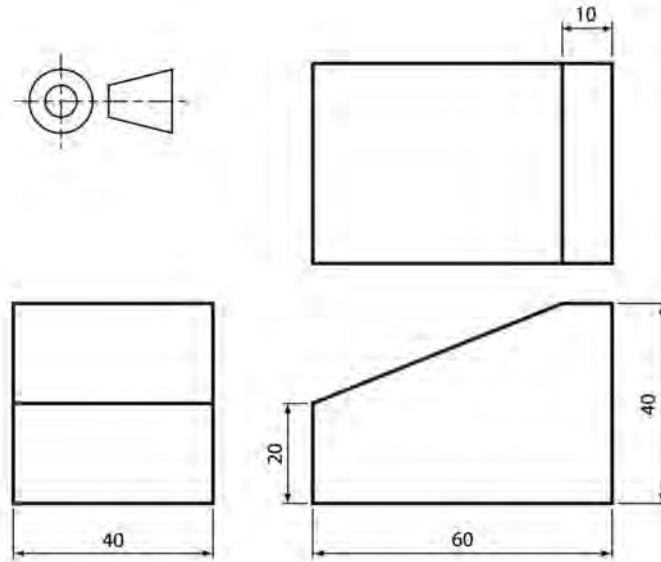
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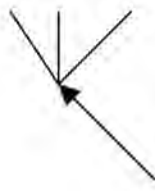
.....

- (c) Use drawing instruments to complete an estimated two point perspective drawing of the shape that has been drawn below. The drawing has been started to help you. [5]



VP1

VP2



Start your drawing here

