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Other names

Pearson
Edexcel GCSE

Centre Number

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Candidate Number

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Design and Technology:
Graphic Products
Unit 2: Knowledge and Understanding of
Graphic Products

Tuesday 20 June 2017 – 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.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ►

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Pearson

Answer ALL questions.

Some questions must be answered with a cross in a box ☒. 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 paper sizes is the smallest?

- A A0
- B A2
- C A3
- D A4

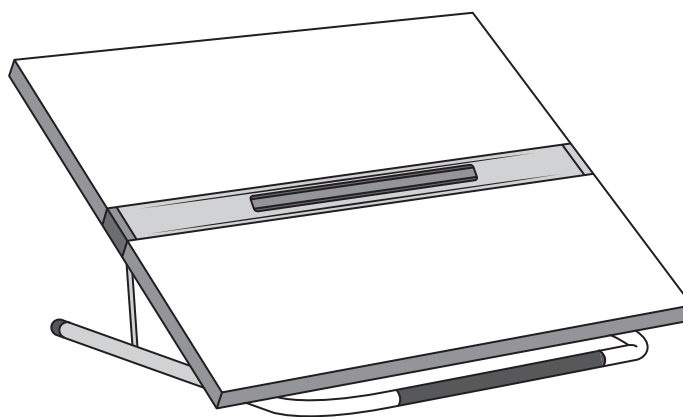
(Total for Question 1 = 1 mark)

2 Which **one** of the following is a composite material?

- A Balsa
- B Pine
- C Acrylic
- D Carbon fibre

(Total for Question 2 = 1 mark)

3 Which piece of equipment is shown below?



- A Ruler
- B Drawing board
- C Set square
- D French curve

(Total for Question 3 = 1 mark)

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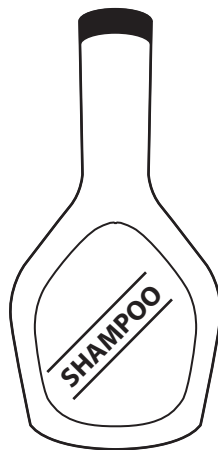


4 Which **one** of the following is most appropriate for joining two 300mm square pieces of MDF when model making?

- A PVA
- B Epoxy resin
- C Tensol[®] cement
- D Polystyrene cement

(Total for Question 4 = 1 mark)

5 Which **one** of the following processes would be used to mass-produce the plastic bottle shown below?



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

(Total for Question 5 = 1 mark)

6 A photovoltaic cell responds to which form of energy?

- A Wind
- B Biomass
- C Tidal
- D Solar

(Total for Question 6 = 1 mark)

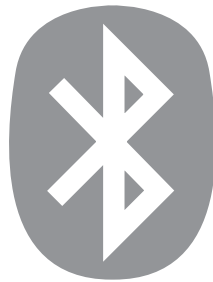


7 The 4Rs for minimising waste production are reduce, recover, recycle and

- A Reuse
- B Renew
- C Repair
- D Replace

(Total for Question 7 = 1 mark)

8 Which type of system is identified by the logo shown below?



- A Bluetooth®
- B Radio frequency identification tags
- C High definition television
- D Desktop publishing

(Total for Question 8 = 1 mark)

9 Which **one** of the following would be used to prototype a one-off 3D design?

- A Injection moulding
- B Blow moulding
- C Stereolithography
- D Vinyl cutting

(Total for Question 9 = 1 mark)

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10 Which **one** of the following modern or smart materials changes colour to give an indication of temperature?

