

Surname					Other Names				
Centre Number					Candidate Number				
Candidate Signature									

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General Certificate of Secondary Education
Summer 2003

**DESIGN AND TECHNOLOGY
GRAPHIC PRODUCTS**

3543/F

FOUNDATION TIER

F



Thursday 12 June 2003 9.00 am to 11.00 am

- In addition to this paper you will require:**
- a pen, pencil, ruler, eraser, pencil sharpener and coloured pencils.
 - Marker pens and 45/60 degree set squares may also be used.

For Examiner's Use			
Number	Mark	Number	Mark
1			
2			
3			
4			
5			
6			
7			
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 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 125.
- 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.

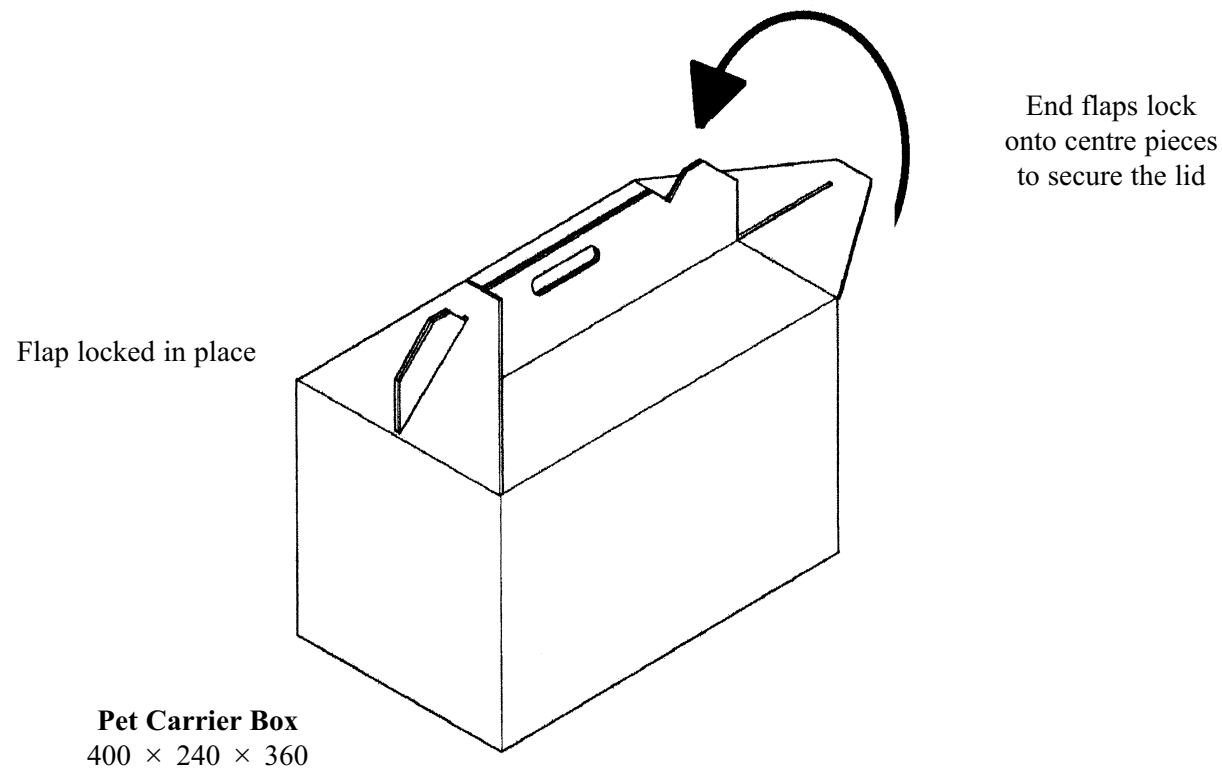
Read the following information carefully before you begin the questions which follow.

SMALL PET ANIMAL CARRIER BOXES

A voluntary charity looks after lost and injured small mammals in an animal shelter. The shelter is called "PETZONE".

The charity's volunteers want to raise funds by selling a range of suitable products. One of the proposed products is a box in which small animals and birds can be carried. Customers will buy and assemble the carrier box and use it to transport an animal safely.

