

Surname		Other Names	
Centre Number		Candidate Number	
Candidate Signature			

For Examiner's Use

General Certificate of Secondary Education
June 2006

**DESIGN AND TECHNOLOGY
(GRAPHIC PRODUCTS)
Written Paper
Higher Tier**

3543/H

H



Tuesday 6 June 2006 1.30 pm to 3.30 pm

<p>For this paper you must have:</p> <ul style="list-style-type: none"> a pen, pencil, ruler, eraser, pencil sharpener and coloured pencils <p>You may also use marker pens and 45/60 degree set squares.</p>

For Examiner's Use			
Question	Mark	Question	Mark
1		5	
2		6	
3		7	
4		8	
Total (Column 1) →			
Total (Column 2) →			
TOTAL			
Examiner's Initials			

Time allowed: 2 hours

Instructions

- Use blue or black ink or ball-point pen.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- Answer the questions in the spaces provided.
- Show the working of your calculations.
- Detach the blue sheet from the back of this examination paper to use in between the sheets to prevent ink bleeding through to the next sheet.
- Do **not** hand in the blue sheet at the end of the examination.

Information

- The maximum mark for this paper is 125.
- The marks for questions are shown in brackets.
- All dimensions are given in millimetres unless otherwise stated.
- Sheet 8 is perforated.
- You are reminded of the need for good English and clear presentation in your answers.

This question is about signage and is worth 15 marks.

Spend about 15 minutes on this question.

1 A new sign is wanted by the Post Office. Only the words **POST OFFICE** are to be featured.

Study the letters given in **Figure 1**.

The letters contain only straight lines and are seven spaces high.

Add the word **OFFICE** to **Figure 2**, in the same style as the word **POST**, by using a ruler.

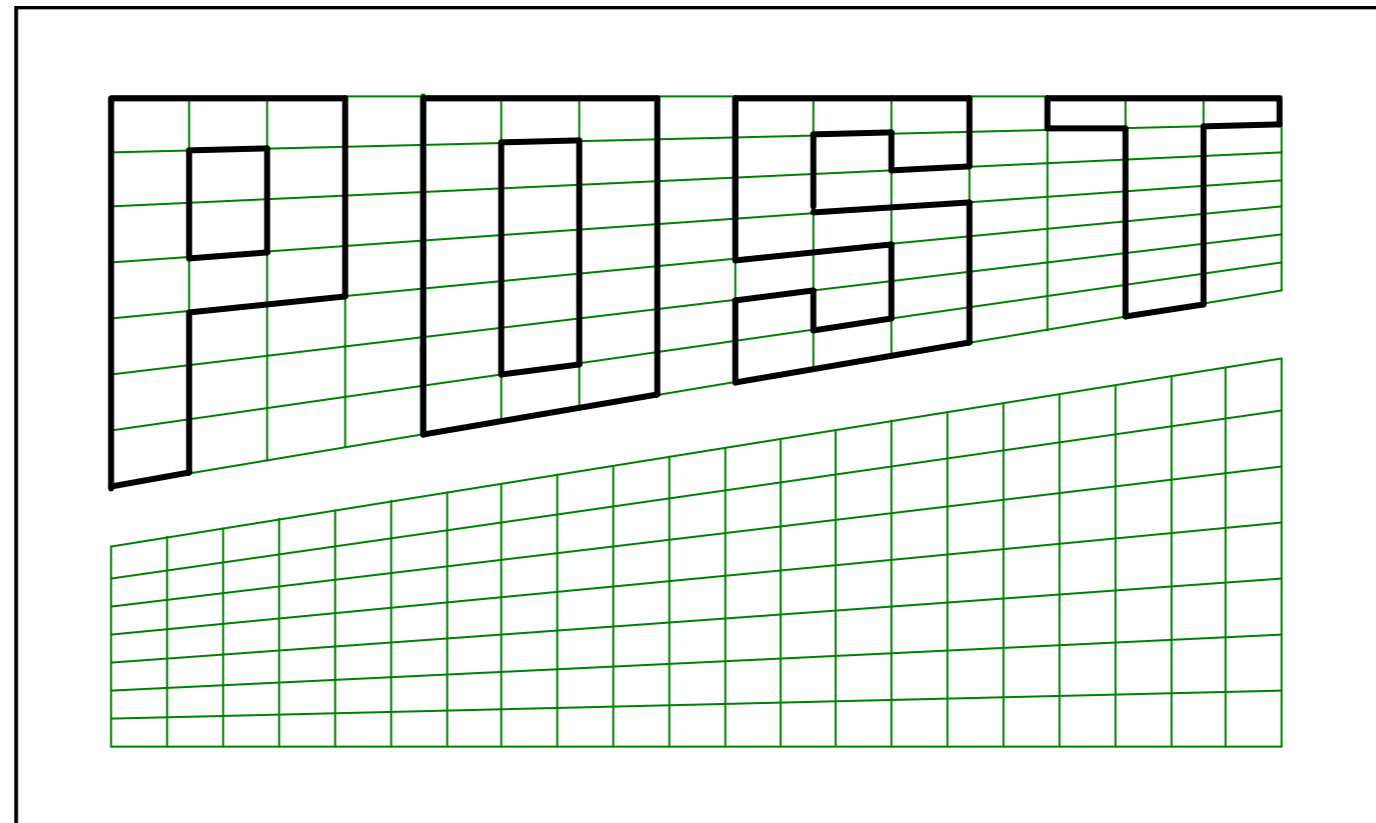
Marks will be awarded for:

