

Write your name here

Surname	Other names
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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

Wednesday 11 June 2014 – 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.*
- You may wish to use a calculator.

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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Answer ALL 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 would be marked on the end of a hard pencil?

- A** HX
- B** H
- C** HZ
- D** HA

(Total for Question 1 = 1 mark)

2 What does CAD stand for?

- A** Computer-assembled design
- B** Computer-analysed design
- C** Computer-aided design
- D** Computer-assessment design

(Total for Question 2 = 1 mark)

3 Which **one** of the following describes Polymorph?

- A** A type of pencil used for drawing
- B** A modern material used for modelling
- C** A method of drawing in CAD
- D** A modelling card

(Total for Question 3 = 1 mark)

4 Which **one** of the following statements describes rendering?

- A** A font style
- B** The application of colour and texture to a virtual 3D model
- C** Annotation and dimensions placed on the drawing
- D** A method of wire frame modelling

(Total for Question 4 = 1 mark)



5 Which **one** of the following is made using blow moulding?

- A Set square
- B Protractor
- C Glue bottle
- D Pencil sharpener

(Total for Question 5 = 1 mark)

6 Which **one** of the following statements describes Jelutong?

- A A hardwood used for modelling
- B A gel used to make paper surfaces shiny
- C A tool used for picking up material
- D A printing technique

(Total for Question 6 = 1 mark)

7 Which **one** of the following statements about acrylic is correct?

- A Can be made into either large sheets, solid rods or tubes
- B Can only be made into either large sheets or solid rods
- C Can only be made into either large sheets or tubes
- D Can only be made into large sheets

(Total for Question 7 = 1 mark)

8 Which **one** of the following statements describes isometric drawing?

- A Front elevation, end elevation and a plan
- B Single pictorial view using 30/60 degree set square
- C Dimensioned orthographic view
- D Perspective view with vanishing points

(Total for Question 8 = 1 mark)



9 Which **one** of the following is used to classify paper?

- A How it is wrapped
- B GSM (grams per square metre)
- C High, Medium or Low printed into the paper
- D Number of sheets

(Total for Question 9 = 1 mark)

10 Which **one** of the following is an international agreement designed to reduce greenhouse gases?

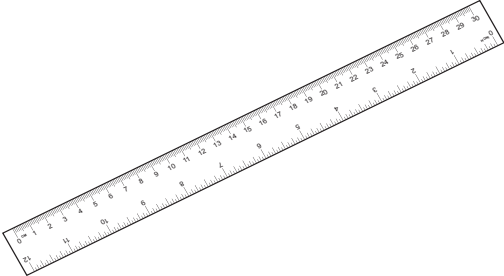
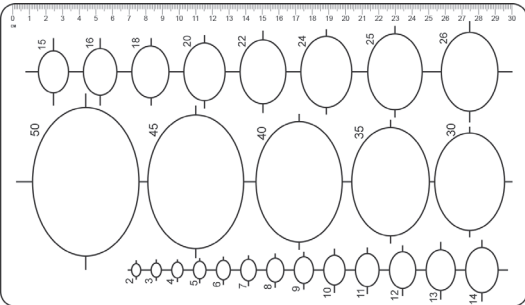
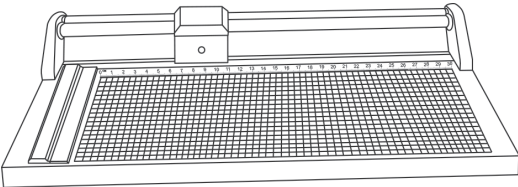
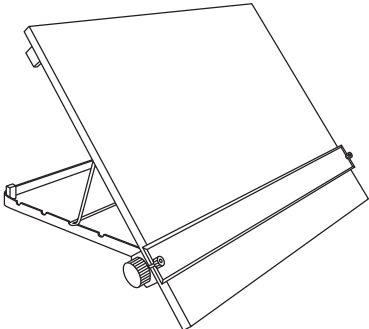
- A The Kyoto Protocol
- B The Krypton Protocol
- C The Controversy Protocol
- D The Greenhouse Protocol

(Total for Question 10 = 1 mark)