The carrier box will be made of corrugated sheet material and printed with suitable decoration and relevant information. The basic shape of the carrier box is shown below.



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

Spend about 5 minutes on this question.

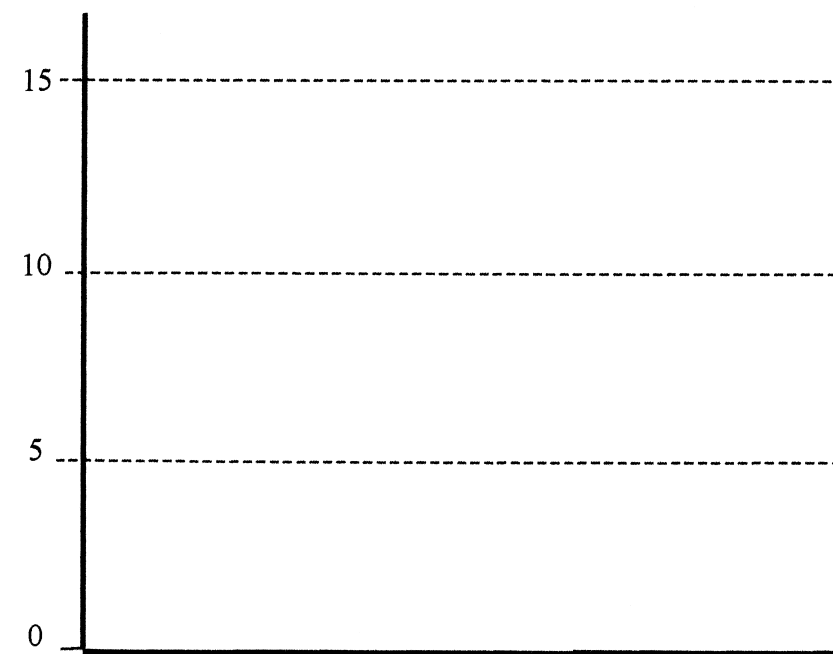
1 A group of school children were asked about their pets, the results are shown below.

- 15 children had cats
- 10 children had dogs
- 6 children had hamsters
- 4 children had birds

Complete and colour the bar chart and key of the results of the survey.

Marks will be awarded for:

- (a) adding the missing bars; (2 marks)
- (b) matching the key to the bars; (2 marks)
- (c) quality of colouring. (2 marks)



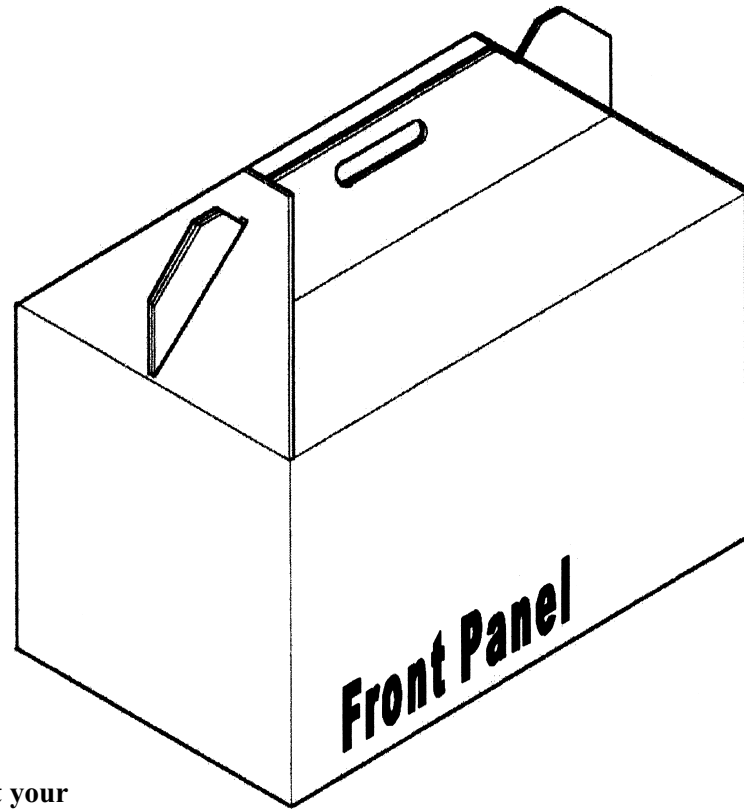
Bar chart showing how many children has each type of pet.

