

Centre Number						Candidate Number				
Surname										
Other Names										
Candidate Signature										

For Examiner's Use	
Examiner's Initials	
Question	Mark
1	
2	
3	
4	
5	
6	
7	
TOTAL	



General Certificate of Secondary Education
June 2014

Design and Technology: Graphic Products

45501

Unit 1 Written Paper

Wednesday 11 June 2014 1.30 pm to 3.30 pm

For this paper you must have:

- a black fine-line pen or black ball-point pen, a pencil, a ruler, an eraser, a pencil sharpener and coloured pencils.

Time allowed

- 2 hours

Instructions

- Use black ink or black ball-point pen. Use pencil and coloured pencils only for drawing.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book. Cross through any work you do not want to be marked.

Information

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 120.
- The questions in Section A relate to the context referred to in the Preliminary Material that was previously issued.
- All dimensions are given in millimetres unless otherwise stated.
- You are reminded of the need for good English and clear presentation in your answers. Quality of Written Communication will be assessed in Question 5(b).



J U N 1 4 4 5 5 0 1 0 1

Section A

Answer this question in the spaces provided.

Section A is about designing.

You are advised to spend about 35 minutes on this question.

Design Theme: Promoting firework safety for children

1 Study the following design brief and design criteria below.

Design Brief

The Fire Service would like to start a firework safety campaign in primary schools.

Design Criteria

You have been asked to design a leaflet about being safe around fireworks.

The leaflet must:

- highlight the slogan '**Be Safe**' in a suitable letter style (typeface)
- show suitable relevant images
- be suitable for primary school children.

1 (a) (i) In the boxes below, sketch **two** different letter styles (typeface) for the slogan '**Be Safe**'.

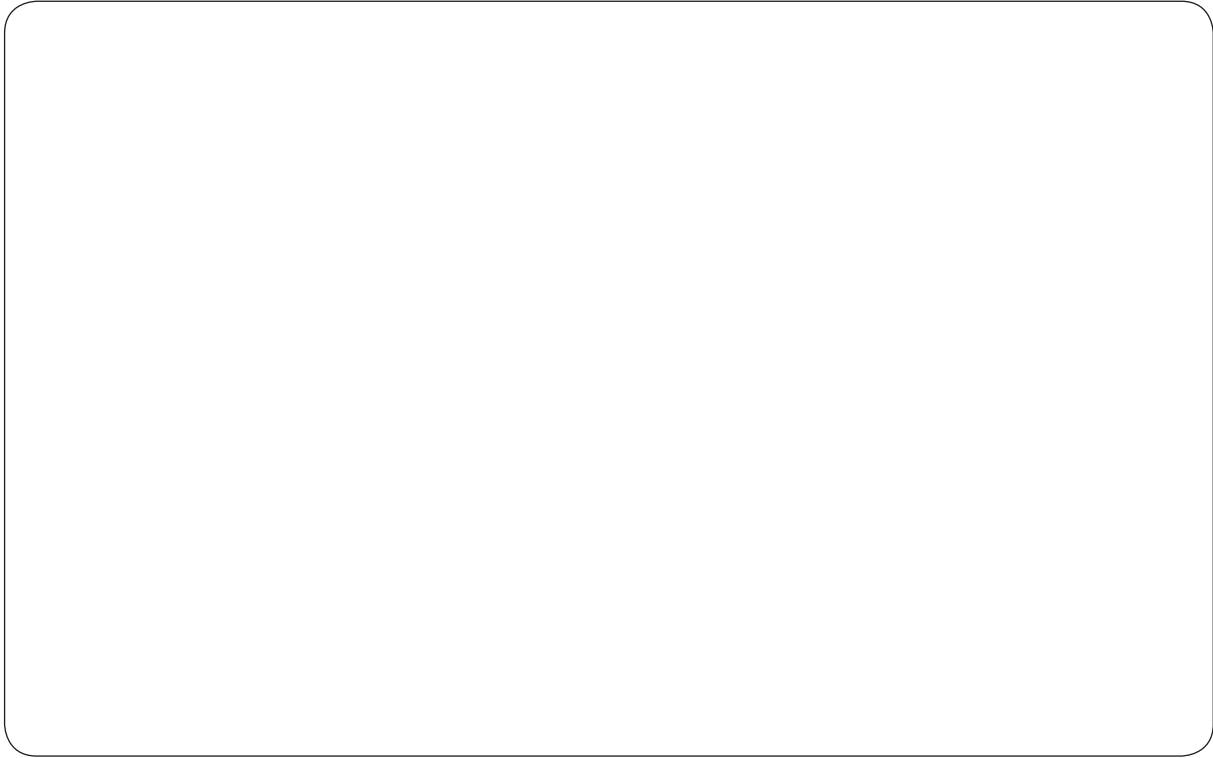
[4 marks]

