

Write your name here

Surname

Other names

Centre Number

Candidate Number

**Edexcel GCSE**

# Design and Technology: Graphic Products

## Unit 2: Knowledge and Understanding of Graphic Products

Tuesday 11 June 2013 – Afternoon  
**Time: 1 hour 30 minutes**

Paper Reference

**5GR02/01**

**You do not need any other materials.**

Total Marks

### Instructions

- Use **black** ink or ball-point pen.
- If pencil is used for diagrams/sketches it must be dark (HB or B). Coloured pens, pencils and highlighter pens must **not** be used.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided  
– *there may be more space than you need.*

### Information

- The total mark for this paper is 80.
- The marks for **each** question are shown in brackets  
– *use this as a guide as to how much time to spend on each question.*
- Questions labelled with an **asterisk** (\*) are ones where the quality of your written communication will be assessed  
– *you should take particular care on these questions with your spelling, punctuation and grammar, as well as the clarity of expression.*

### Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ►

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**PEARSON**

Answer ALL the questions.

For each question 1 to 10, choose an answer A, B, C or D. Put a cross in the box indicating the answer you have chosen . If you change your mind about an answer, put a line through the box  and then mark your new answer with a cross .

1 Which **one** of the following materials is a composite?

- A Tin
- B Steel
- C Aluminium
- D Medium density fibreboard (MDF)

(Total for Question 1 = 1 mark)

2 Which **one** of the sizes given below is **NOT** a common 'A' size of cartridge paper?

- A A5
- B A4
- C A3.5
- D A3

(Total for Question 2 = 1 mark)

3 Which printing process is used to print newspapers?

- A Screen printing
- B Photocopying
- C Gravure
- D Flexography

(Total for Question 3 = 1 mark)

4 Which **one** of the following materials will rust if left outside in the rain?

- A Steel
- B Aluminium
- C Copper
- D Tin

(Total for Question 4 = 1 mark)



5 Which **one** of the following is **NOT** a form of binding?

- A Saddle wire
- B Perfect
- C Hole punching
- D Comb

(Total for Question 5 = 1 mark)

6 Which **one** of the following adhesives is used for joining acrylic to acrylic?

- A Epoxy resin
- B Polystyrene cement
- C Polyvinyl acetate (PVA)
- D Tensol® cement

(Total for Question 6 = 1 mark)

7 What do the initials LCD stand for?

- A Low Carbon Dioxide
- B Light Crystal Display
- C Liquid Crystal Display
- D Low Carbon Display

(Total for Question 7 = 1 mark)

8 Which **one** of the following processes is **least** appropriate for mass production?

- A Vacuum forming
- B Line bending
- C Injection moulding
- D Blow moulding

(Total for Question 8 = 1 mark)



9 Which **one** of the following is a type of renewable energy?

- A Solar
- B Oil
- C Gas
- D Coal

(Total for Question 9 = 1 mark)

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10 Which **one** of the following best describes the 'form' of a product?

- A Ease of use
- B Shape and style
- C Ability to be recycled
- D Purpose

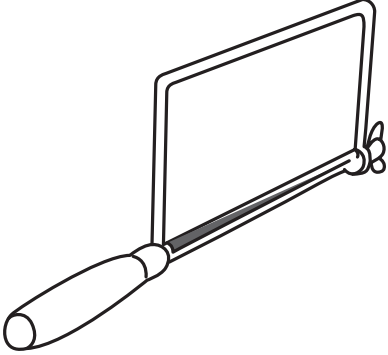
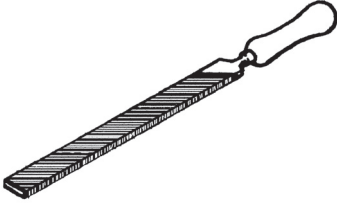
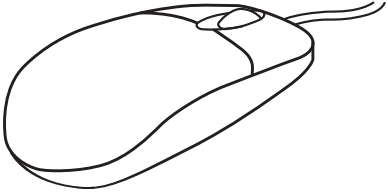
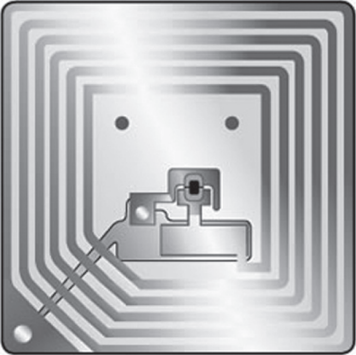
(Total for Question 10 = 1 mark)

