

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 2013

Design and Technology: Graphic Products

45501

Unit 1 Written Paper

Tuesday 11 June 2013 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 question in Section A relates to the context referred to in the Preliminary Material that was previously issued.
- You are reminded of the need for good English and clear presentation in your answers. Quality of Written Communication will be assessed in Question 4.



J U N 1 3 4 5 5 0 1 0 1

M/Jun13/45501

45501

There are no questions printed on this page

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



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: Packaging that is used to promote products.

1 Study the Design Brief and Design Specification below.

Design Brief

An electronics company wants to promote its new range of headphones. Each set of headphones is sold in a clear plastic sphere.

The electronics company requires you to design a package that will securely transport, promote and dispense the plastic spheres containing the headphones.

Design Specification

Design a package which must:

- hold a minimum of ten clear plastic spheres which each have a diameter of 50 mm
- securely transport, promote and dispense the ten clear plastic spheres
- be easy to construct from a suitable material.



Turn over ►



1 (a) The design specification from page 3 is repeated opposite.

Sketch with notes **two** creative ideas for the package which will hold the clear plastic spheres. Clearly show constructional details.

Marks will be awarded for:

- **two** different annotated ideas using the design specification (2 × 3 marks)
- quality of sketching (3 marks)
- creative solutions (5 marks)
- notes explaining constructional details. (2 marks)

Do **not** include any surface decoration or colour.

Idea 1



Design Specification

Your idea for a package must:

- hold a minimum of ten clear plastic spheres which each have a diameter of 50 mm
- securely transport, promote and dispense the ten clear plastic spheres
- be easy to construct from a suitable material.

Idea 2**Turn over ▶**

1 (b) Through a sequence of sketches and explanatory notes show how you would develop **one** of your ideas.

Include the surface decoration on the package.

Marks will be awarded for:

- including the name 'AQAtec' in a suitable letter style
- including suitable graphics which promote the products inside
- an indication of colour.

(10 marks)



1 (c) Produce a 3-D presentation drawing of your assembled package from part (b).



(6 marks)

1 (d) Evaluate your final design in part (c) above against **one** of the design specification points given on page 3.

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(3 marks)

Turn over ▶



Section B

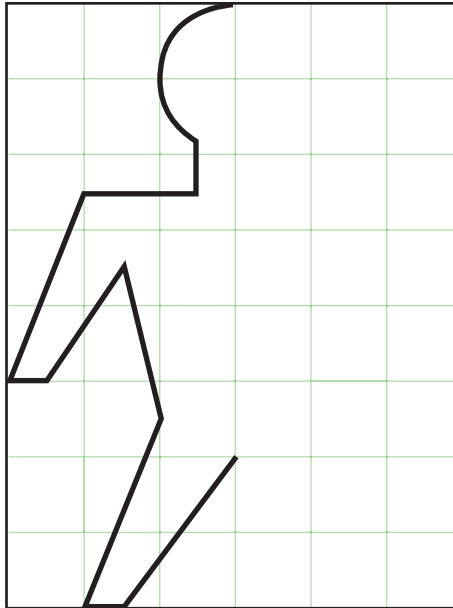
Answer **all** questions in the spaces provided.

This question is about sketching and scale drawings.

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

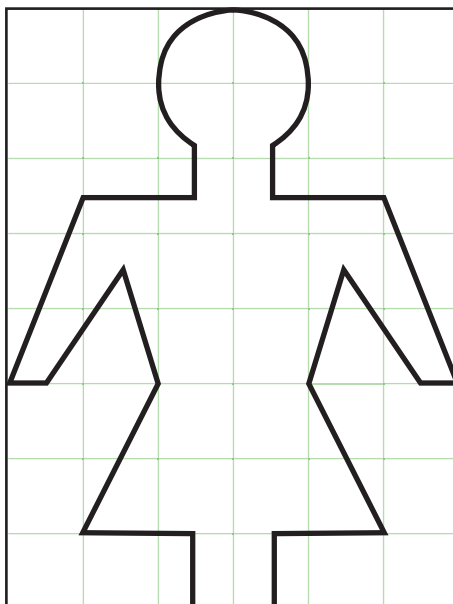
- 2 (a)** The drawing below shows an unfinished design for a sign for the boys' toilet in a school.

