

Surname					Other Names				
Centre Number					Candidate Number				
Candidate Signature									

For Examiner's Use

General Certificate of Secondary Education
June 2007

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

3543/F

F



Tuesday 5 June 2007 1.30 pm to 3.30 pm

For this paper you must have:

- a pen, a pencil, a ruler, an eraser, a pencil sharpener and coloured pencils.

You may also use marker pens and 45/60 degree set squares.

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.
- You are reminded of the need for good English and clear presentation in your answers.

Advice

- You are advised to answer the questions in this paper in the order in which they are written.

This question is about marketing and product analysis and is worth 8 marks.

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

1 AQA is to market a range of low cost *disposable* mobile phones which can be *used in an emergency*.

They will have a limited range of functions including calling home, calling a friend and contacting the emergency services.







The phones' main users will be teenagers who are at school, university students, or young people living away from home.

Several mobile phones were investigated and analysed.

The results are presented in the table below.

Complete **Table 1** by adding your comments in the appropriate spaces.

Table 1

Mobile phones	Typical user / buyer	An aesthetic feature of the phone	Function symbols on box
<p>A <i>value</i> phone</p> 	<p>The user of this <i>value</i> phone is likely to be . . .</p> <p><i>An elderly person</i></p>	<p>This phone has the following aesthetic feature:</p> <p><i>A silver metallic finish</i></p>	<p>TXT</p> <p>.....</p> <p>.....</p> <p>.....</p>
<p>A <i>fashion</i> phone</p> 	<p>The user of this <i>fashion</i> phone is likely to be . . .</p> <p>.....</p>	<p>This phone has the following aesthetic feature:</p> <p>.....</p> <p>.....</p> <p>.....</p>	 <p>.....</p> <p>.....</p> <p>.....</p>
<p>A <i>smart</i> phone</p> 	<p>The user of this <i>smart</i> phone is likely to be . . .</p> <p><i>A business person</i></p>	<p>This phone has the following aesthetic feature:</p> <p>.....</p> <p>.....</p> <p>.....</p>	 <p><i>Access to the internet</i></p>
<p>A <i>disposable</i> phone</p> 	<p>The user of this <i>disposable</i> phone is likely to be . . .</p> <p>.....</p>	<p>This phone has the following aesthetic feature:</p> <p>.....</p> <p>.....</p> <p>.....</p>	<p>999</p> <p>.....</p> <p>.....</p> <p>.....</p>

(8 marks)

This question is about modelling materials and Computer Aided Design (CAD) and is worth 19 marks.

You are advised to spend about 20 minutes on this question.

2 A pictorial drawing of a model mobile phone is given in **Figure 1**.

(a) Name a thermoplastic suitable for modelling the mobile phone casing.

.....
(1 mark)

(b) A light source is shown shining on the mobile phone (**Figure 1**).

Render the pictorial drawing of the phone.

Do **not** add extra text or other details.

(6 marks)

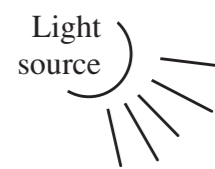
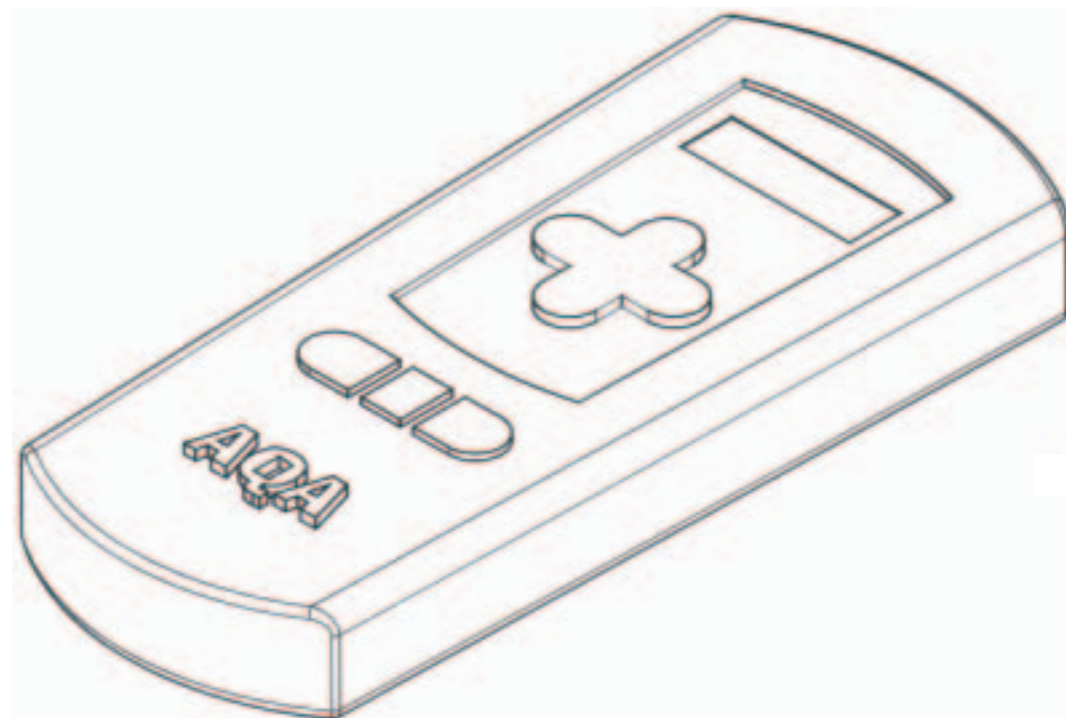