- (a) completing the missing letters in the same style; *(12 marks)*
- (b) line quality; *(2 marks)*
- (c) spacing. *(1 mark)*

Figure 1



Figure 2

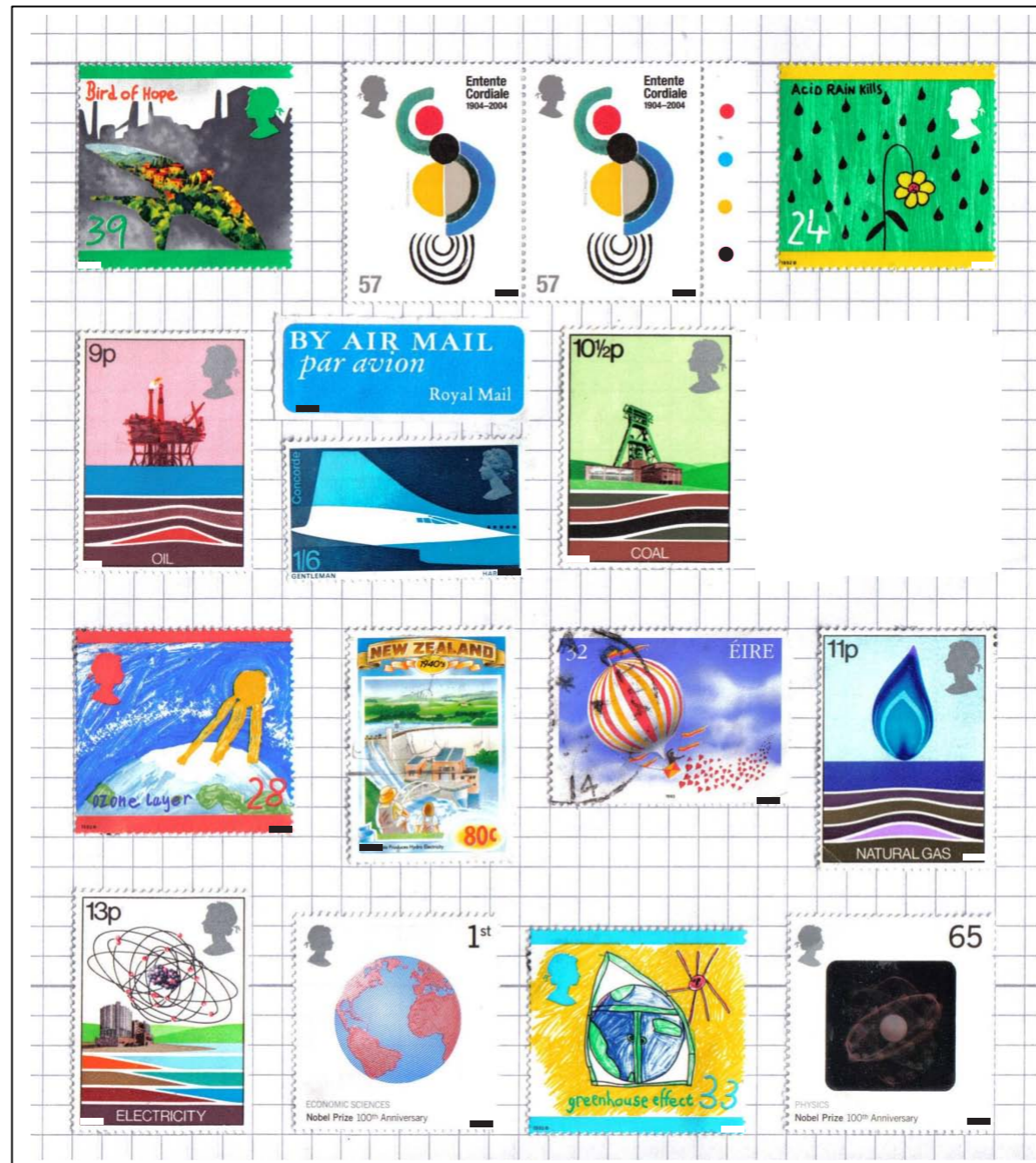


DESIGN BRIEF

- A set of commemorative postage stamps will be issued in Britain.
- Each stamp in the set will feature a different way of generating power by renewable methods.
- You will be asked to **design one stamp**.
- You are to include a special printing effect in your design.

Study the examples of commemorative postage stamps (**Figure 3**) and turn to Question 2 on Sheet 3.

Figure 3



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DO NOT SKETCH ON THIS SHEET

This question is about printing effects and is worth 13 marks.

Spend about 13 minutes on this question.

2 A commemorative postage stamp will have a special printing effect included in its design.

(a) Complete **Table 1** by giving a description of each special printing effect. One has been done for you.

Table 1

Printing effect	Description of the effect
Metallic finish	<i>Shiny, reflective metallic foil attached to board or paper, looks like metal</i>
'Scratch and Sniff'	
Thermochromatic Ink	
Holographic Image	
Embossed Image	

(8 marks)

(b) Select **one** special printing effect you could use in a stamp design and give a reason why it is appropriate .

I could use

Reason

.....

.....

.....

(2 marks)

(c) Explain with sketches and notes how a postage stamp could be modified so that a blind person could 'read' its value.

(3 marks)

This question is about developing an idea for a commemorative postage stamp and producing a presentation drawing of it. It is worth 30 marks.

Spend about 25 minutes on this question.

3 You are asked to design a commemorative postage stamp on the theme of wind generated renewable energy.

- (a) This part is about developing a design. Study the photograph of a wind farm (**Figure 4**).
- (i) Sketch your initial idea in the labelled box. (2 marks)
 - (ii) Develop your stamp's design in the labelled boxes, and produce a thumbnail sketch of the layout. (8 marks)
 - (iii) Indicate which special printing effect will be used. (2 marks)

Marks will be awarded for:

- quality of sketches; (2 marks)
- use of colour; (1 mark)
- notes to explain your ideas. (6 marks)

(b) Produce a presentation drawing of your final stamp design on the triangular outline of the stamp (**Figure 5**).