Letter style 1**Letter style 2**

1 (a) (ii) My best letter style is number:

In the box below, develop your chosen letter style from page 2. Indicate colour.

[4 marks]



Question 1 continues on the next page

Turn over ▶



1 (b) The design criteria from page 2 is repeated on page 5.

Develop with notes **two** creative ideas for a leaflet.
Your sketches and notes should explain the appearance and layout of the leaflet.

Marks will be awarded for:

- **two different** ideas that meet the design criteria **[3 marks]**
- quality of sketching, including an indication of colour **[4 marks]**
- creative ideas for a fireworks safety leaflet **[5 marks]**
- notes explaining your ideas. **[3 marks]**

Idea 1



Design Criteria

The leaflet must:

- highlight the slogan '**Be Safe**' in a suitable letter style (typeface)
- show suitable relevant images
- be suitable for primary school children.

Idea 2**Turn over ▶**

1 (c) Produce a coloured presentation drawing of your final leaflet.

Marks will be awarded for:

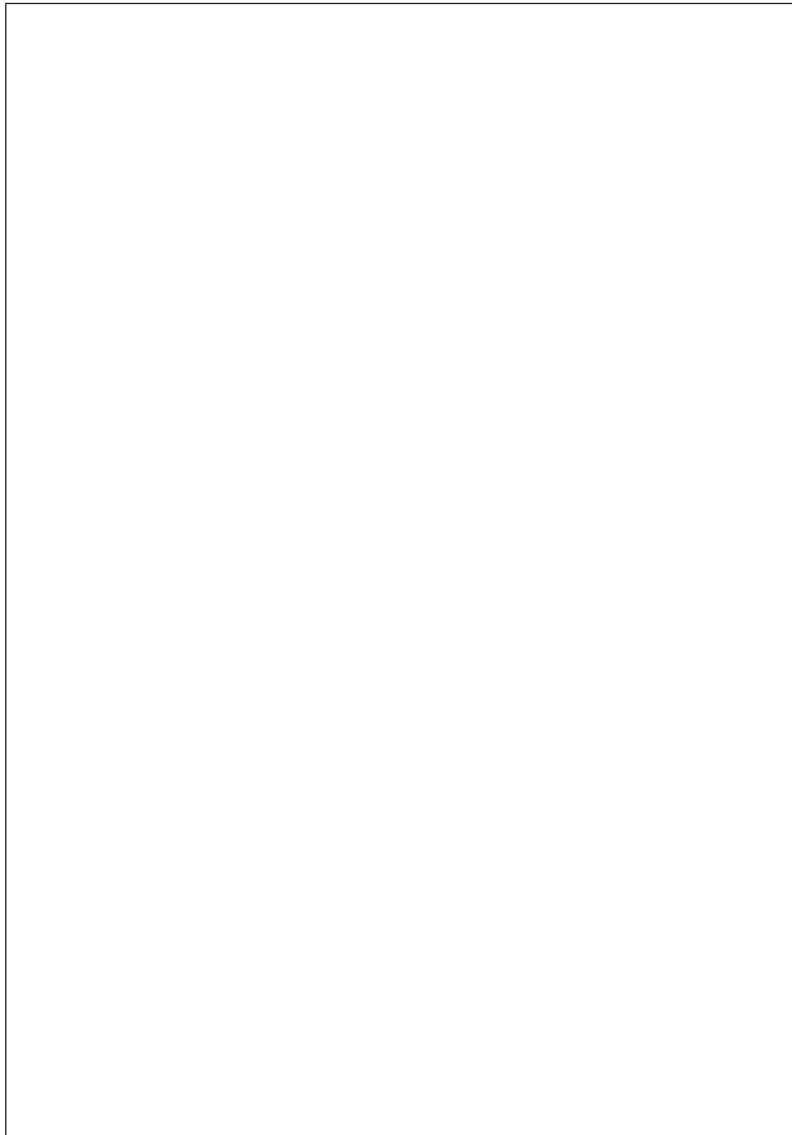
- visual impact
- quality of layout
- use of colour.