KEY	
	Cats
	Dogs
	Hamsters
	Birds

Question 2 is about designing and is worth 21 marks.

Spend about 20 minutes on this question.

The pictorial drawing below shows the pet carrier box with the lid locked in the closed position. The front panel is to be printed with suitable decoration and relevant information.



Do not put your designs on this diagram.

- 2 You are asked to make the pet carrier box more appealing to customers by adding a design to the front panel using black and one other colour on the *white-faced* sheet material.

You must follow the specification given below:

- the charity's name "PETZONE" in a suitable *letter style (font)* must be clearly visible;
- a *logo* that shows the charity's connection with animals must be included;
- appropriate *ventilation* openings must be shown;
- use only *black and one other colour* on a white background.

On Sheet 3 sketch a variety of images and ideas suitable for the front panel that meet this specification.

Evaluate your ideas.

Marks will be awarded for:

- | | |
|--|-----------|
| (a) a variety of images; | (7 marks) |
| (b) quality of sketching; | (5 marks) |
| (c) indication of colour; | (3 marks) |
| (d) clear, reasoned evaluation of ideas. | (6 marks) |

ANSWER QUESTION 2 ON THE NEXT SHEET

Question 2 continues on Sheet 3

Question 2, continued

Develop **two** ideas for *letter styles (fonts)* suitable for the name "PETZONE".

Evaluate your ideas.

Evaluation

Develop **two** ideas for the *ventilation openings* that can be cut into the pet carrier box.

Evaluate your ideas.

Evaluation

Develop **two** ideas for a *logo* suitable for an animal charity.

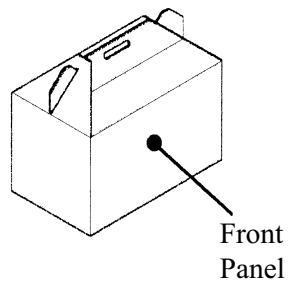
Evaluate your ideas.

Evaluation

Question 3 is about presentation and is worth 22 marks.

Spend about 20 minutes on this question.