Marks will be awarded for:

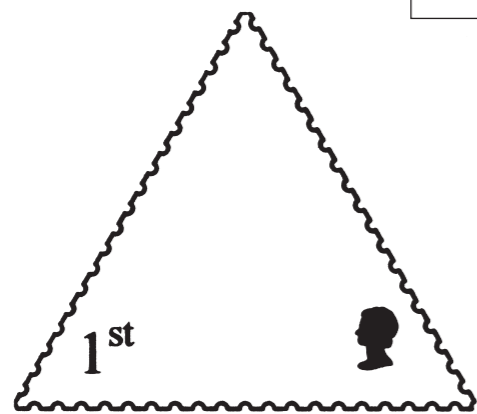
- quality of lines; (2 marks)
- quality of colour rendering; (3 marks)
- layout. (4 marks)

Figure 4

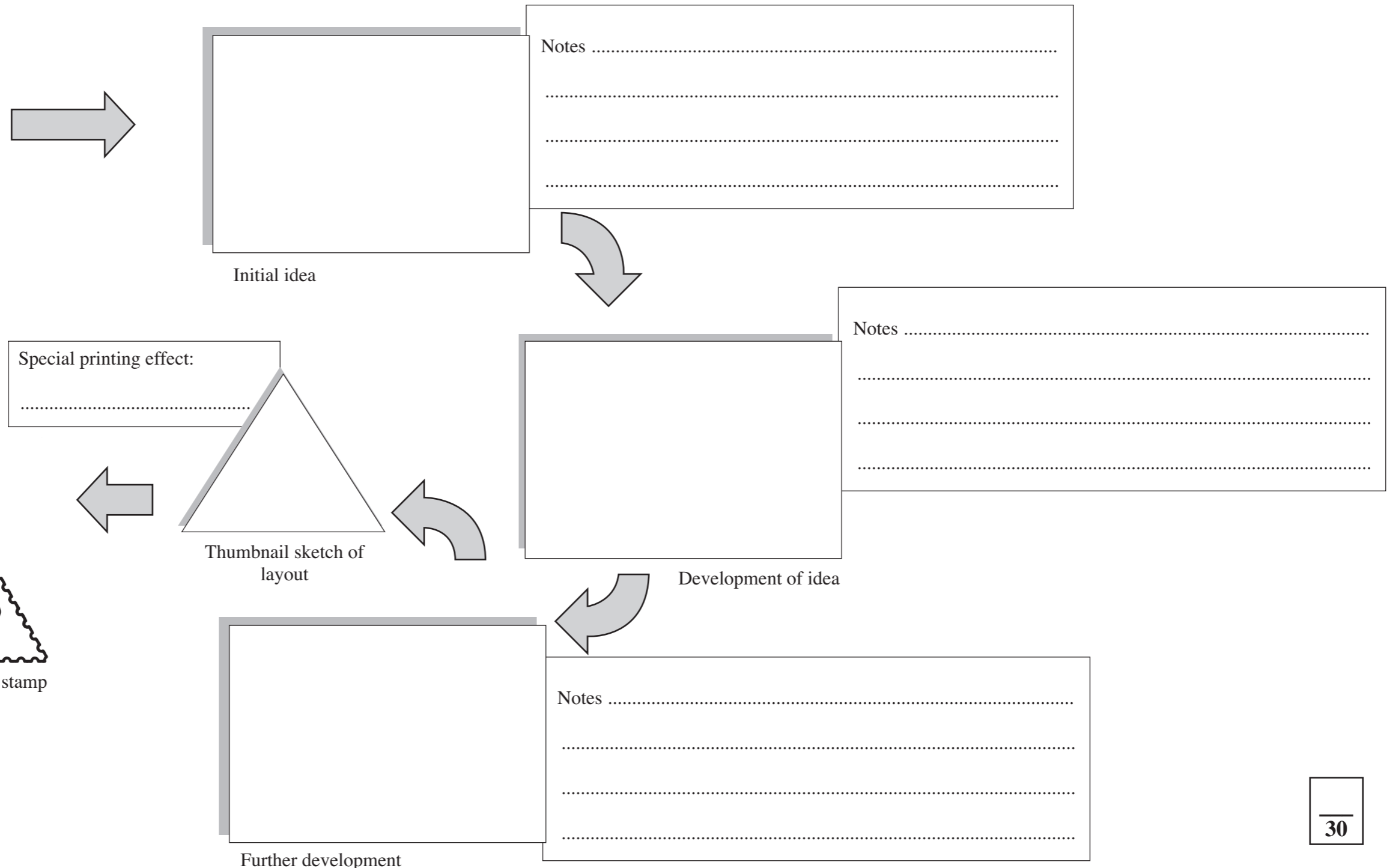


STARTING POINT: Wind Farm

Figure 5



Presentation Drawing of your stamp



This question is about surface development (nets) and British Standards and is worth 16 marks.