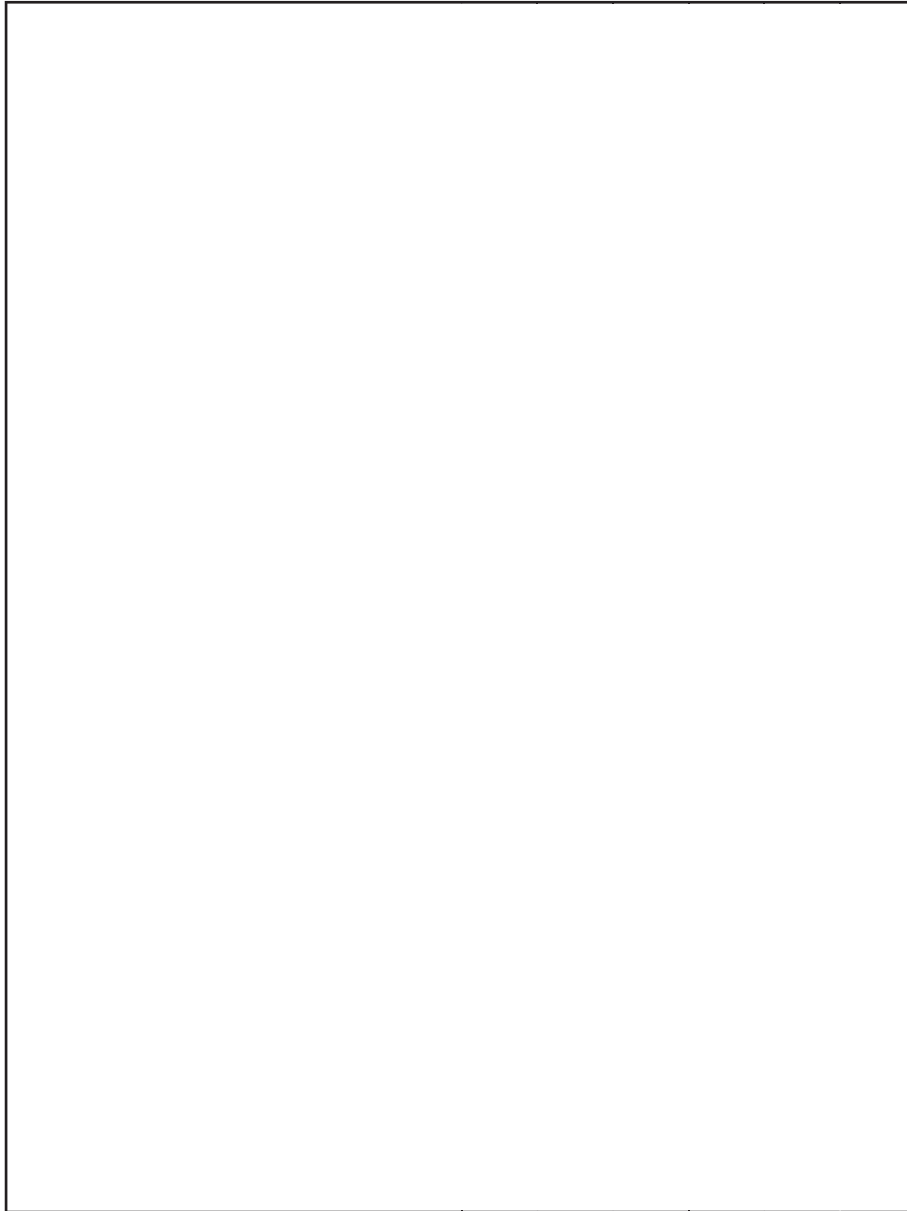
Complete the sign.



(3 marks)

- 2 (b)** A girls' toilet sign is shown below. On the grid opposite enlarge the sign to twice the size of the original.





Scale 2:1

(7 marks)

Question 2 continues on the next page

Turn over ▶



2 (c) (i) Name a suitable material which could be used to make the toilet sign.

.....
(1 mark)

2 (c) (ii) Explain the reason for your choice.

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

2 (c) (iii) Name a piece of Computer-Aided Manufacturing (CAM) equipment which could be used to cut out the sign.