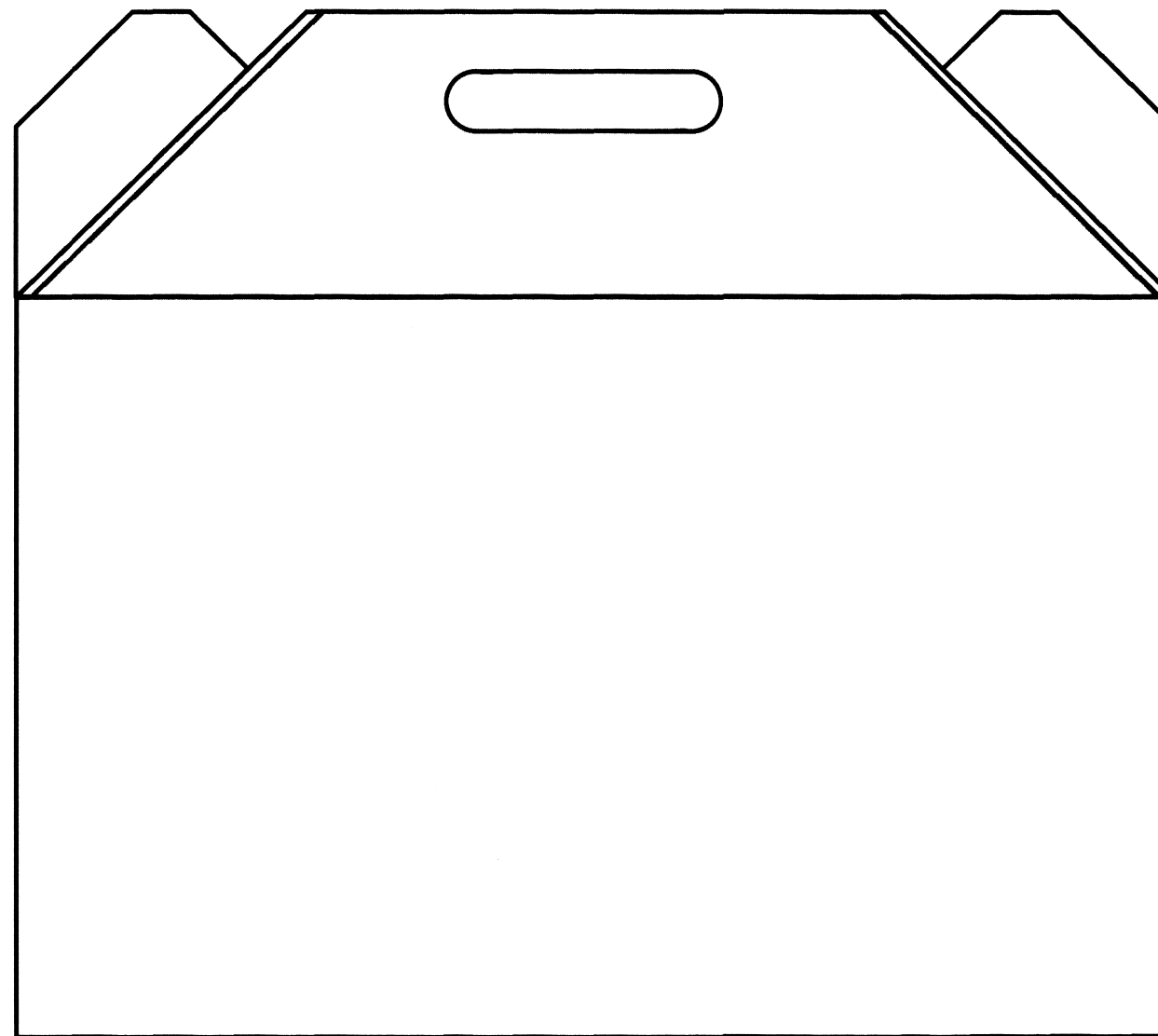
The front view of the pet carrier box is shown.



Marks will be awarded for:

- (i) use of the specification – charity name, *PETZONE*, letter style (5 marks)
 - letter style (font)
 - logo for the animal charity
 - ventilation openings
 - black and **one** other colour on a white background;
- (ii) quality of drawings; (5 marks)
- (iii) combining development ideas from Question 2; (3 marks)
- (iv) suitable layout; (4 marks)
- (v) quality of colouring. (5 marks)

- 3 Combine your best ideas from Question 2 and draw a final coloured presentation drawing of the front panel on the given front view.



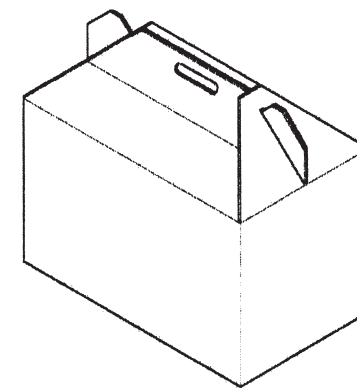
Front view of pet carrier box

Question 4 is about Third Angle Orthographic projection and British Standards and is worth 22 marks.

Spend about 20 minutes on this question.

A pictorial sketch of the pet carrier box.

Length 400
Width 240
Height 360



4 The grid shows an incomplete third angle orthographic projection drawing of the pet carrier box.

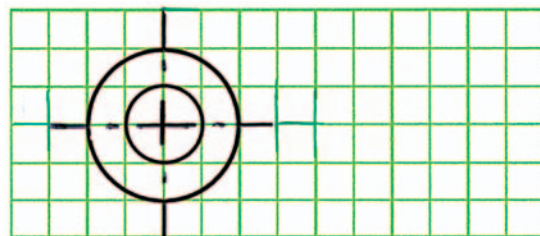
(a) Complete the plan by adding the missing lines.

