

Surname		Other Names	
Centre Number		Candidate Number	
Candidate Signature			

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General Certificate of Secondary Education
Summer 2004

**DESIGN AND TECHNOLOGY:
GRAPHIC PRODUCTS (SHORT COURSE)**

3553/H

Higher Tier

H

Wednesday 16 June 2004 9.00 am to 10.30 am

<p>In addition to this paper you will require:</p> <ul style="list-style-type: none"> a pen, pencil, ruler, eraser, pencil sharpener and coloured pencils. Marker pens and 45/60 degree set squares may also be used.
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Time allowed: 1 hour 30 minutes

Instructions

- Use blue or black ink or ball-point pen.
- Fill in the boxes at the top of this page.
- Answer **all** questions in the spaces provided.
- Detach the blue sheet from the back of the 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 100.
- Mark allocations are shown in brackets.
- Wherever calculations are needed you should show your working.
- All dimensions are given in millimetres unless otherwise stated.
- You are reminded of the need for good English and clear presentation.

Advice

Answer the questions in the order given.

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

Read the following information carefully before you begin the questions which follow.

CAR CARE PRODUCTS

A national chain of garages, called *AI Cars*, is to give buyers of all its new cars a free complimentary gift. This gift is a high quality, car air freshener in a distinctive box.

A pictorial sketch (**Figure 1**) of the assembled presentation pack is shown without the air freshener in place.

The car air freshener is held in a shaped inner 'tray'. It is inside a top opening presentation box. This is to be decorated and finished to convey quality.