- A** Polymorph
- B** Thermochromic film
- C** Transdermal patches
- D** E-paper

(Total for Question 10 = 1 mark)

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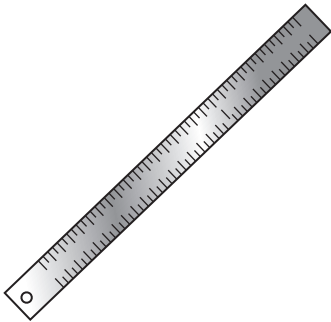
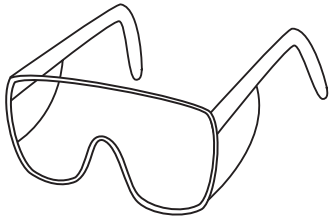
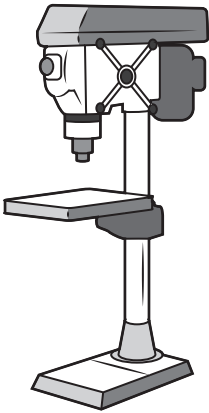
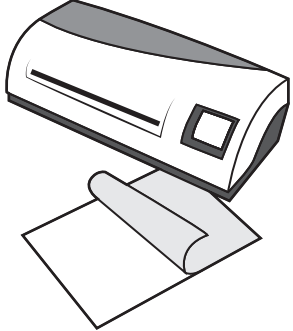
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11 (a) Complete the table below by giving the missing names and uses.

Tools/Equipment	Name	Use
	Steel rule	(1)
	Safety goggles	(1)
	(1)	For drilling holes
	Laminating machine	(1)

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(b) A mass-produced glass bottle containing oil is shown below.

The bottle of oil would be sold in supermarkets.



(i) Give **two** reasons why the glass bottles are mass-produced.

(2)

1

2

(ii) Glass can be recycled.

Give **two** other properties of glass that make it suitable for bottles.

(2)

1

2

(iii) Give **three** benefits to the environment of being able to recycle glass.

(3)

1

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2

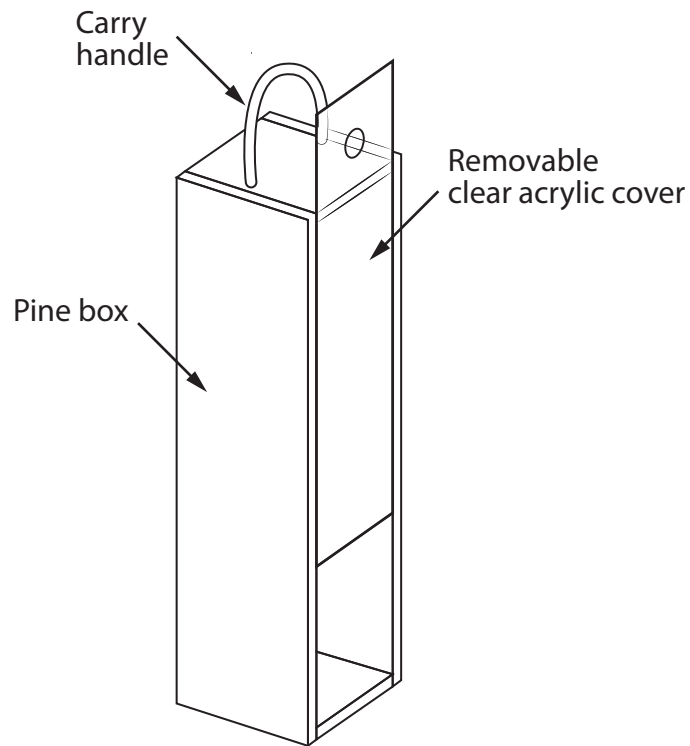
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(c) The manufacturer packages the bottle of oil in a wooden presentation box as shown below.



(i) Explain **two** advantages of using pine for the box rather than MDF.

(4)

1

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(ii) Explain **two** reasons for using clear acrylic for the front of the presentation box.