(11 marks)

DO NOT INCLUDE HIDDEN DETAIL

(b) Using British Standards conventions:

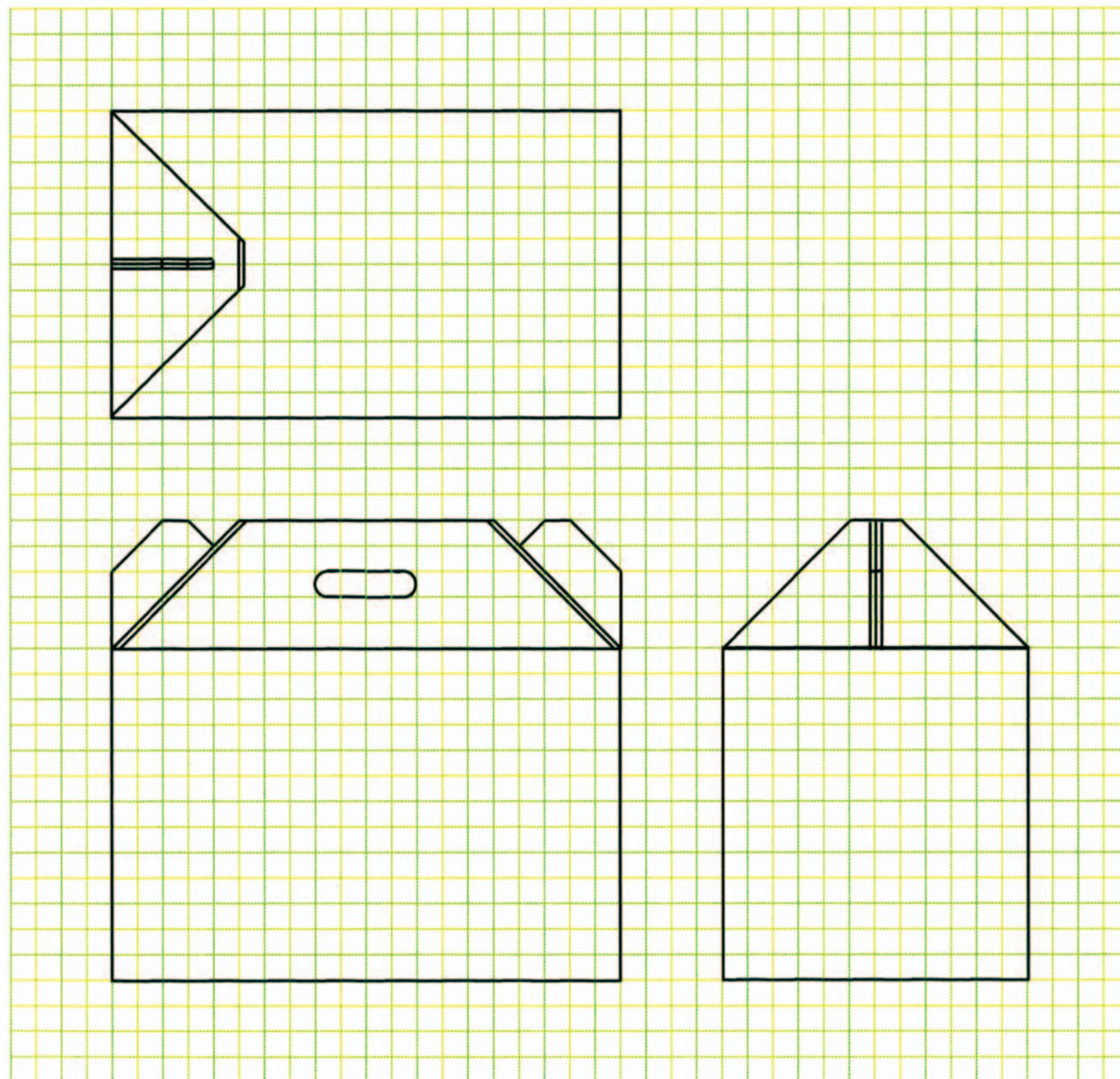
(i) In the space below complete the symbol for 3rd Angle Orthographic Projection. (2 marks)



(ii) Add the following sizes to the drawing:

- the length of the carrier box;
- the overall height of the carrier box;
- the width of the carrier box.

(9 marks)



Question 5 is about materials and is worth 19 marks.

Spend about 20 minutes on this question.

5 Pet carrier boxes are often made from corrugated cardboard.

(a) Use notes and sketches to show the construction of corrugated cardboard.