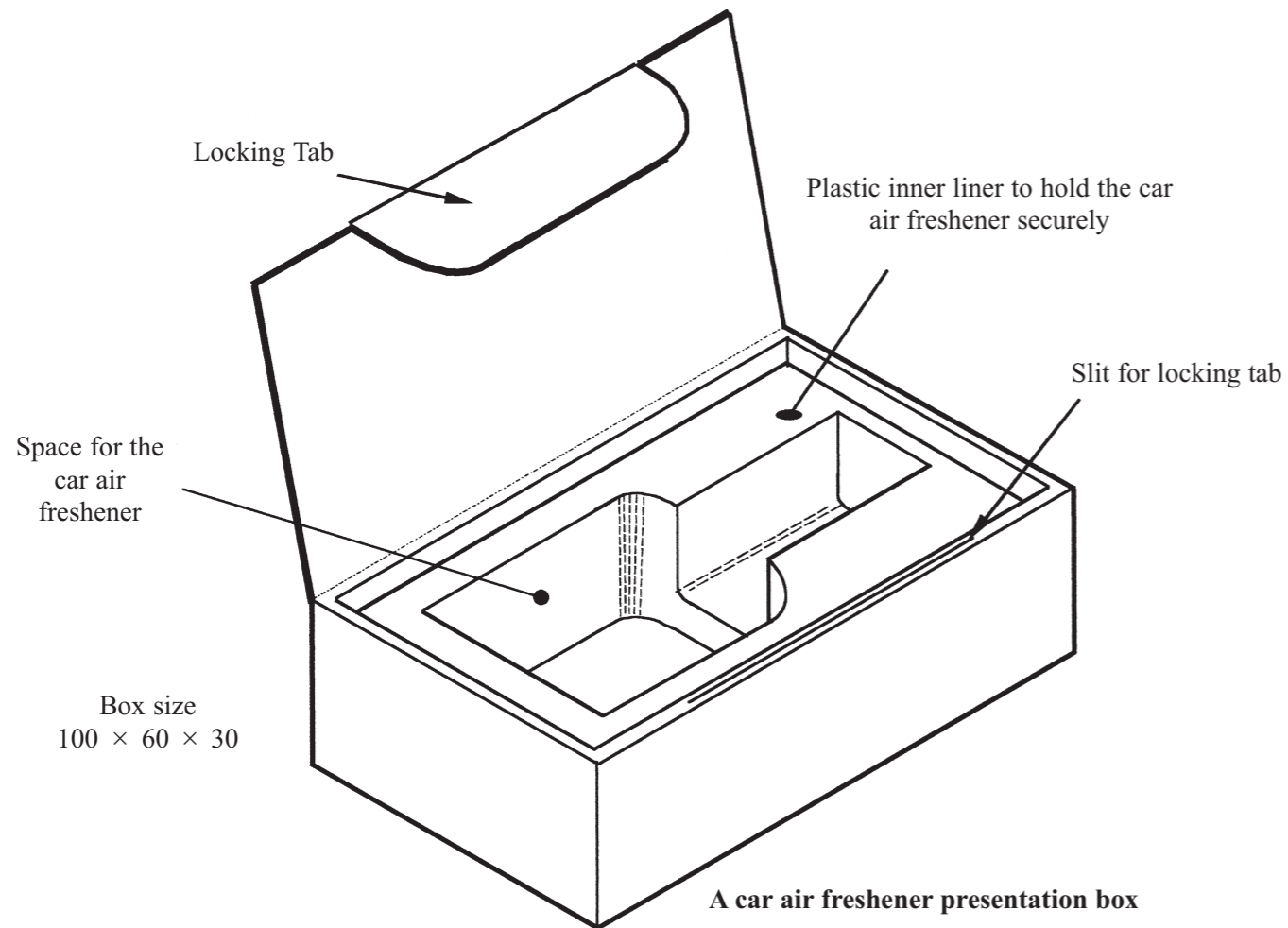


Figure 1

Question 1 is about research methods and representing data and is worth 6 marks.

Spend about 5 minutes on this question.

- 1 The car air freshener must have a pleasant perfume or fragrance. A survey was carried out to find which fragrances were most popular. The results are given below.

Results of survey	
<i>Fragrance</i>	<i>Percentage</i>
Fresh Flowers	25%
Sea Spray	15%
Mountain Breeze	40%
Summer Fruits	20%

Complete the **bar chart (Figure 2)** to represent the results of the survey and colour the sections. One bar has been completed.

Marks will be awarded for:

- (a) accuracy; (3 marks)
- (b) quality of colour; (2 marks)
- (c) labelling. (1 mark)

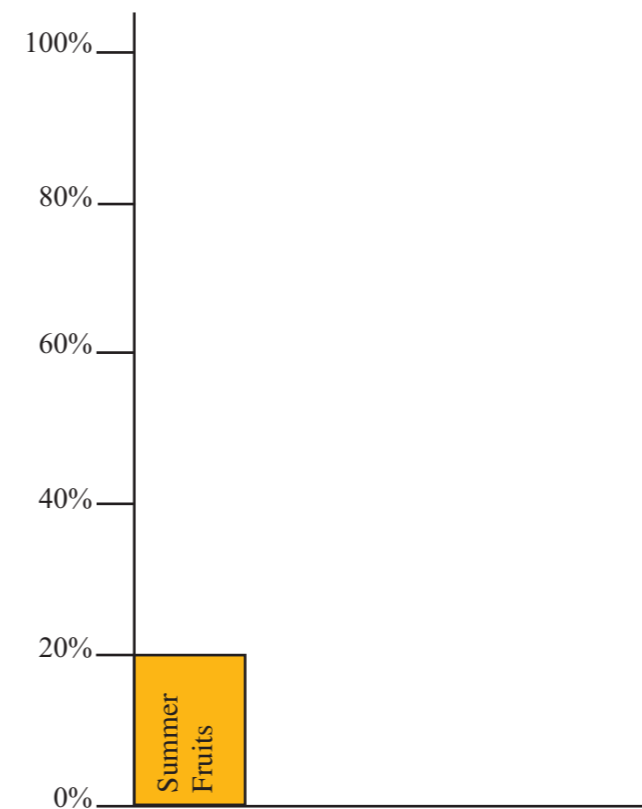


Figure 2

Question 2 is about designing and is worth 15 marks.

Spend about 13 minutes on this question.