Spend about 15 minutes on this question.

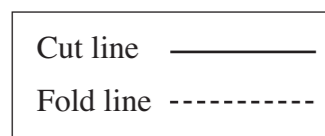
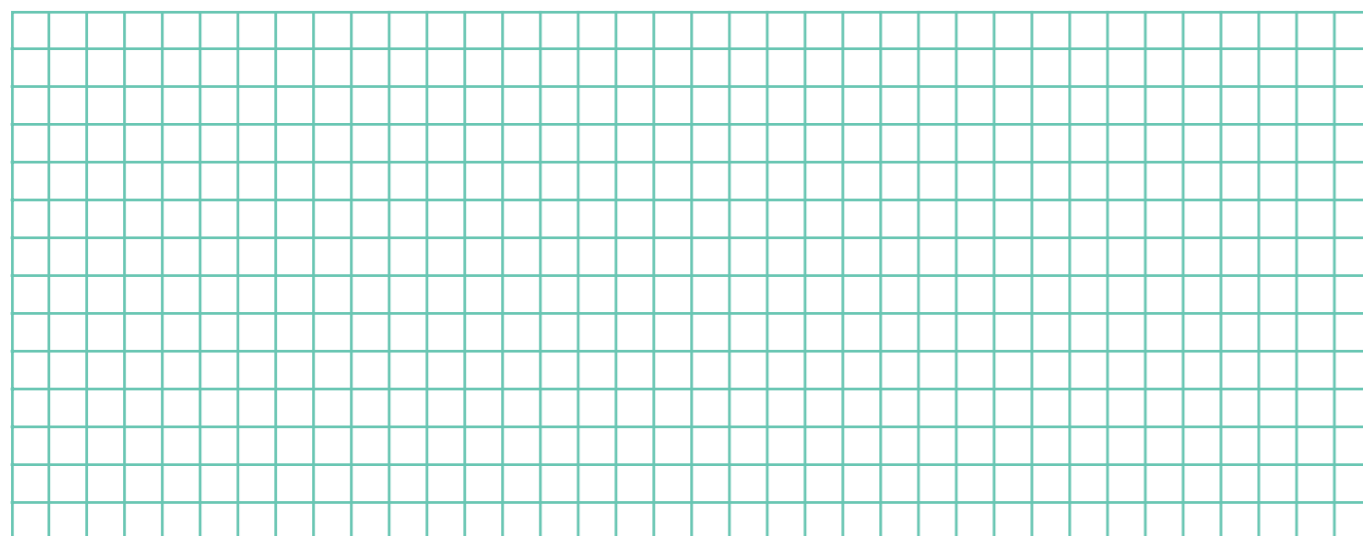
4 A table top promotional display for the commemorative postage stamp is shown in **Figure 6**.

It is made from a single piece of thin board 320 mm long (including a 20 mm glue tab) and 100 mm wide. A triangle with each side measuring 60 mm, is cut out from the face shown.

(a) Complete the half-size surface development (net) of the display stand on the grid below.