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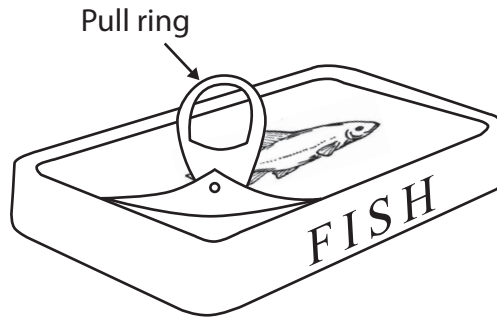
11 (a) The table below shows some tools, equipment and components.

Complete the table below by giving the missing names and uses.

Tools/Equipment/Component	Name	Use
	Coping saw	(1)
	(1)	Creating a smooth finish on acrylic
	(1)	Control device on a computer
	(1)	A method of identifying products



(b) An aluminium food container is shown below.



(i) Give **three** properties of aluminium that make it suitable for the food container.

(3)

- 1 .....
- 2 .....
- 3 .....

(ii) Explain **one** disadvantage of using steel as the material for the food container.

(2)

- .....
- .....
- .....

(iii) The food container was modelled using rapid prototyping.

Name **two** different forms of rapid prototyping.

(2)

- 1 .....
- 2 .....

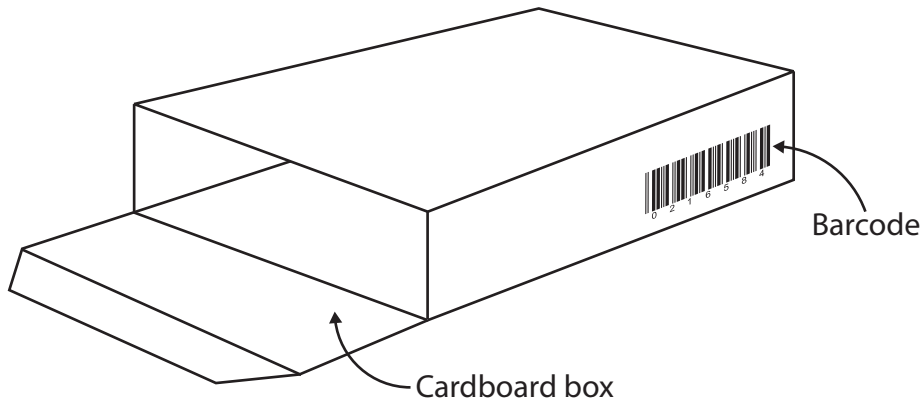
(iv) Explain **one** advantage of modelling the food container using rapid prototyping.

(2)

- .....
- .....
- .....



(c) The food container has a box which is printed with a barcode as shown below.



Give **two** pieces of information which are stored in the barcode.

(2)

1 .....

2 .....

(d) The box was designed using desktop publishing (DTP).

Explain **two** advantages for the designer of using DTP to design the box.

(4)

1 .....

.....

.....

2 .....