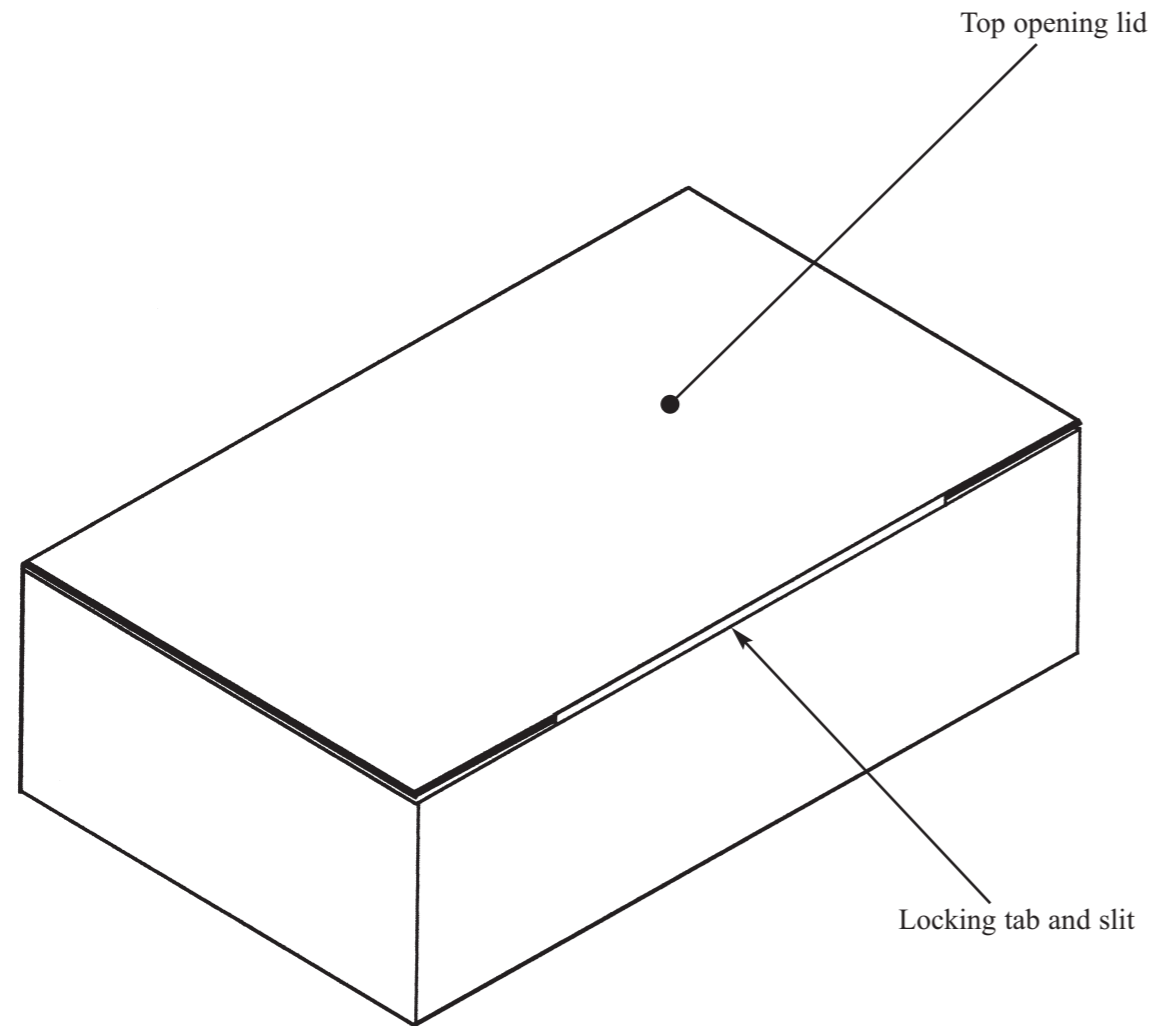


Figure 3

- 2 As a graphics designer you are to design the graphic details for the lid and sides of the presentation box (Figure 3).

AICars have provided the following specification for the box to help you.

The **box lid** and **sides** will:

- have **graphic detail** which suggests **mountains**;
- use **colours** which convey a quality product;
- have a company **logo** based on the letters **A1C** standing for *A1 Cars* and must be clearly visible on the lid;
- include a **print finishing effect** to enhance its appearance.

On the next sheet, sketch a variety of images and ideas that meet this specification.

ANSWER QUESTION 2 ON THE NEXT SHEET

DO NOT ANSWER ON THIS SHEET

Question 2 continues on Sheet 3

Question 2, continued

Use the specification given on Sheet 2 for the **lid** and **sides** of the presentation box.