[3 marks]

[3 marks]

[3 marks]

Final leaflet size



1 (d) Evaluate your final leaflet designed in part (c) against **one** of the design criteria points given on page 2.

[3 marks]

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35

Turn over for the next question

Turn over ▶



There are no questions printed on this page

**DO NOT WRITE ON THIS PAGE
ANSWER IN THE SPACES PROVIDED**



Section B

Answer **all** questions in the spaces provided.

This question is about barcodes.

You are advised to spend about 15 minutes on this question.

2 (a) Below is an image of a barcode.



Complete the paragraphs by adding the missing words from the list below.

[4 marks]

laser beam black strips numerical program widths

A barcode is a series of _____ of different _____
with spaces between each strip.

A _____ scans the strips and line widths, and changes them into
_____ values.

A computer _____ recognises these values.

2 (b) Explain why barcodes are useful.

Give an example to support your answer.

[3 marks]

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Turn over ▶



- 2 (c) A Japanese company designs fun barcodes. The barcodes have a high element of design and can still be put to a practical everyday use.

Figure 1



- 2 (c) (i) In the spaces below, sketch **two** different ideas for a **fun sporting barcode** in the same style as **Figure 1**.

[5 marks]



2 (c) (ii) Use the best parts from both your ideas in part 2(c)(i) to produce a final drawing of your fun sporting barcode.

[3 marks]



15

Turn over ▶



This question is about schematic maps.

You are advised to spend about 15 minutes on this question.

Figure 2 shows the original London Underground map and **Figure 3** shows the modern schematic version.

3 (a) (i) Who designed the London Underground map in **Figure 3** below?

[1 mark]

.....

Figure 2

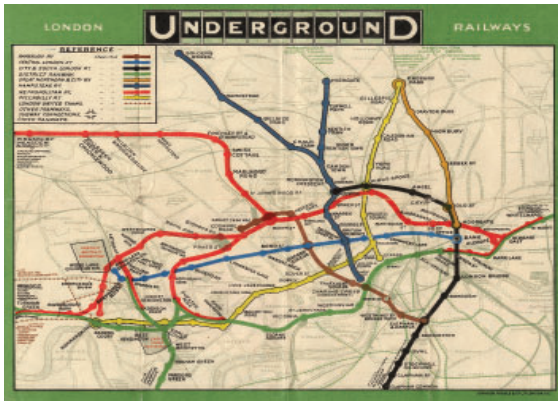


Figure 3



3 (a) (ii) Describe the graphical differences between the **two** maps.

[3 marks]

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3 (a) (iii) Give **two** advantages of a modern schematic map.