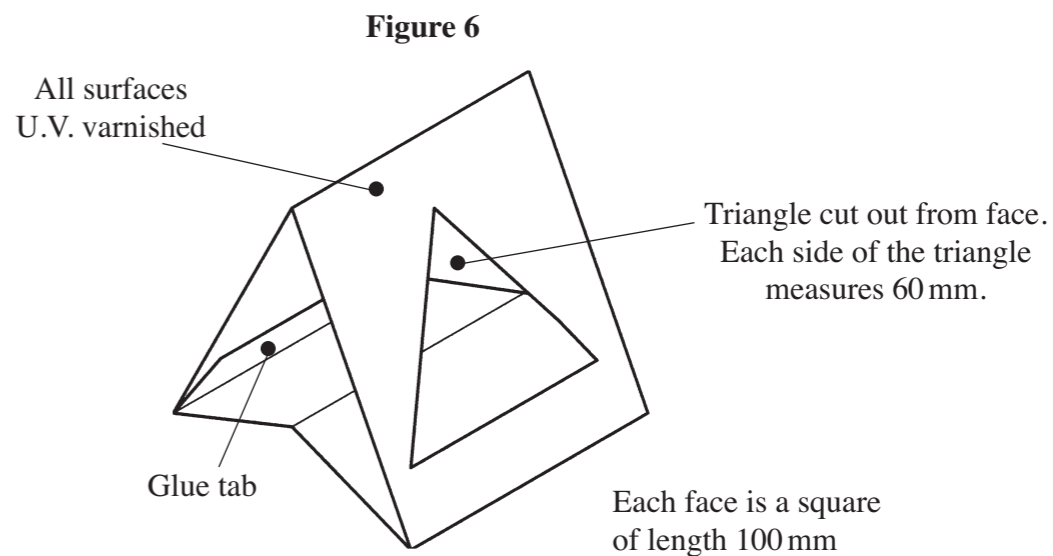
- Show the outline shape.
- Show the fold lines.
- Show the triangular cut out on the correct face.
- Label the glue tab.

(7 marks)



Scale 1 : 2

(b) Add **three** outline dimensions to the surface development (net) using British Standard conventions. (4 marks)



(c) The promotional display is to be U.V. varnished.

(i) What is meant by the term U.V.?

.....

 (1 mark)

(ii) Give **two** reasons why the display would benefit from U.V. varnishing.

Reason 1:

.....

 (2 marks)

Reason 2:

.....

 (2 marks)