In the space below:

- develop **three** suitable ideas for the box's **graphic detail**, which suggests **mountains**; (6 marks)
- indicate **colour**; (1 mark)
- develop **one logo** in a variety of styles based on the letters **A1C**; (3 marks)
- indicate an appropriate **print finishing effect**; (2 marks)
- **evaluate** your ideas. (3 marks)

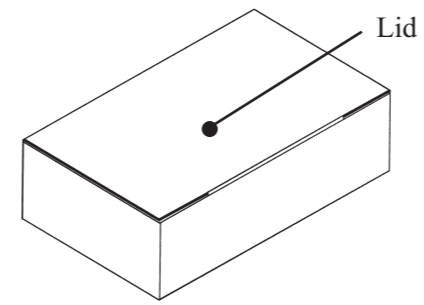


Figure 4

Evaluation

.....

Question 3 is about presentation and packaging and is worth 21 marks.

Spend about 20 minutes on this question.

- 3 Complete the graphic detail for your selected design on **Figure 5**. Include the lid and sides in your final presentation drawing.

Marks will be awarded for:

- (i) full use of specification; (5 marks)
- (ii) quality of drawing; (3 marks)
- (iii) ideas applied from **Question 2**; (3 marks)
- (iv) design layout; (5 marks)
- (v) quality of colouring. (5 marks)

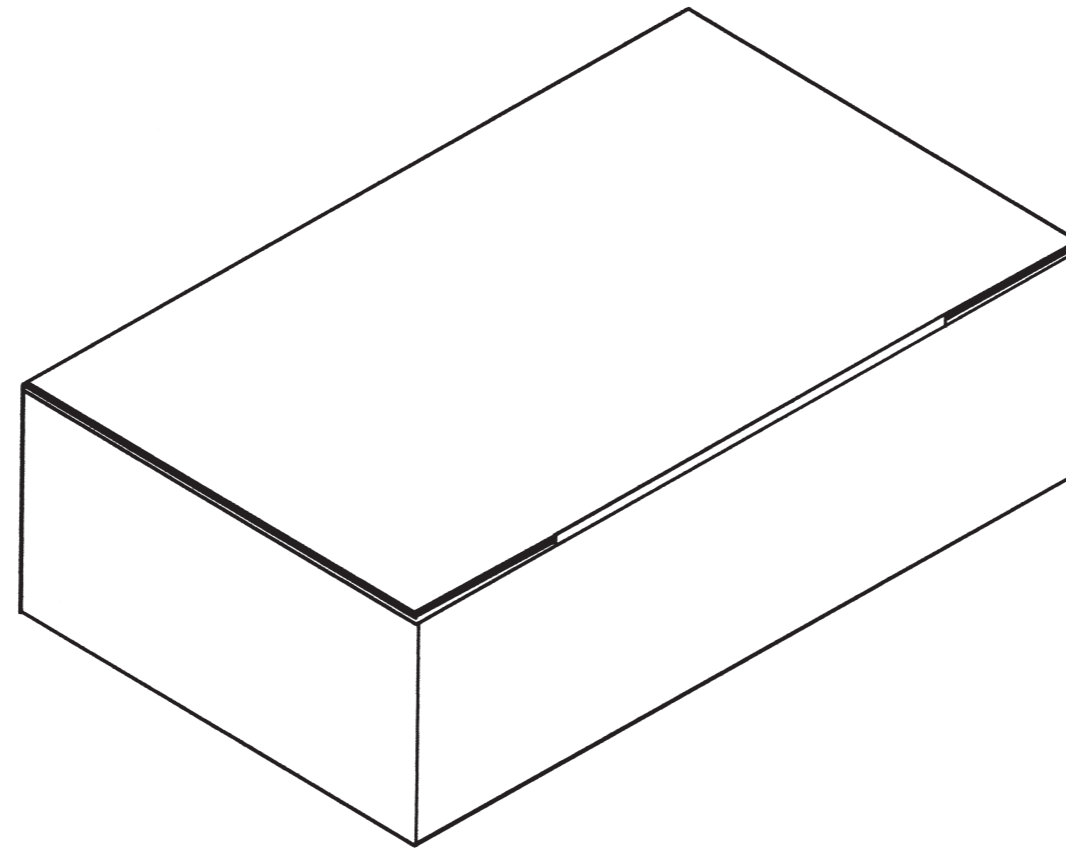


Figure 5

Question 4 is about locking mechanisms and is worth 5 marks.

Spend about 5 minutes on this question.

- 4 During the evaluation of a prototype box it was found that the locking tab of the lid easily slipped out of its slit in the front panel.

Below is an incomplete sketch (Figure 6) of the box with the inner tray removed.