(4)

1

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(Total for Question 11 = 19 marks)

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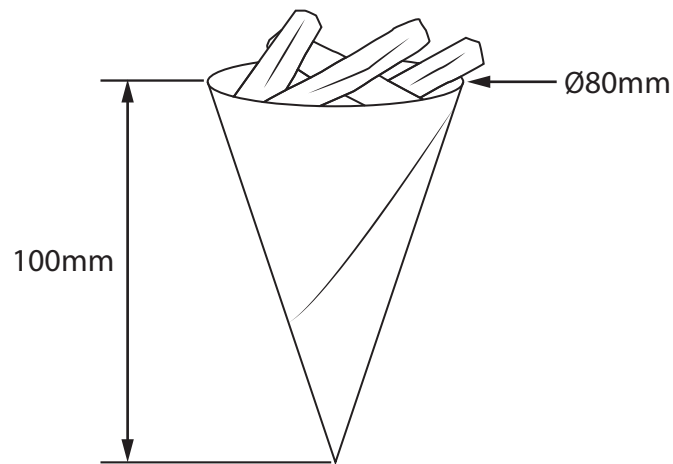
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12 You have been asked to design a point-of-sale display for 'Sue's', a chip shop.

The specification for the point-of-sale display is that it must:

- hold four cones of chips upright
- hold the cones of chips securely
- have a stable base
- be easy to wipe clean
- be easy to get the cones in and out of
- use a display method to show the name 'Sue's'
- be produced from readily available materials
- be manufactured using processes available in school.



In the spaces opposite, use sketches and, where appropriate, brief notes to show **two different** design ideas for the point-of-sale display 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.**

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Design idea 1

(8)

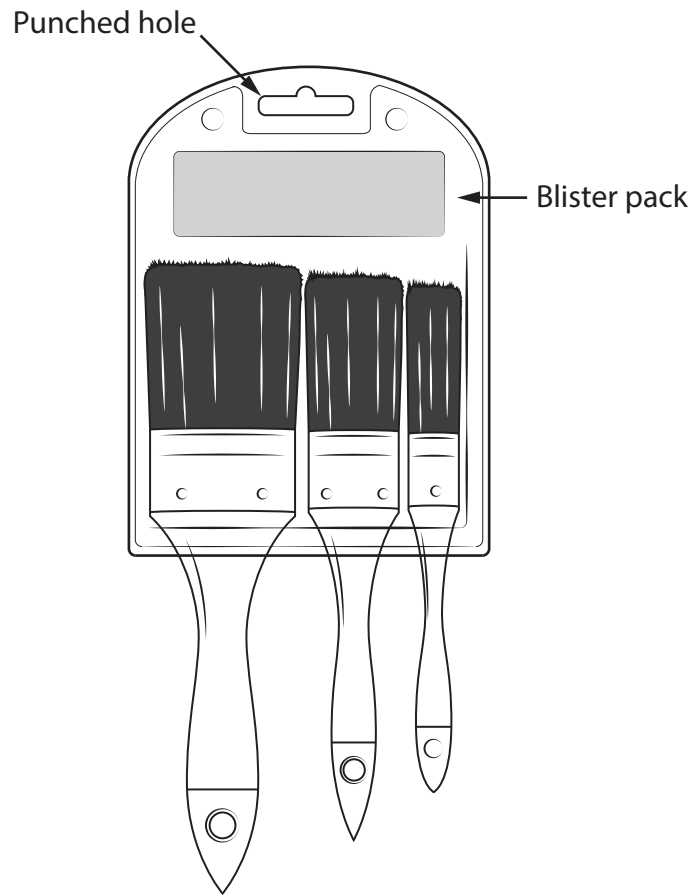
Design idea 2

(8)

(Total for Question 12 = 16 marks)



13 The drawing below shows a set of paintbrushes in a blister pack.



(a) (i) The blister pack has been vacuum formed from rigid polystyrene (PS).

Give **two** properties of rigid polystyrene that make it suitable for the blister pack.

(2)

1

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(ii) Explain **one** advantage and **one** disadvantage of using vacuum forming to manufacture the blister pack.