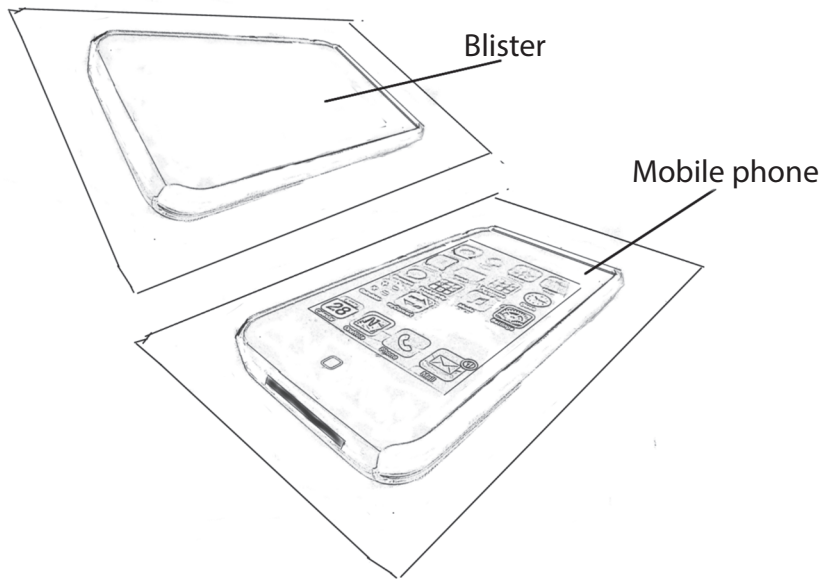
11 (a) The table below shows some tools and equipment.

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

Tools/Equipment	Name	Use
	(1)	<p>A straight edge for drawing lines with a scale for measuring</p>
	<p>Drawing template</p>	(1)
	(1)	<p>Used to accurately cut paper/thin card to size</p>
	(1)	<p>An aid/flat surface for technical drawing</p>



(b) The drawing below shows a model of a mobile phone made of MDF and a vacuum-formed blister pack made from rigid polystyrene.



(i) Give **two** properties that make rigid polystyrene sheets suitable for vacuum forming.

(2)

1

2

(ii) Name **two** suitable methods that could be used to transfer the graphic designs onto the phone.

(2)

1

2

(c) Explain why the sides of a vacuum-forming mould should be smooth and with a slight angle (known as a Draft angle).

(2)

.....

.....

.....

.....



(d) List **three** properties that a material must have to make it suitable for making a vacuum-forming mould.

(3)

- 1
- 2
- 3

(e) Describe an alternative method of producing a model of a mobile phone using ICT.

(2)

-
-
-

(f) Explain **two** advantages of injection moulding when mass producing mobile phones.

(4)

- 1
-
- 2
-

(Total for Question 11 = 19 marks)



12 The national Bug Club provides experts to give talks to primary school pupils. A promotional display is required to advertise the national Bug Club. The logo for the club is shown below:



The club for children interested in insects and creepy crawlies

The specification for the promotional display is that it must:

- have a bug theme
- fit on a surface 500 x 500 mm
- be stable in use
- hold at least 20 membership cards (100 x 80 mm)
- allow easy removal of membership cards
- use a method of applying the Bug Club logo
- use manufacturing processes suitable for one-off production
- use appropriate materials available in a school workshop.

In the spaces opposite, use sketches and, where appropriate, brief notes to show **two different** design ideas for the promotional material 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)

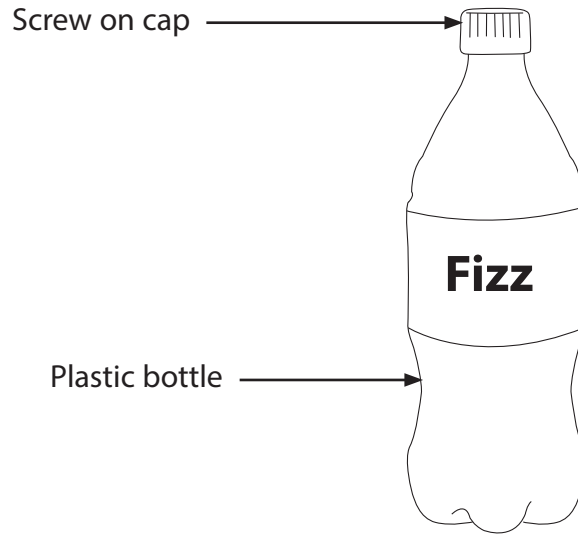
Design idea 2

(8)

(Total for Question 12 = 16 marks)



13 Below is a picture of a fizzy drinks bottle made from Polyethylene Terephthalate (PET) material.



(a) Give **two** properties of PET that make it a suitable material for a fizzy drinks bottle.
For each property, justify your answer.

(4)

Property 1

Justification

Property 2

Justification

(b) Explain **one** advantage of using thermochromic liquid crystals on the label of the bottle.

(2)



(c) Explain why plastic bottles are successful at meeting the following specification points.

(i) Reducing transportation costs

(2)

.....

.....

.....

(ii) Allowing the bottle to be easily opened

(2)

.....

.....

.....



14 A range of greeting cards is shown below. Desktop publishing (DTP) was used when producing ideas for the cards.



(a) Explain **two** advantages of using DTP when designing greeting cards.

(4)

1

2

(b) Describe **one** health and safety issue that must be considered when working at a computer.

(2)

.....

(c) Explain how electronic paper displays (EPDs) could be used to enhance the appearance of a greeting card.

(2)

.....



(d) The gravure printing process is to be used for the commercial printing of the greeting cards.

Using notes and sketches describe the gravure printing process.

(5)



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