[2 marks]

Advantage 1

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Advantage 2

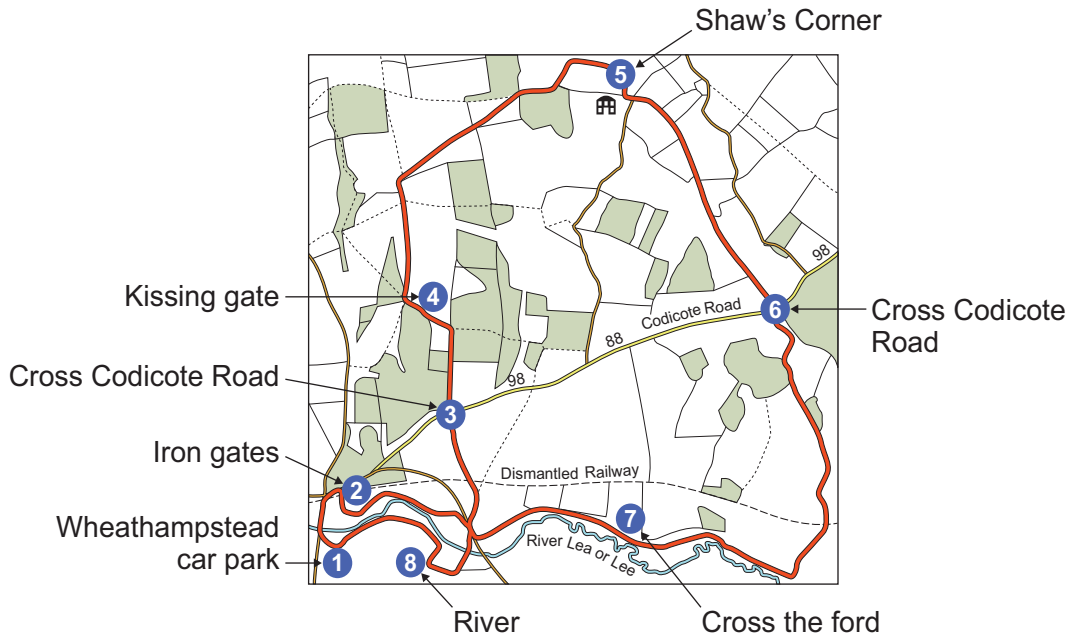
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3 (b) (i) **Figure 4** shows the Wheathampstead to Shaw's Corner circular walk.

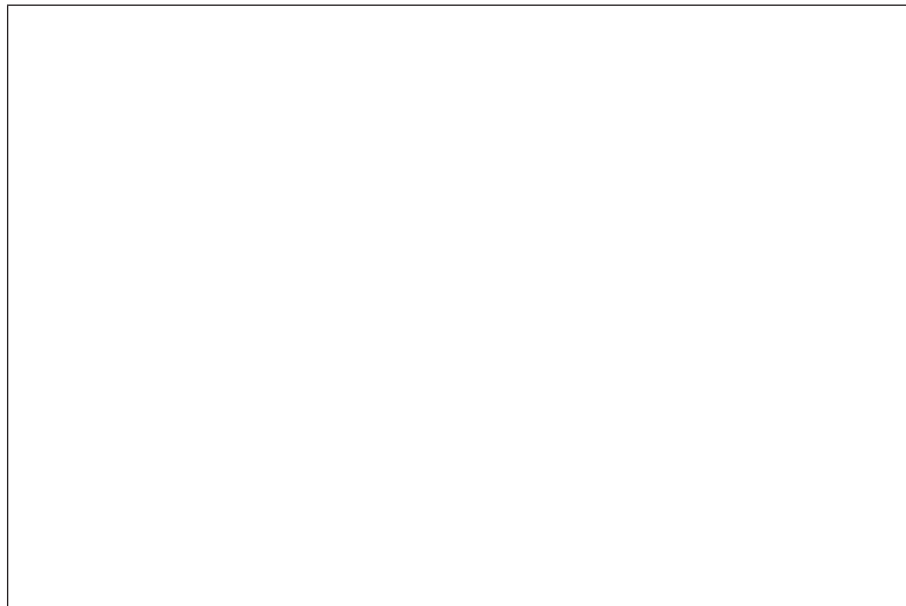
The walk stops at the places that are numbered on the map.