(4)

Advantage

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Disadvantage

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(b) Explain how the blister pack is successful in meeting the following specification points:

(i) keeping the brushes together

(2)

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(ii) easy to display

(2)

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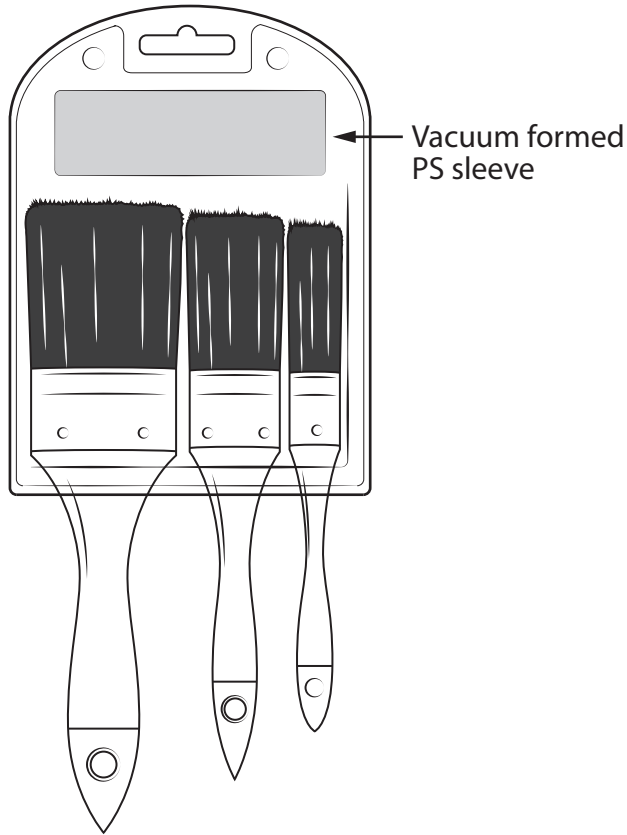
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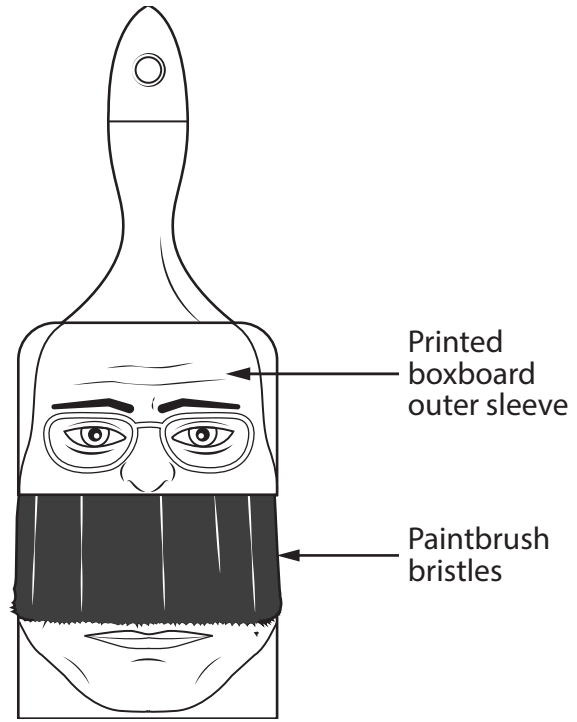
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*(c) The drawing below shows two different types of packaging.



Packaging A – Blister pack



Packaging B – Boxboard sleeve wrapped around the paintbrush

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Evaluate blister pack A in comparison to the boxboard sleeve B in terms of scale of production and sustainability.

(6)

Handwriting practice area with horizontal dotted lines.