Draw an improved locking mechanism on the sketch so that the lid is held more securely. (5 marks)

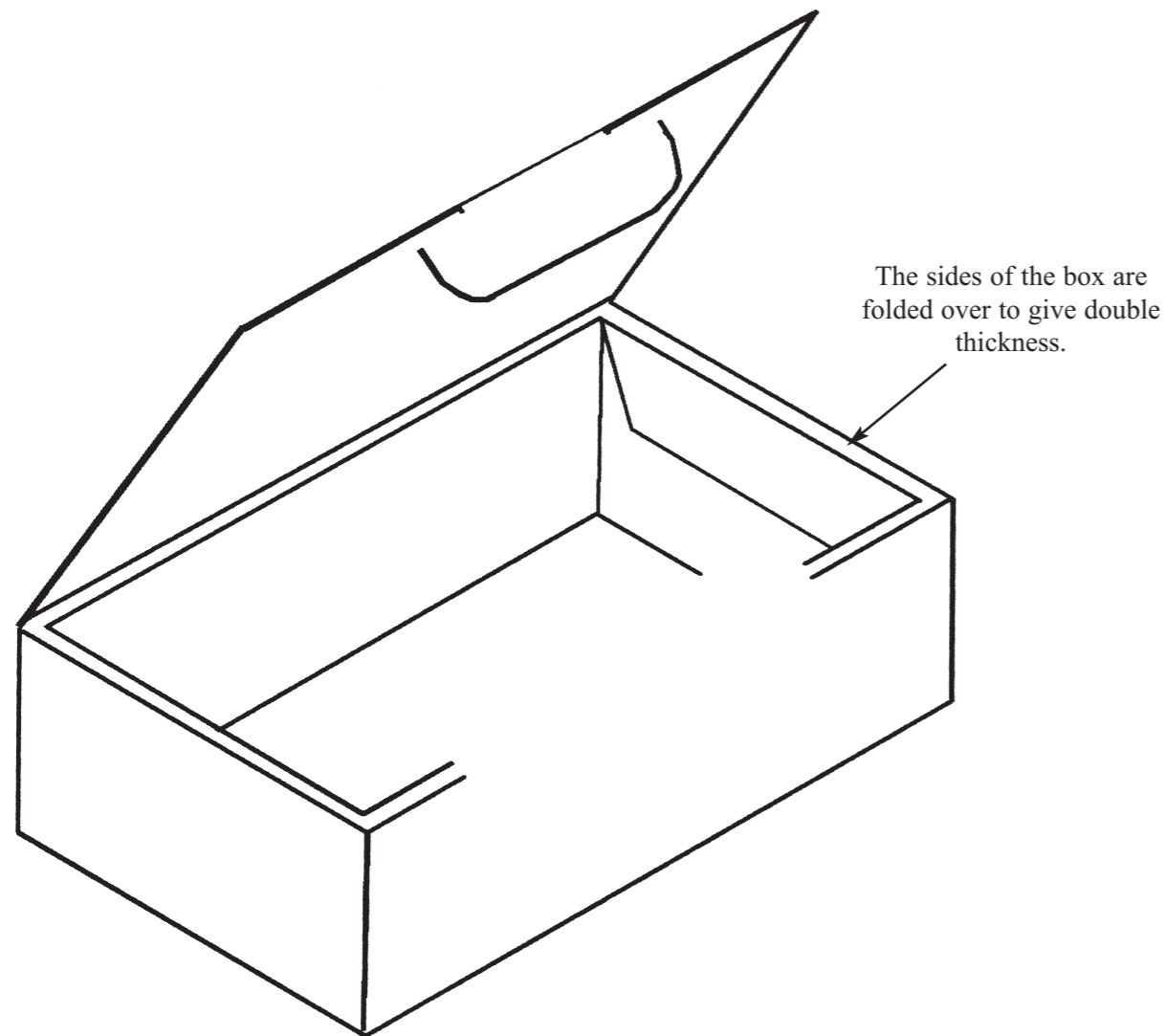


Figure 6

5

Sheet 5

Question 5 is about enlargements and British Standards and is worth 7 marks.

Spend about 5 minutes on this question.

- 5 A novelty car air freshener, in the shape of a foot (Figure 7) is made from a scented plastic material.

The outline of the foot must be enlarged before final production starts.