Figure 4



In the space below draw a schematic map of this walk in the style of the modern London Underground map in **Figure 3**.

[5 marks]



3 (b) (ii) Complete your new schematic map in the box above by adding a shortcut which misses out stop 3 (Cross Codicote Road) and stop 4 (Kissing gate).

[3 marks]

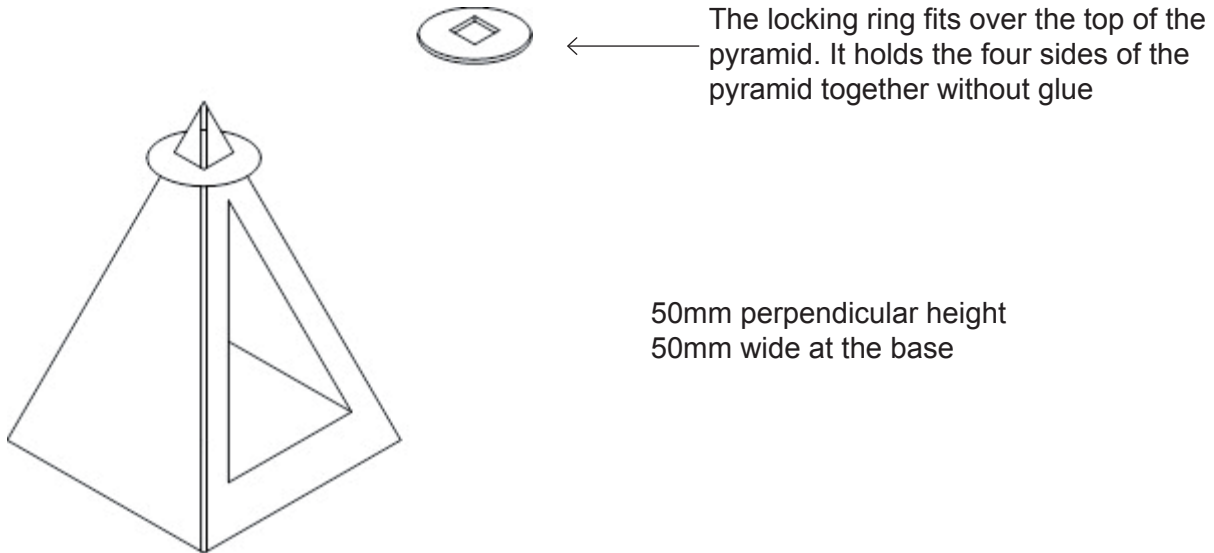
Turn over ▶



This question is about packaging.

You are advised to spend about 15 minutes on this question.

- 4 Below is a pyramid shaped container for a candle.



- 4 (a) (i) The surface development (net) is a 'star shape'.

On the grid opposite use the key to complete a full size surface development (net) of the pyramid shaped container. Your surface development (net) should be clearly drawn so that someone else could assemble the container.

Do not include any surface decoration.

[6 marks]

- 4 (a) (ii) Add the window opening to the front panel of your drawing.

The window size is:

[3 marks]