This question is about representing materials and one-point perspective drawing and is worth 20 marks.

Spend about 20 minutes on this question.

5 A point of sale display is shown in **Figure 7**. A copy of the commemorative postage stamp is on the inside of each of the four faces of the display.

(a) **Figure 8** is an isometric drawing of the point of sale display.

(i) Colour the sides of the base to represent a wood grain effect. (4 marks)

(ii) Render the upper part to represent clear plastic. (4 marks)

DO NOT INCLUDE YOUR STAMP DESIGN

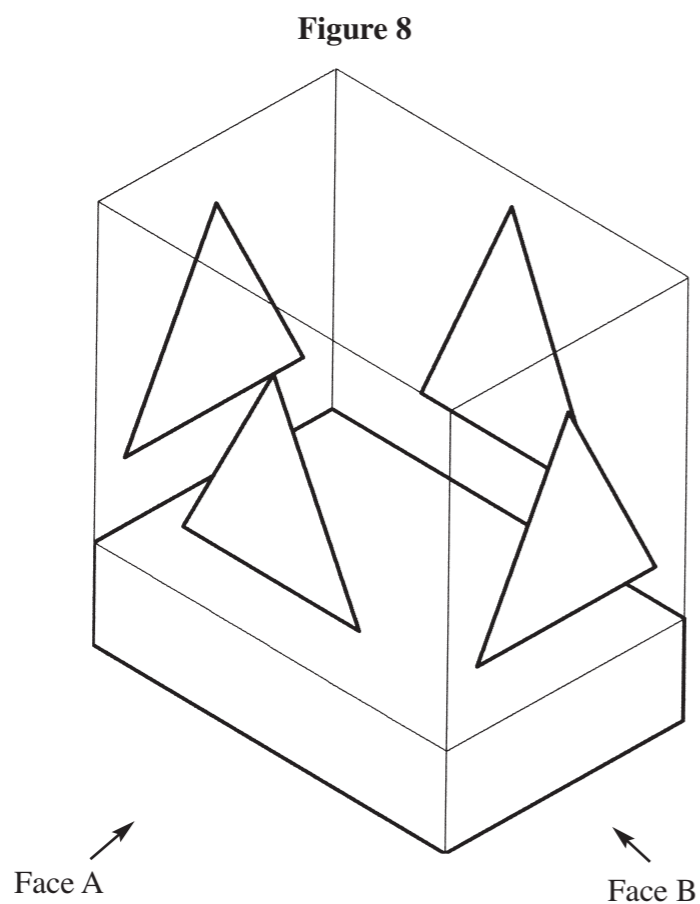
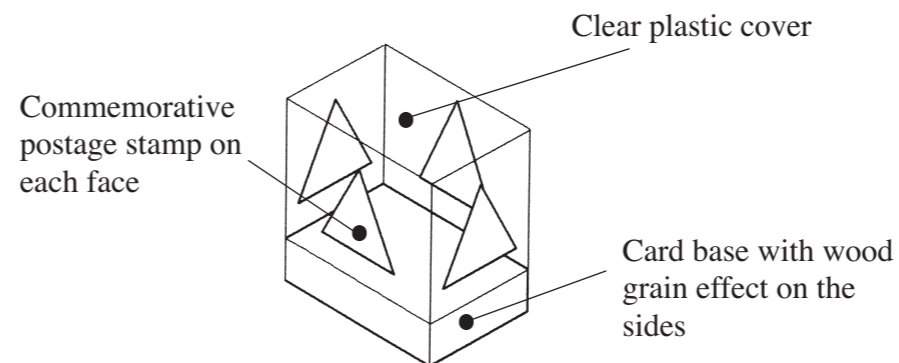