Figure 1



(c) The mobile phone could be rendered using a CAD software package.

Drawing programs use symbols or icons to represent drawing and colouring tools.

Four icons are shown in **Table 2**.

(i) Give the meanings of icons 2, 3 and 4 and explain their use.

Icon number 1 has been completed for you.

(9 marks)

(ii) For number 5, design an icon that represents the *print* command.

Use the sketching space to develop a suitable design.

(3 marks)

Table 2

Number	Icon	Meaning	Use
1		<i>Pencil</i>	<i>To draw lines on the screen</i>
2	
3	
4	
5		<i>Print</i>	<i>When selected, sends the screen image to the printer</i>

Sketching space

This question is about letter styles and is worth 11 marks.

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

3 (a) What does the term *font* mean?

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

(2 marks)

(b) AQA have decided to package the mobile phone in a box.

The name of the phone is SAFE 1.

This name will be printed on the lid of the box.

A typical letter style is shown in **Figure 2**.


(i) In **Figure 2**, sketch **three** different styles for the letter **S** in the spaces provided.

Use only upper case (capital) letters.

Your preferred letter style will be used in Question 5.

(6 marks)

Figure 2

Example	Letter style 1
	
Letter style 2	Letter style 3

(ii) My preferred letter style is number:

Explain why this is your preferred letter style.

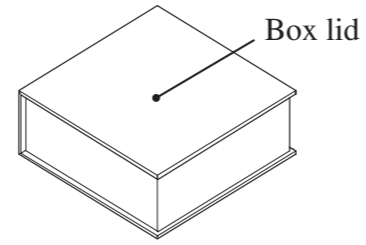
.....
.....
.....
.....
.....

(3 marks)

This question is about development of ideas and is worth 16 marks.

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

Figure 3



4 The mobile phone is to be packaged in a box (**Figure 3**).

The box lid is to be decorated with images on the theme of *emergency use*.

(a) Sketch **three** different images on the theme of *emergency use* in the space below (**Figure 4**).

Marks will be awarded for:

- (i) sketching **three** images on the given theme, (3 marks)
- (ii) indicating colour, (2 marks)
- (iii) adding notes to explain your ideas. (3 marks)

(b) Develop your best image from part (a) into a final design in the space below (**Figure 5**).

Clearly show the changes and modifications you make.

Marks will be awarded for:

- (i) the image taken forward from part (a), (1 mark)
- (ii) the development of the image into a final design, (4 marks)
- (iii) evaluating the changes. (3 marks)

Figure 4

Three different images based on the theme *emergency use*, indicating colours used.

Add notes to explain your ideas.

Figure 5

Develop your best image from part (a) into a final design.

(This final design will be required in Question 5.)



Evaluation of changes

.....

.....

.....

.....

This question is about layouts and presentation drawings and is worth 17 marks.

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

5 The mobile phone is to be packaged in a box (**Figure 6**).

(a) Using the specification given in **Figure 7**, sketch **three** suitable layouts for a box lid design in **Figure 9**.

Label the features of your sketches.