- (a) On the given grid enlarge the **outline** of the foot. (Do not colour). (3 marks)

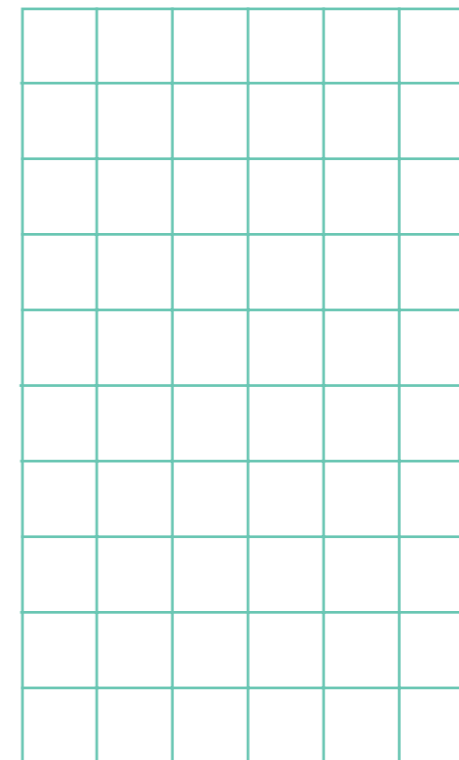
- (b) Using British Standard conventions, add to the enlargement:

- the overall width, and
- give the scale used.

(4 marks)



Figure 7



Scale _____ : _____

DO NOT COLOUR

7

Turn over ►

Question 6 is about vacuum forming and sequential drawing and is worth 12 marks.

Spend about 12 minutes on this question.

6 The gift box has to hold the car air freshener safely and securely.

This is done by vacuum forming an inner liner tray (Figure 8).

Below are diagrams representing first and last stage of the vacuum forming process.

(a) On the first stage diagram identify and name the following.

Part (i) has been completed for you.

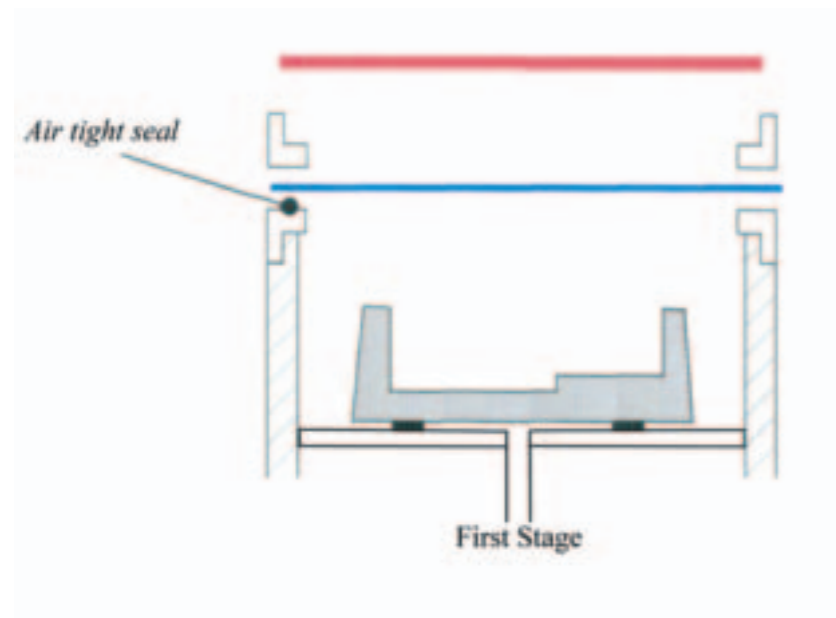
- (i) an air tight seal;
- (ii) the mould;
- (iii) the plastic material;
- (iv) the platen;
- (v) the heating element;
- (vi) the direction of movement of the platen.