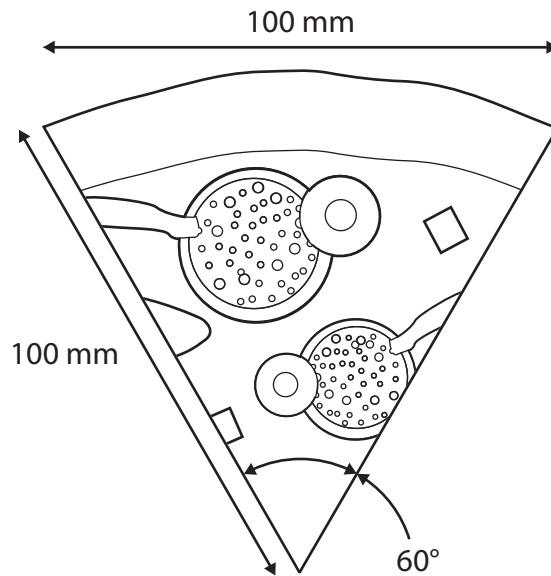
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**(Total for Question 11 = 19 marks)**



12 A new pizza restaurant, 'ProPizza', needs a package for hot takeaway pizza slices.



The specification for the package is that it must:

- be capable of holding two pizza slices
- enclose the pizza slices
- keep the pizza slices warm
- be easy to carry
- include a graphical image to reflect the theme of pizza
- allow the packages to be stacked before they are used
- be printed using commercial printing methods
- be made from a material that can be recycled.

In the spaces opposite, use sketches and, where appropriate, brief notes to show **two different** design ideas for the pizza package that meet the specification points above.

Candidates are reminded that if a pencil is used for diagrams/sketches it must be dark (HB or B).

Coloured pens, pencils and highlighter pens must **not** be used.

**PLEASE DO NOT WRITE OR DRAW IN THIS SPACE.**

**PLEASE USE THE SPACES OPPOSITE FOR YOUR DESIGNS.**





Design idea 1

(8)

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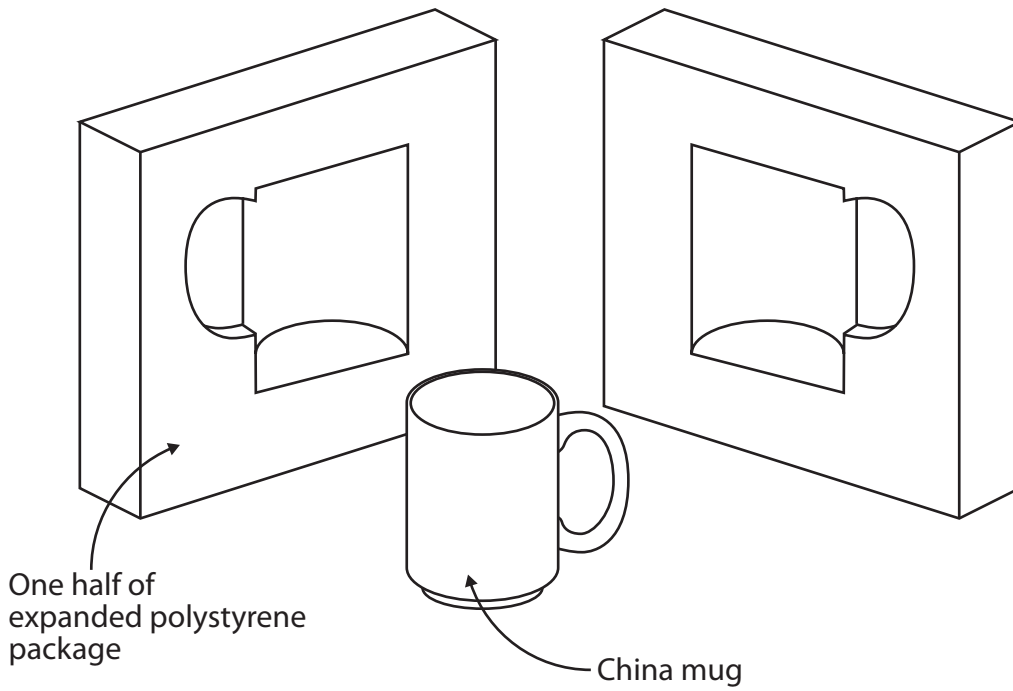
Design idea 2

(8)

**(Total for Question 12 = 16 marks)**



13 A package for sending a china mug through the post is shown below.



(a) Give **two** properties of expanded polystyrene that make it a suitable material for use as a packaging material.