(5 marks)

Figure 6

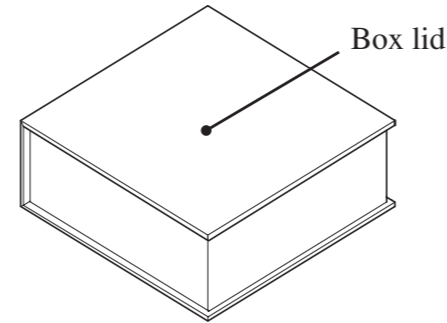
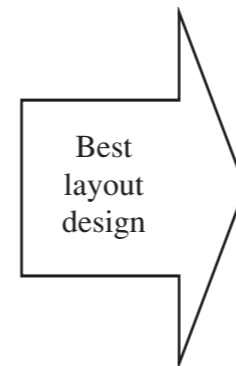
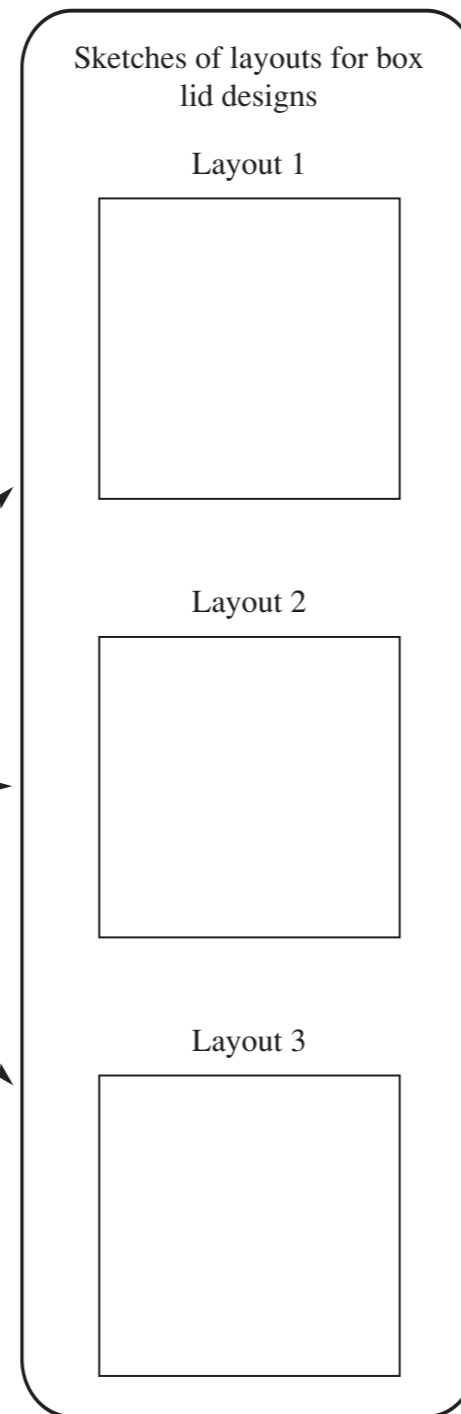


Figure 9

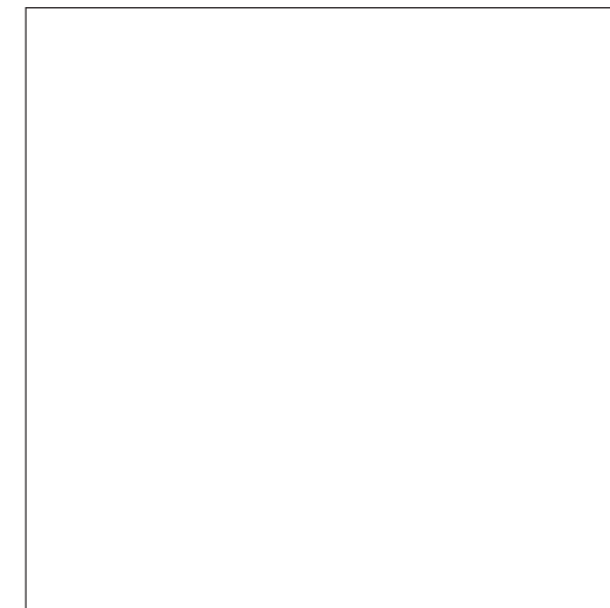


(b) On the half-size outline of the box (**Figure 10**), complete a coloured drawing of your lid design, using the best parts from Questions 3, 4 and 5 part (a).