Figure 7



(b) An incomplete one-point perspective drawing of the point of sale display is shown in **Figure 9**. The given lines represent some of the construction lines.

(i) Label the following features of the one-point perspective drawing.

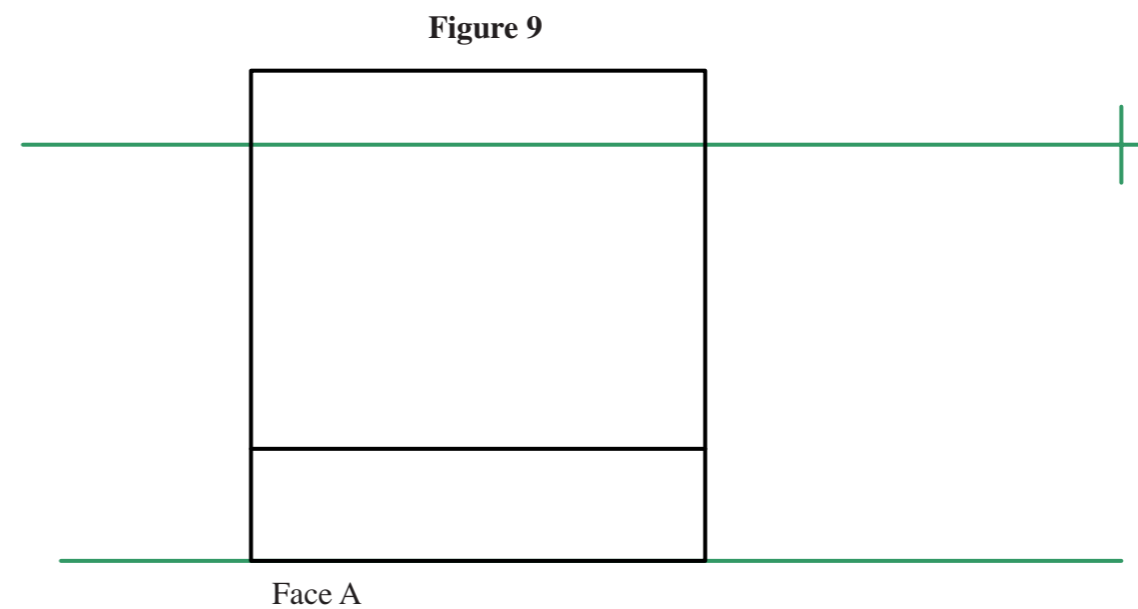
- the vanishing point
- the eye level (horizon)
- the ground level

(3 marks)

(ii) Use a ruler to complete the one-point perspective drawing of the point of sale display. (5 marks)

(iii) Add the stamp outlines to Face A and Face B of your perspective drawing. (4 marks)

DO NOT INCLUDE YOUR STAMP DESIGN



This question is about materials and is worth 11 marks.