30mm perpendicular height

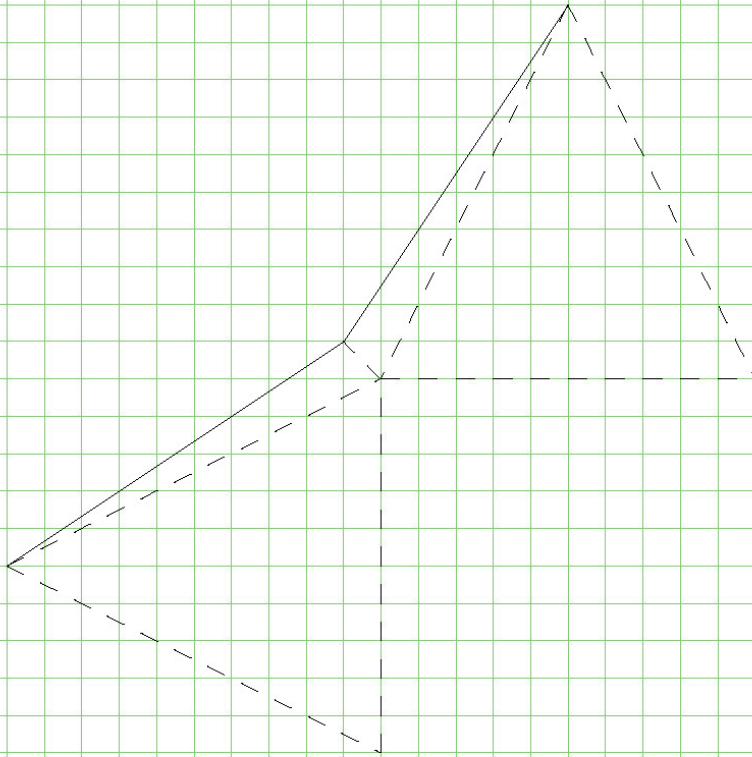
30mm wide at the base

- 4 (a) (iii) Complete the drawing of the locking ring for the top of the pyramid.

[2 marks]



Locking Ring

**Key**

Cut Line	_____
Fold Line	-----

Turn over ▶



4 (b) (i) Name a suitable material for the manufacture in quantity of the pyramid shaped container.

[1 mark]

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4 (b) (ii) Explain the property of this material that makes it suitable for this purpose.

[2 marks]

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14

This question is about Computer-Aided Design (CAD) and Computer-Aided Manufacture (CAM).

You are advised to spend about 10 minutes on this question.

5 (a) Explain the difference between Computer-Aided Design (CAD) and Computer-Aided Manufacture (CAM).

Give an example to support your answer.

[4 marks]

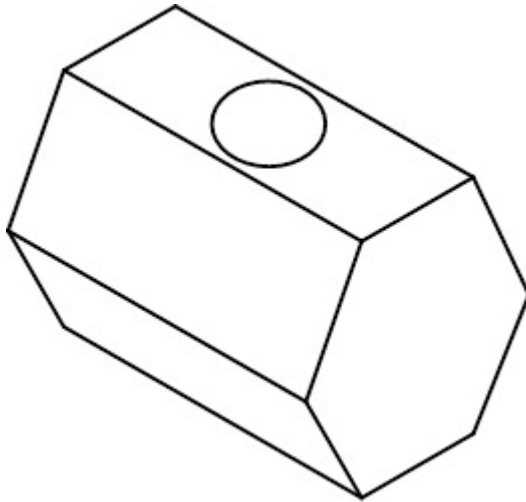
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This question is about Orthographic Projection.

You are advised to spend about 15 minutes on this question.

- 6** Below is a box with a clear plastic window used to package chocolates.



The radius of the circular window in the middle of the top face is 10 mm

The grid opposite shows an incomplete orthographic drawing of the box.

- 6 (a)** Complete the orthographic drawing of the box by adding the missing lines.

[6 marks]

Do not include hidden detail lines

- 6 (b)** The dimensions given for one side use British Standard conventions.