For each property, justify your answer.

(4)

Property 1

Justification

Property 2

Justification



(b) Explain **one** reason why the expanded polystyrene package needs to be put inside a corrugated board sleeve when sending it through the post.

(2)

.....

.....

.....

(c) Explain how the product packaging was successful at meeting the following specification points:

(i) cheap to send in the post

(2)

.....

.....

.....

.....

(ii) protects the product from breaking during transportation.

(2)

.....

.....

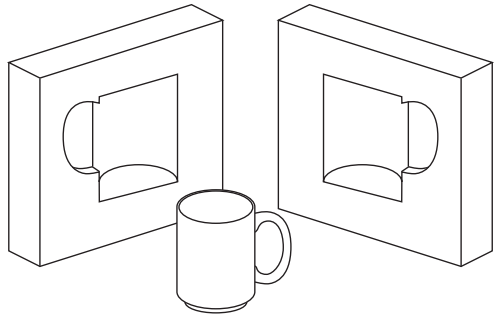
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\*(d) The china mug can be packaged using a variety of materials.

The drawings below show two different types of packaging material for the china mug.



**Packaging Material A**  
(expanded polystyrene)

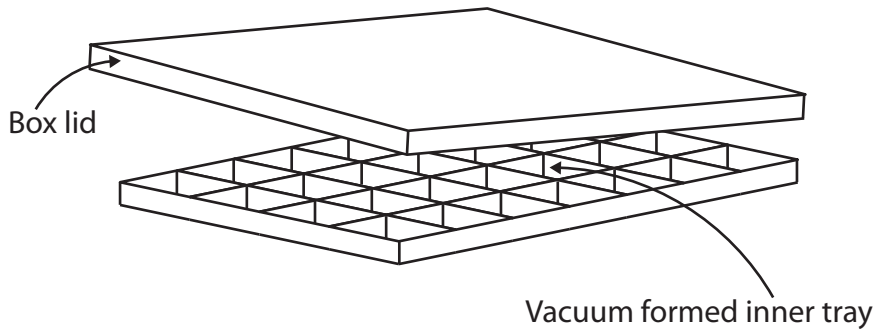


**Packaging Material B**  
(shredded paper/cardboard)





14 A chocolate box is shown below.



(a) The inner tray is made using vacuum forming.

(i) In the space below, use both notes and sketches to describe the vacuum forming process for the inner tray.

(4)

A large, empty rectangular box with rounded corners, intended for a student to write notes and sketches describing the vacuum forming process.

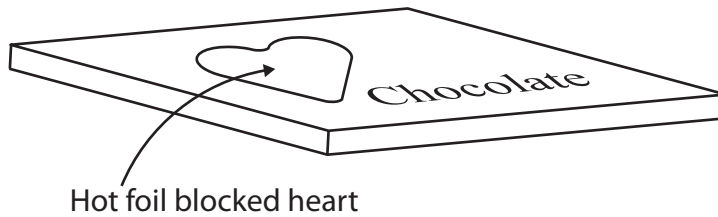
(ii) Give **three** advantages of using vacuum forming for making the chocolate box inner tray.

(3)

- 1 .....
- 2 .....
- 3 .....



(b) The box lid has been finished with hot foil blocking.



(i) Describe **one** advantage and **one** disadvantage of finishing the box lid with hot foil blocking.

(4)

Advantage

.....

.....

.....

Disadvantage

.....

.....

.....

(ii) Give **two** finishing techniques other than hot foil blocking that could be used on the box lid.

(2)

1 .....

2 .....



\* (c) Everyone in today's society is encouraged to recycle their waste.

Discuss the advantages of recycling for the environment.

(6)

Area with horizontal dotted lines for writing the answer.

**(Total for Question 14 = 19 marks)**

**TOTAL FOR PAPER = 80 MARKS**