Spend about 12 minutes on this question.

- 6 As part of the promotion of the renewable energy stamps, small hand-held toy windmills (Figure 10) are to be given away to children.

The windmill has six plastic PVC sails.

- (a) Give two safety reasons why PVC is a good material for the sails.

Reason 1

..... (2 marks)

Reason 2

..... (2 marks)

- (b) Several sails can be cut from an A4 sheet of PVC.

Figure 11 is a scale drawing of a sheet of PVC from which sails are to be cut.

On Figure 11 use the given under-lay sheet (Sheet 8), to show a layout for the sails which gives least waste.

Figure 11



(4 marks)

Figure 10



Figure 12



- (c) A commemorative postage stamp is shown in Figure 12.

- (i) Explain the function of the coloured circles (A) in the printing process.

.....

.....

.....

..... (2 marks)

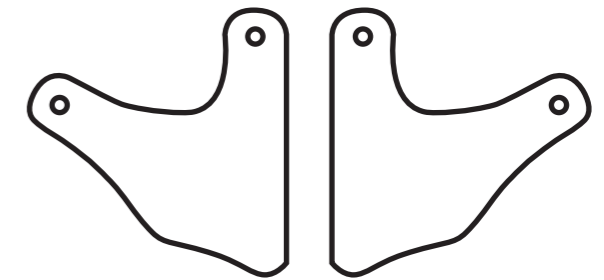
- (ii) Explain why there are perforations between individual stamps on a sheet.

.....

..... (1 mark)

Instructions for Sheet 8

- Sheet 8 is perforated.
- Use the images opposite as an under-lay to help you answer Question 6 part (b).
- Fold along the dotted line and tear off the right-hand part of this sheet.



This question is about industrial practice and analysis and is worth 10 marks.

Spend about 10 minutes on this question.

7 **Figure 13** is an example of a franking strip used as an alternative to postage stamps.

The franking strip has three marks: Mark A, Mark B and Mark C.

Figure 13



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(b) Give **two** advantages to a school or business of using franking strips over postage stamps.

Advantage 1

.....
.....
(2 marks)

Advantage 2

.....
.....
(2 marks)

(a) Explain why each mark is used on a franking strip.

Mark A is used because it shows

.....

.....

(2 marks)

Mark B is used because it shows

.....

.....

(2 marks)

Mark C is used because it shows

.....

.....

(2 marks)

This question is about evaluating and social issues and is worth 10 marks.

Spend about 10 minutes on this question.

- 8 (a) Some postage stamps are 'gummed'. This gum is made from vegetable or animal sources. When it is dampened it becomes sticky and can then be stuck to an envelope.

Explain why this gum may offend some people.

.....
.....

(2 marks)

- (b) Some postage stamps are 'self adhesive' and are sold in books (Figure 14).

Figure 14



- (i) Explain the term 'self adhesive'.

.....
.....

(2 marks)

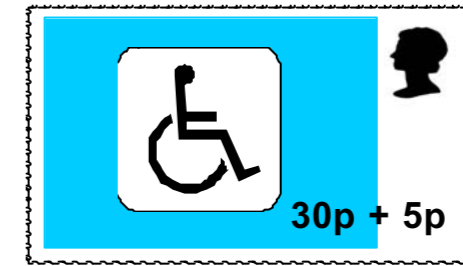
- (ii) Give an advantage of books of 'self adhesive' stamps to the user.

.....
.....

(2 marks)

- (c) Charity postage stamps are sold in some countries. Figure 15 shows a possible design.

Figure 15



- (i) Who would benefit from this charity postage stamp?

.....
.....

(2 marks)

- (ii) Explain the numbers 30p + 5p.

.....
.....
.....
.....

(2 marks)

END OF QUESTIONS

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