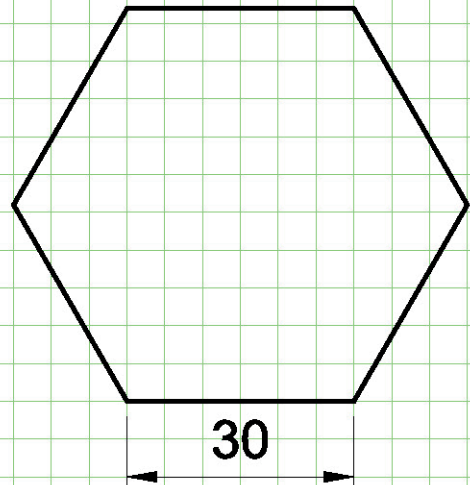
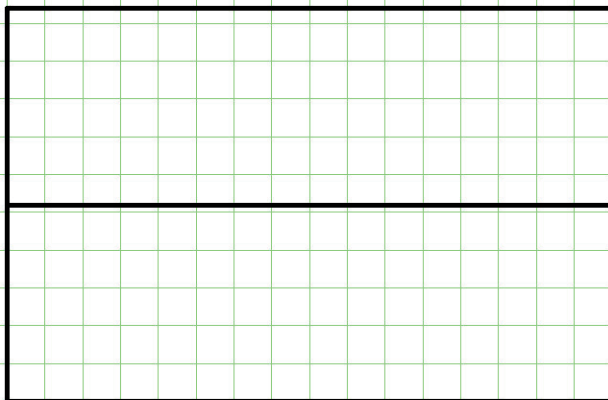
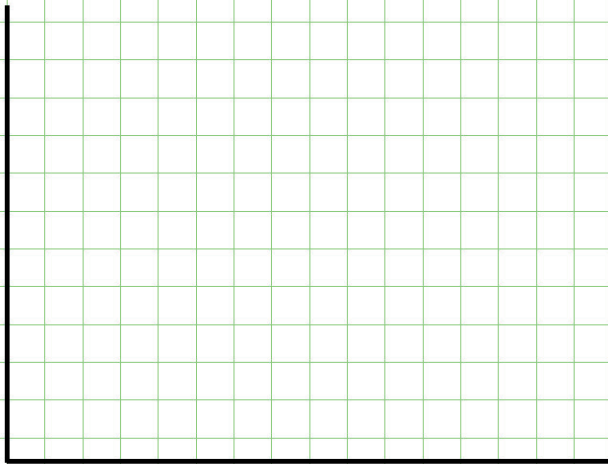
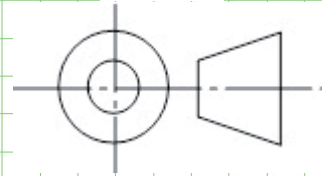
[6 marks]

Add the following dimensions to the drawing:

- the length of the chocolate box
- the height of the chocolate box
- the size of the circular window.



Scale 1:1



Turn over ▶



6 (c) Explain the meaning of 'Scale 1:1' shown in the drawing on page 19.

[2 marks]

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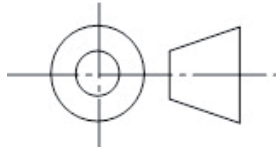
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6 (d) Explain the meaning of the following symbol shown in the drawing below.

[2 marks]



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This question is about die cutting.

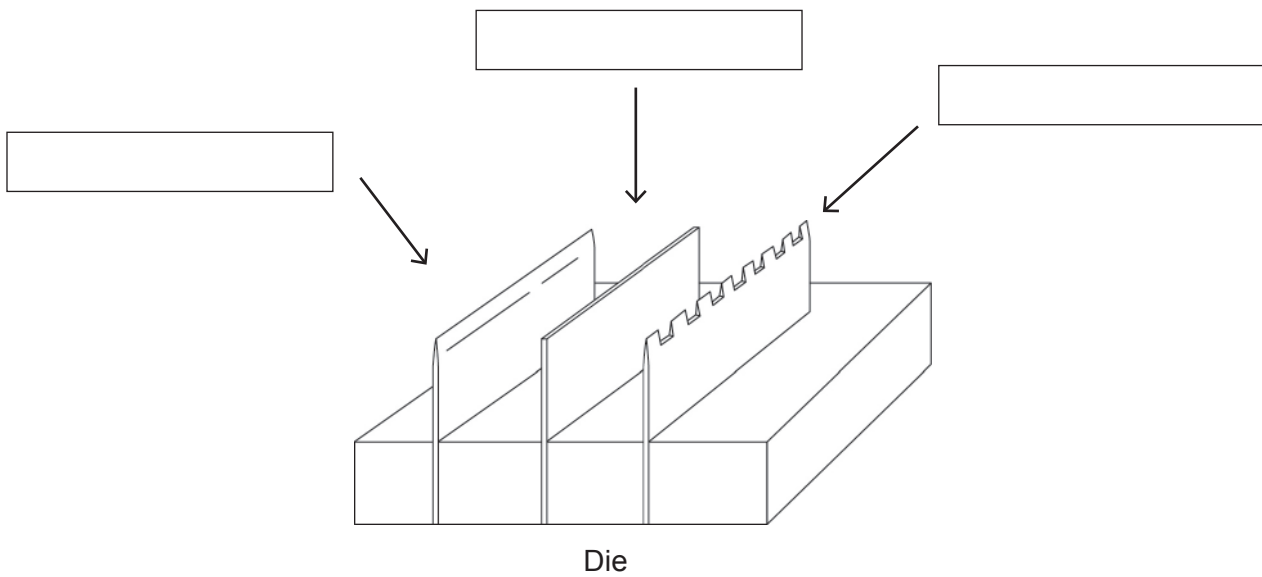
You are advised to spend about 15 minutes on this question.