(Total for Question 13 = 16 marks)



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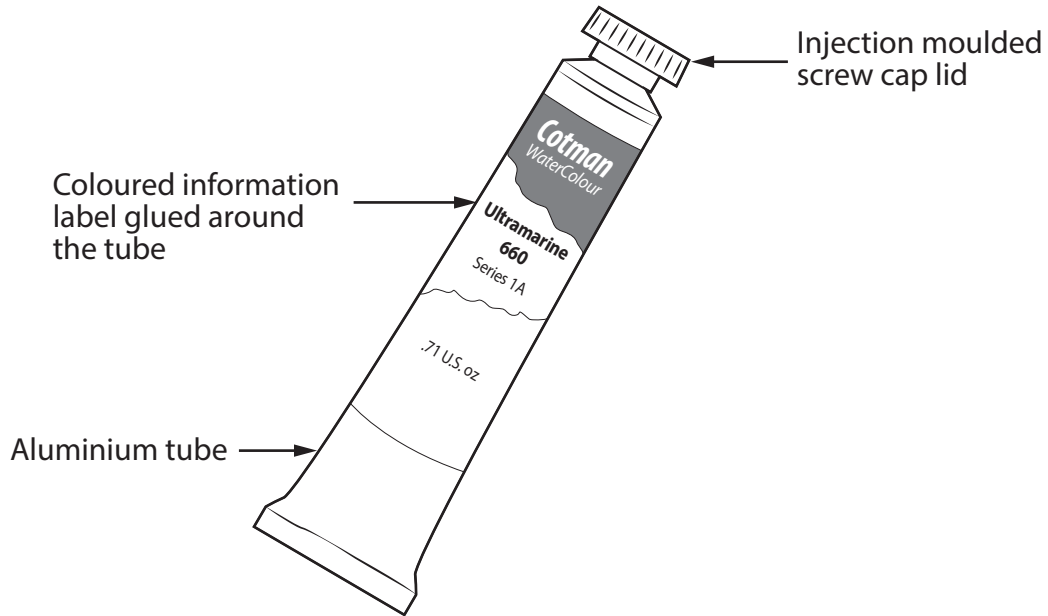
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14 The drawing below shows a tube of artist's paint.



(a) The coloured information label is wrapped around the tube of paint.

(i) Give **one** reason why the information label is applied separately to the tube of paint.

(1)

(ii) Explain **two** reasons why aluminium is used for the paint tube.

(4)

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(b) The screw cap lid is mass-produced by injection moulding.

Explain **two** reasons why injection moulding is a suitable process for making the screw cap lids.

(4)

1

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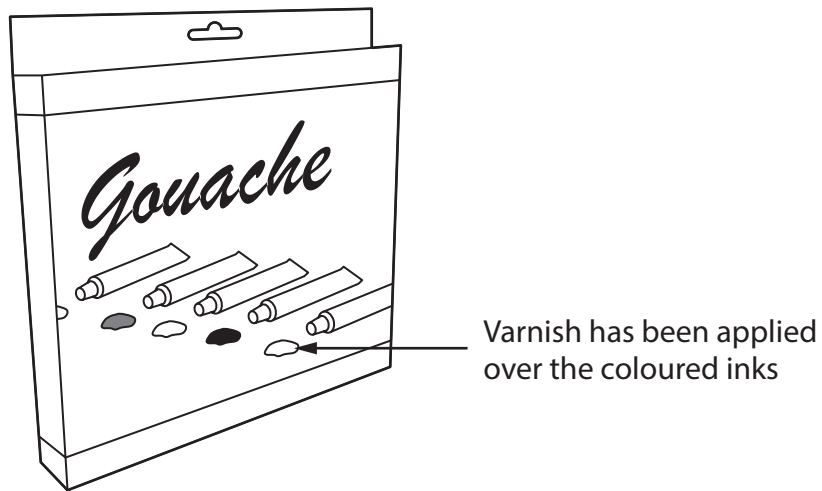
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(c) Sets of different colours of paint are often sold in a box like the one shown below.



Parts of the graphic image on the front of the box have been finished with a layer of varnish.

Explain **two** reasons why parts of the graphic image on the box have been finished with a layer of varnish.

(4)

1

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***(d)** Discuss the advantages and disadvantages of commercial screenprinting.

(6)

[Dotted lines for writing]

(Total for Question 14 = 19 marks)

TOTAL FOR PAPER = 80 MARKS

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