.....
(1 mark)

14



Turn over for the next question

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

Turn over ▶



This question is about the work of designers.

You are advised to spend about 25 minutes on this question.

3 Study the Alessi egg cups shown below.



Alessi S.p.A., Crusinallo, Italy

3 (a) State **three** design requirements of the Alessi egg cups and explain your answer.

An example has been completed for you.

Example: It is hygienic because it is easy to wipe clean

1.....

 (2 marks)

2.....

 (2 marks)

3.....

 (2 marks)



3 (b) How do product designers keep manufacturing costs low? Include an example in your answer.

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

(2 marks)

3 (c) Name a suitable plastic material that could be used to manufacture the Alessi egg cup and give a reason for your choice.

Material

(1 mark)

Reason

.....
.....

(2 marks)

3 (d) Name a suitable block modelling material that could be used to prototype a new egg cup design in a graphic studio.

.....

(1 mark)

Question 3 continues on the next page

Turn over ▶



3 (e) Carefully read the stages below.

Stages

- A** Paint the model with an undercoat of primer.
- B** Cut around the shape.
- C** Draw a plan view of the egg cup on the block modelling material.
- D** Smooth the shape with wet and dry paper.
- E** Cut around the shape.
- F** Finally paint the model with acrylic paint and leave to dry.
- G** Draw a side view of the egg cup on the block modelling material.
- H** Check the shape for faults and apply filler.



On the diagram below put the letters, shown on page 14, in the correct order to show the eight stages of making a block model of a prototype egg cup. Indicate the equipment needed to complete each stage.

Stages 1, 2 and 8 have been done for you.

Stage 1:

Equipment: Permanent pen

Stage 2:

Equipment: Hot wire cutter

Stage 3:

Equipment:

Stage 4:

Equipment:

Stage 5:

Equipment:

Stage 6:

Equipment:

Stage 7:

Equipment:

Stage 8:

Equipment: Extractor

(10 marks)

Turn over ▶



3 (f) (i) Identify the quality control stage in part (e).

Stage
(1 mark)

3 (f) (ii) Explain why the quality control stage is important.

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

25



This question is about materials.

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

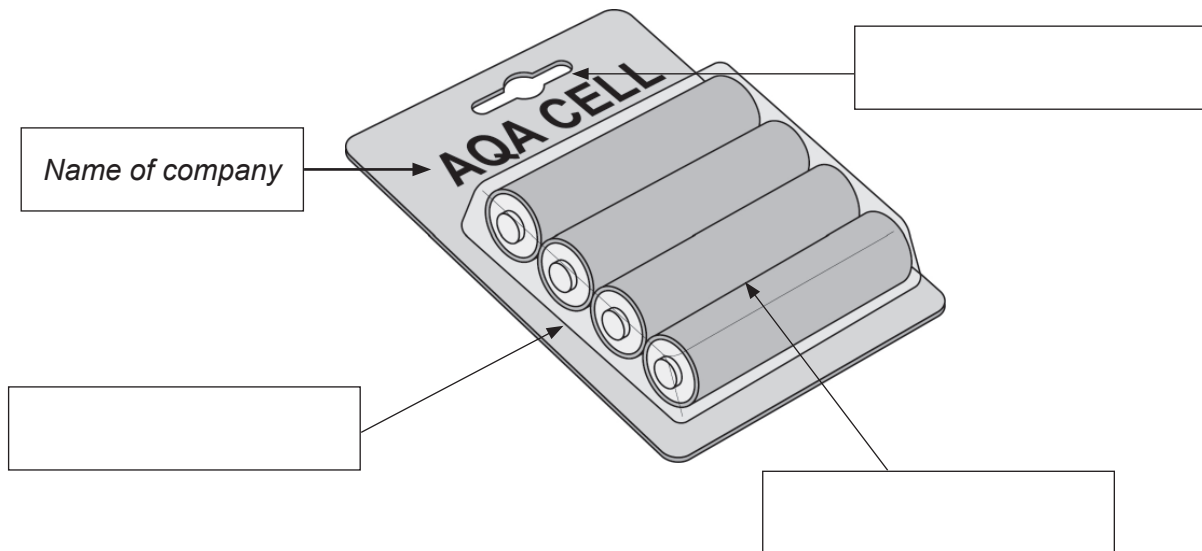
5 (a) (i) Use the following terms to complete the labelling of the packaging below. An example has been completed for you.