.....
.....
(3 marks)

(ii) Explain how a thermochromatic ink reacts.

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

(iii) Give **one** other example of the use of thermochromatic inks.

.....
.....
(1 mark)

(d) The pet carrier boxes are delivered to the charity shop “flat packed”.

(i) Give **one** advantage of “flat packed” boxes to the manufacturer.

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

(ii) Give **one** advantage of “flat packed” boxes to the retailer.

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

(iii) Give **one** disadvantage of “flat packed” boxes to the customer.

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

(b) Give **two** reasons with explanations, why corrugated cardboard is a suitable material for a pet carrier box.

(i) Reason 1

Explanation

.....
(2 marks)

(ii) Reason 2

Explanation

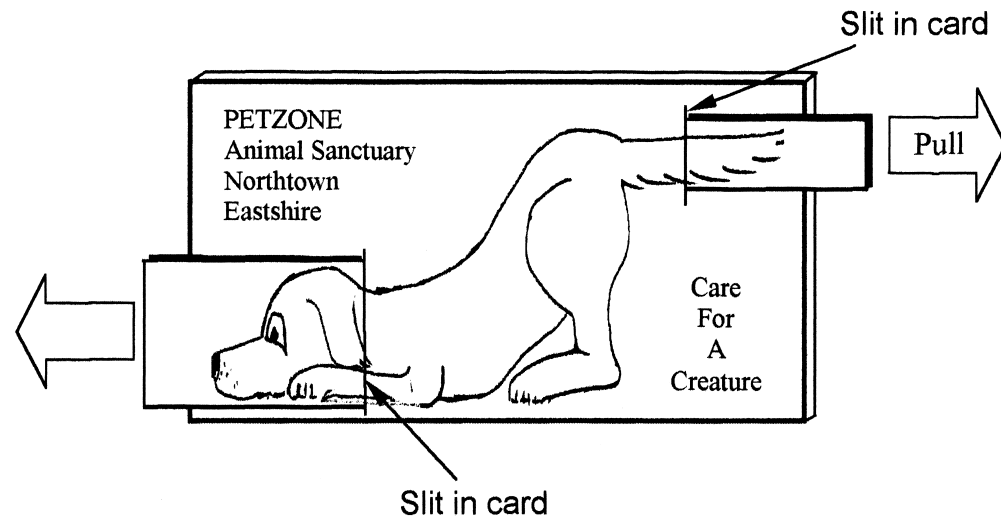
.....
(2 marks)

Question 6 is about mechanisms and is worth 12 marks.

Spend about 15 minutes on this question.


6 A promotional product made from card is shown below.

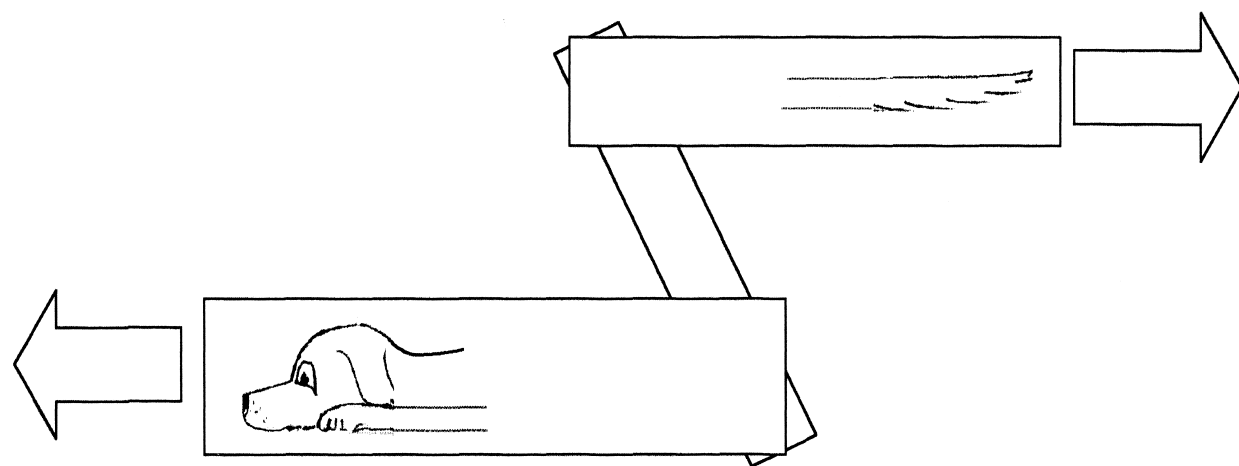
When the dog's tail is pulled its head and neck stretch.