Marks will be awarded for:

- (i) line quality, (2 marks)
- (ii) quality of colouring, (4 marks)
- (iii) quality of layout. (3 marks)

Figure 10



(c) To further improve your box lid design, which design feature would you change, and why?

The feature I would change is

.....

because

.....

.....

(3 marks)

Figure 7

Specification for box lid design

- Emergency use image (From **Question 4**)
- The letter style of the product's name, SAFE 1 (From **Question 3**)
- AQA logo (**Figure 8**)

Figure 8



This question is about materials, surface development (nets) and British Standard conventions, and is worth 22 marks.

You are advised to spend about 20 minutes on this question.

6 A pictorial drawing of a different packaging for a mobile phone is shown in **Figure 11**. An inner tray slides in an outer sleeve. The phone is securely held in the expanded polystyrene packing piece.

(a) **Figure 12** is a detailed drawing of the expanded polystyrene packing piece.

Render **one** face to represent expanded polystyrene.

(2 marks)

(b) Explain **one** advantage and **one** disadvantage of expanded polystyrene as a packing material.

Advantage

.....

.....

.....

(3 marks)

Disadvantage

.....

.....

.....

(3 marks)

Figure 11

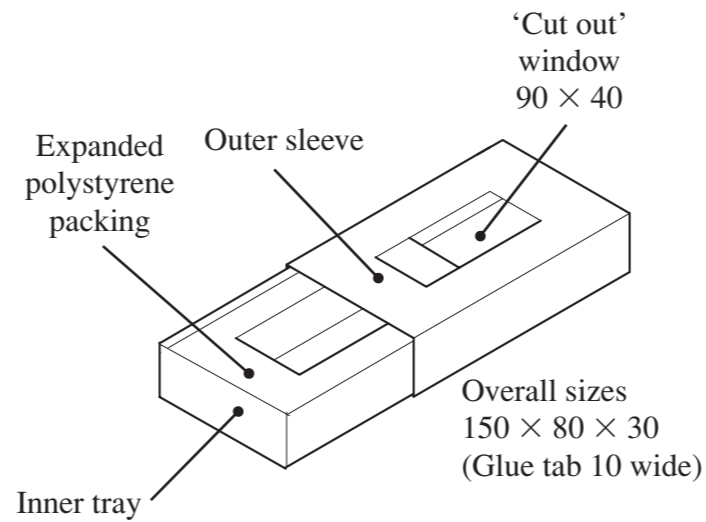
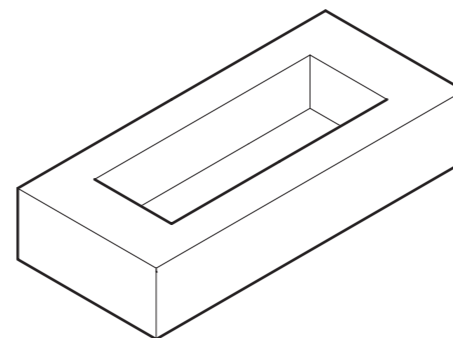