Name of company

Euro slot

Backing card

Clear PVC plastic



(2 marks)

5 (a) (ii) What is the name of this type of packaging?

.....
(2 marks)



5 (a) (iii) A clear adhesive is used to make a permanent seal between the moulded clear material and the backing material.

Use notes and sketches to show a different method of holding the two parts.

(4 marks)

5 (b) (i) Name the process of forming a thin sheet of material to resemble the outline shape of the batteries.

.....
(1 mark)

5 (b) (ii) Name a suitable material which can be used to make a mould or former for this purpose and give a reason for your choice.

Material
(1 mark)

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

Turn over ▶



5 (b) (iii) Sketch a suitable mould or former. Label your sketch(es).

(4 marks)

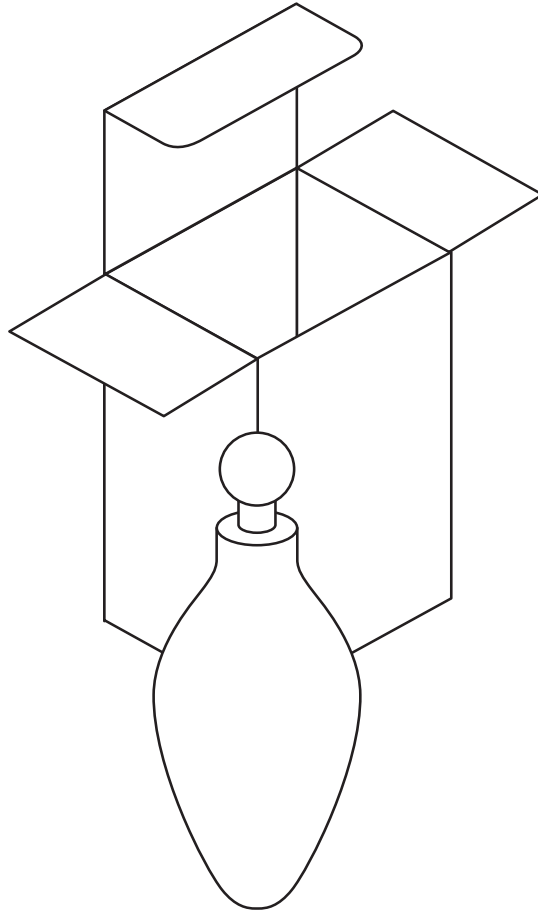
16



This question is about presentation.

You are advised to spend about 5 minutes on this question.

- 6** The packaging used for a glass perfume bottle is a card box.



- 6 (a)** Use thick and thin line emphasis techniques to enhance both the bottle and the card box shown above. *(3 marks)*
- 6 (b)** Render the glass bottle and metal lid to enhance the three-dimensional appearance of the drawing. *(4 marks)*

Turn over ▶



This question is about sequential illustrations.

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

7 Study the hospital poster below.

A4 size poster



NHS

7 (a) (i) Explain why you think this poster was chosen to help stop germs spreading in hospitals.

.....

.....

.....

.....

.....

.....

(3 marks)



7 (a) (ii) The poster is displayed near wash basins on hospital wards and corridors.

Suggest **one** method of protecting the posters so they are easy to keep clean and last a long period of time.

.....

.....

.....

.....

(2 marks)

7 (a) (iii) Give **one** suitable method of attaching the poster to the wall.

.....

(1 mark)

Question 7 continues on the next page

Turn over ▶



- 7 (b) Complete the poster below by drawing diagrams in the three boxes to show how you can help stop germs spreading easily by carrying a tissue.

	<h1>CATCH IT</h1> <p>Germs spread easily. Always carry tissues and use them to catch your cough or sneeze.</p>
	<h1>BIN IT</h1> <p>Germs can live for several hours on tissues. Dispose of your tissue as soon as possible.</p>
	<h1>KILL IT</h1> <p>Hands can transfer germs to every surface you touch. Clean your hands as soon as you can.</p>
<h1>Stop germs spreading</h1>	

(9 marks)

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END OF QUESTIONS

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