(5 marks)

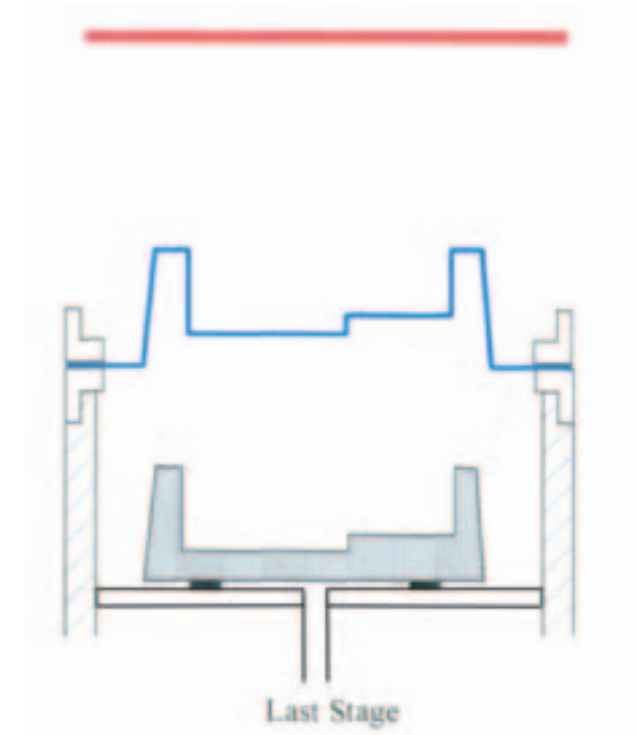
(b) In the space between the first and last stage of the vacuum forming process draw an Intermediate stage.

Produce this stage in the same style as the other diagrams in the process. (3 marks)

Use notes to help explain what is happening at this stage. (2 marks)



Intermediate Stage



A pictorial sketch of the finished inner liner tray of the presentation box

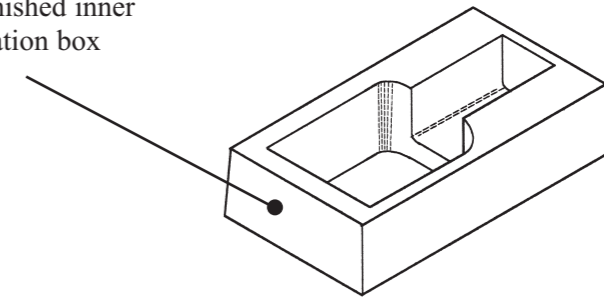


Figure 8

(c) (i) Which group of the following plastic materials is used for vacuum forming?

Tick ✓ the correct answer.

thermosetting

thermoplastic

(1 mark)

(ii) Name **one** plastic material used in the process of vacuum forming.

..... (1 mark)

Question 7 is about materials and is worth 10 marks.

Spend about 10 minutes on this question.

- 7 (a) The air freshener (**Figure 9**) is in a 'blister' pack. It can be made by hand and rendered in school using the equipment shown below.





Complete the chart by:

- (i) naming each item of equipment shown;
- (ii) explaining its use in the making of the backing card.

One example has been completed for you.



Figure 9

Equipment	Name	Use on the backing card
	<i>Air brush</i>	<i>To add background colour to the card.</i>




(6 marks)

- (b) Smart materials have replaced more traditional materials.

The forehead thermometer (**Figure 10**) is an alternative to a glass thermometer.



Reproduced by kind permission of The Boots Company PLC

Figure 10

Explain how a smart material is used in this type of thermometer.

.....

.....

.....

.....

.....

.....

.....

(4 marks)

Question 8 is about environmental and social issues and is worth 24 marks.

Spend about 20 minutes on this question.

8 Figure 11 shows three different car air fresheners inside their packaging.



Figure 11

(a) Give **two** reasons why air fresheners are contained inside sealed packages.

(5 marks)

Reason 1

.....

Reason 2

.....

(4 marks)

(b) (i) Are the transparent parts of the packages in **Figure 11** made from renewable or non-renewable material.

Explain your answer.

They are made from materials

because

.....

(2 marks)

(ii) After opening, the packages in **Figure 11** are thrown away.

Explain the long term effect on the environment of the materials if they are not correctly disposed of.

the backing card:

.....

.....

(3 marks)

the transparent materials:

.....

.....

(3 marks)

(c) In the box below draw and colour a symbol which shows that a package contains 50% recycled material.



(d) Give **one** reasoned advantage and **one** reasoned disadvantage of using recycled paper and board.

(i) Advantage:

Reason:

.....

(2 marks)

(ii) Disadvantage:

Reason:

.....

(2 marks)

(e) (i) Explain why recycled card should *not* be used for food packaging.

.....

.....

.....

(2 marks)

(ii) How can a graphic designer of fast-food packaging encourage people to care for their local environment?

.....

(1 mark)

END OF QUESTIONS

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