Figure 12



KEY

- Outline
- - - - - Fold

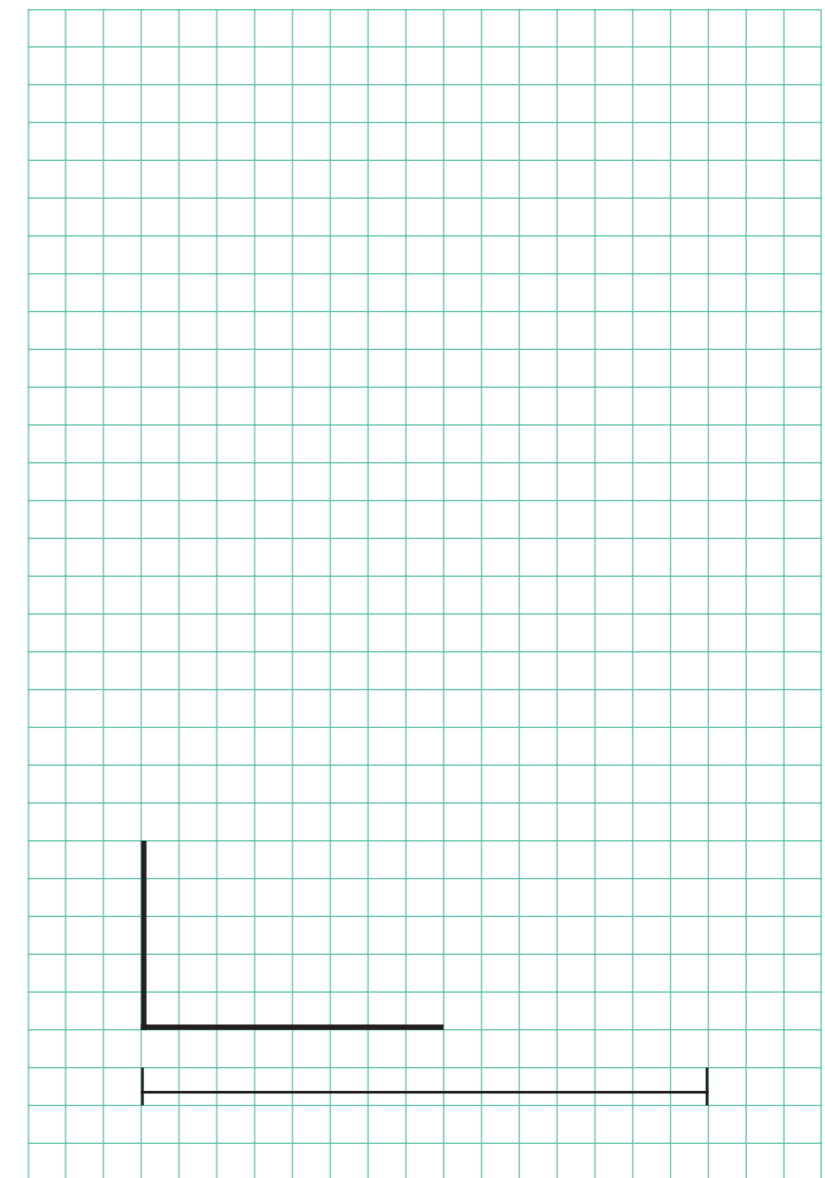
(c) **Figure 13** shows an incomplete *half full size* surface development (net) of the outer sleeve.

(i) Complete the surface development (net). Show the 'cut out' window, glue tab and fold lines. (10 marks)

(ii) Using British Standard conventions add **two** dimensions. One has been started for you. (3 marks)

(iii) State the scale in the space provided. (1 mark)

Figure 13

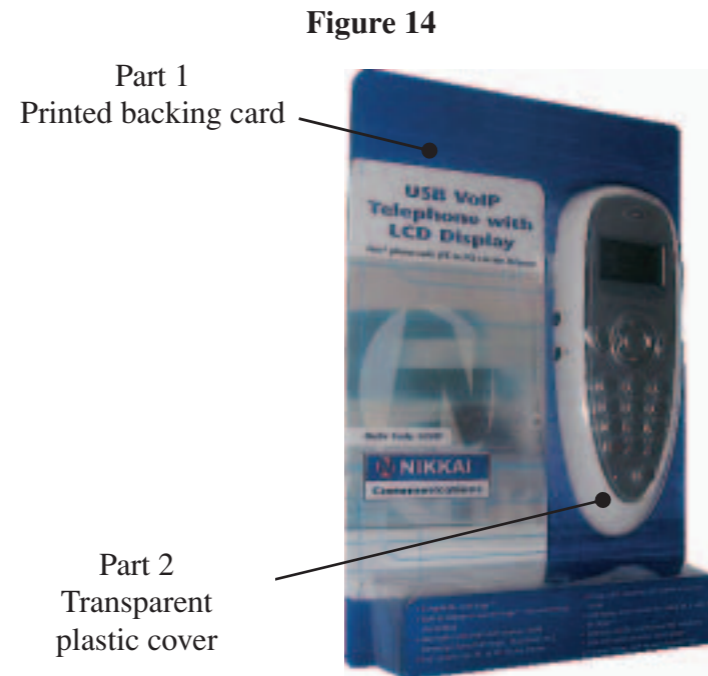


Scale :

This question is about packaging, its materials and components, and is worth 14 marks.

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

7 A photograph of another mobile phone and its package is shown in **Figure 14**.



(a) (i) What is the name given to this type of package?

.....
(1 mark)

(ii) Give an advantage to the customer of this type of package.