7 (a) A diagram of a simple die is shown below.

Label the diagram by selecting from the following terms:

- perforating knife
- cutting knife
- creasing rule.

[2 marks]



Question 7 continues on the next page

Turn over ►

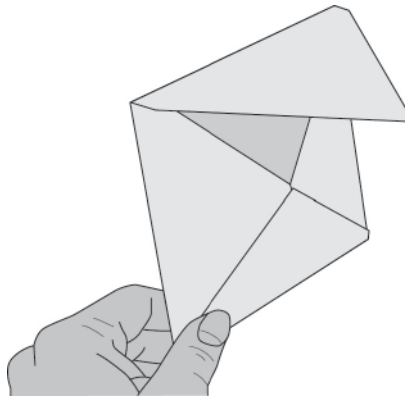


- 7 (b)** There are many graphic products that have complicated curves and creases made by die cutting.

Below are **two** different die cutting machines.



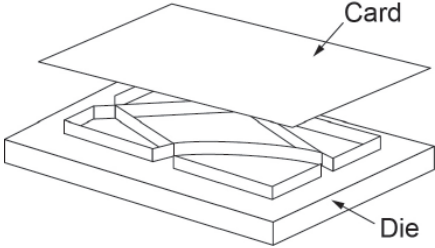
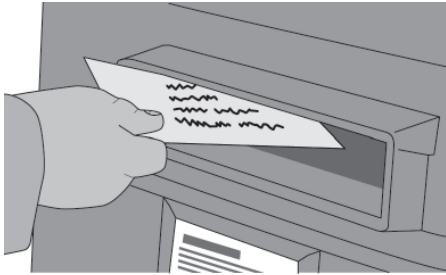
An envelope was manufactured on a die cutting machine using a 'die' or 'forme' in the shape of the envelope.



Complete the table opposite by:

- 7 (b) (i)** describing the stages of making the envelope **[4 marks]**
- 7 (b) (ii)** naming **one** item of equipment for each stage **[2 marks]**
- 7 (b) (iii)** drawing diagrams to show how you would make this envelope using a die cutting machine. **[6 marks]**



Description of Stage	Equipment	Diagram
<p>Stage 1: Obtain equipment</p> <p>Place card on top of die or forme.</p>	<p>Die or forme</p>	
<p>Stage 2: Cut and crease</p> <p>Load die into die cutting machine and apply pressure.</p>	<p>Die cutting machine</p>	
<p>Stage 3: Folding</p> <p>.....</p> <p>.....</p> <p>.....</p>	<p>.....</p> <p>.....</p> <p>.....</p>	
<p>Stage 4: Gluing</p> <p>.....</p> <p>.....</p> <p>.....</p>	<p>.....</p> <p>.....</p> <p>.....</p>	
<p>Stage 5: Posting</p> <p>Envelope is ready for posting.</p>	<p>None required</p>	

END OF QUESTIONS



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