(a) When the front of the promotional product is removed the mechanism can be seen. It consists of sliders, a lever and pivots.

A drawing of the mechanism is given below. The pieces of card must be loosely connected to allow movement.

On the diagram below mark, with crossed centre lines,  where pivots are needed for the mechanism to work. The head must move out more than the tail.



The card mechanism

(5 marks)

(b) Using notes and sketches:

(i) Show how two card strips are joined together to make a loose, free moving connection for this mechanism. (5 marks)

(ii) Name any **two** components you have used.

..... (1 mark)

..... (1 mark)

Question 7 is about environmental, cultural and social issues and is worth 23 marks.

Spend about 20 minutes on this question.

7 (a) Explain why, in some cultures and societies, certain colours and images on packages are to be avoided.

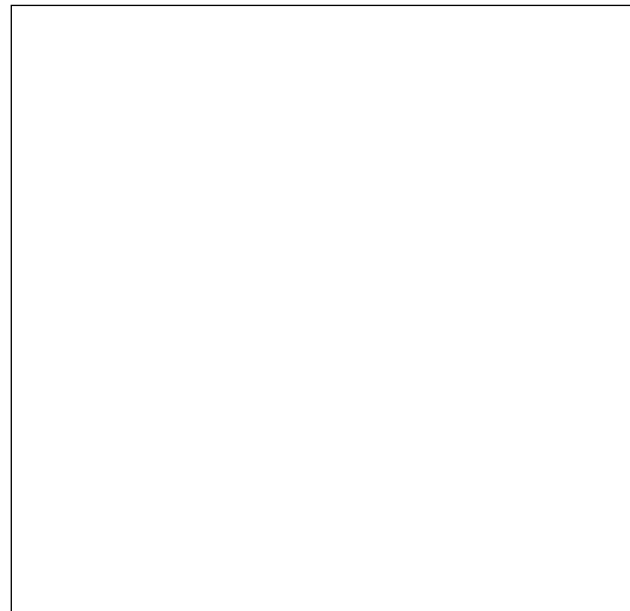
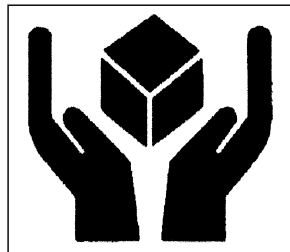
.....
.....
(3 marks)

(b) (i) Explain why signs and symbols are printed on packaging.

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

(ii) Given below is a symbol showing that a package must be handled with care.

Draw a symbol in the same style that shows that the package should be sheltered from rain.



(6 marks)

(c) Packaging is thrown away and ends up in *land fill* sites.

(i) Explain what is meant by the term *land fill*.

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

(ii) Give **two** disadvantages of *land fill*.

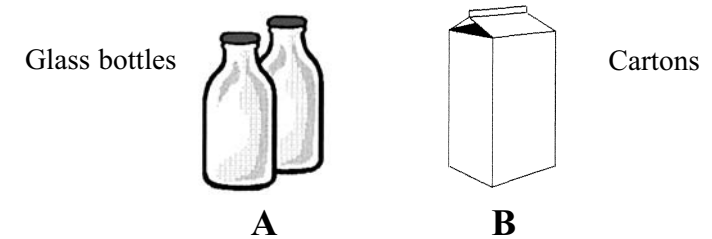
Disadvantage 1:

.....
(2 marks)

Disadvantage 2:

.....
(2 marks)

(d) Milk is available in containers of different materials and designs. Two are shown below.



Choose either container A or B and give **two** reasons why that container can be considered "environmentally friendly".

My container is design

Reason 1

.....
.....
(3 marks)

Reason 2

.....
.....
(3 marks)

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END OF QUESTIONS