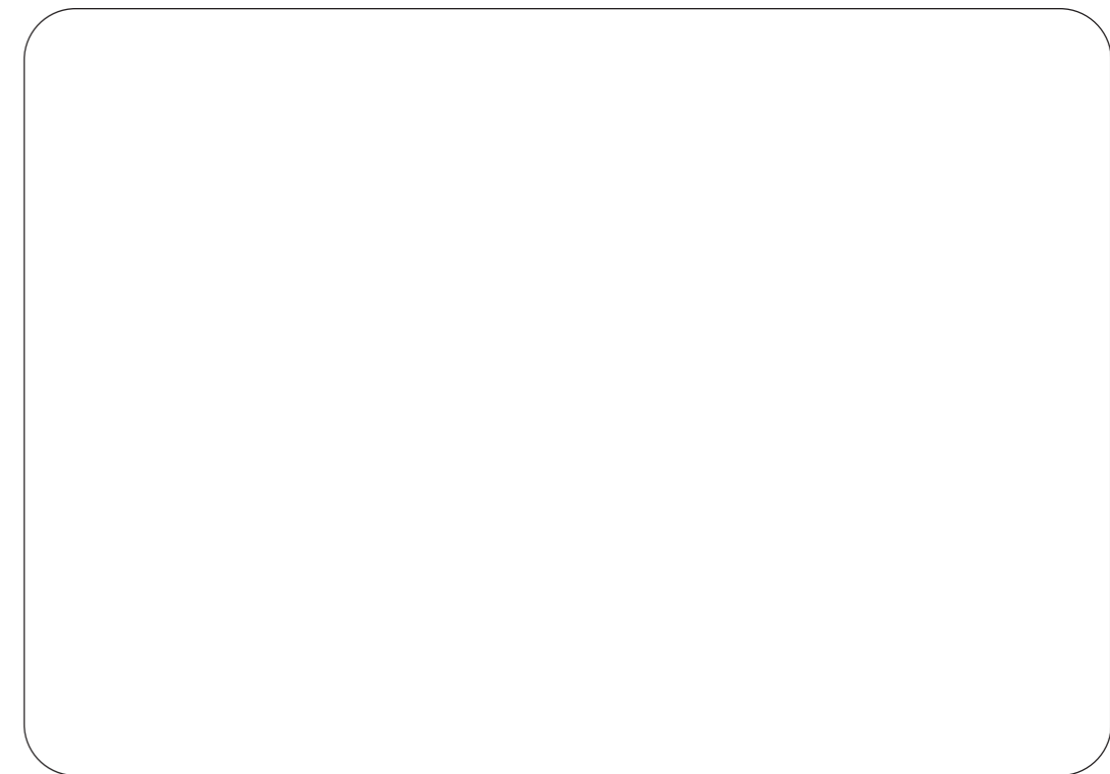
.....
.....
(2 marks)

(iii) Explain why this type of package could be considered to be environmentally unfriendly.

.....
.....
.....
.....
(4 marks)

(b) A similar package is to be made in a school's Design and Technology department using suitable school materials and equipment.

With sketches and notes show how the two parts of the package (the printed backing card and the transparent plastic cover) could be securely held together.



(7 marks)

This question is about Cultural, Social and Environmental Issues and is worth 18 marks.

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

8 Most mobile phones are powered by rechargeable batteries.

(a) Information about the disposal of batteries can be given in the form of signs and symbols.

Complete **Table 3** by giving the meaning of each sign or symbol and explain the environmental reason for it.

Table 3

Sign or Symbol	Meaning	Environmental Reason
Red triangle with jagged arrow inside.	<i>Warning, danger of electric shock</i>	<i>Device contains electrical energy that could injure if touched</i>
Wheelie bin with red cross through.
Black flame with red cross through.

Due to copyright issues, the three symbols above have been removed for electronic publication. (8 marks)

(b) **Figure 15** shows the European Union Eco-label, which can be awarded to businesses that market products and services that are kinder to the environment.

(i) How is it identified as a European Union symbol?

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

(ii) Why are the colours appropriate?

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



(c) Signs, symbols or pictograms are frequently printed on the outer packaging of products.

(i) Explain why signs, symbols or pictograms are used instead of written information or instructions.

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

(ii) Given below are two symbols which are found on many packages.

Give the meaning of each.



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



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

END OF QUESTIONS

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