

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 29 May 2012 – 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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6/6/6/c4/c4/c5



**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** How was the lettering applied to the side of this car?



- A** Screen-printed
- B** Printed using offset lithography
- C** Laser engraved
- D** Vinyl stickers

**(Total for Question 1 = 1 mark)**

**2** Many sporting events are now available in HDTV.

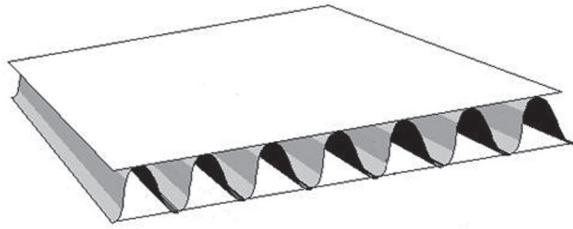
What does HDTV stand for?

- A** Highly developed television
- B** High definition television
- C** Highly detailed television
- D** High directive television

**(Total for Question 2 = 1 mark)**



3 What type of board is shown below?



- A Folding boxboard
- B Carton board
- C Corrugated board
- D Solid white board

(Total for Question 3 = 1 mark)

4 Which **one** of the following adhesives can be used to laminate sheets of MDF together when block modelling?

- A Epoxy resin
- B Polystyrene cement
- C Tensol cement
- D PVA

(Total for Question 4 = 1 mark)

5 Which **one** of the following is **not** one of the '4 Rs' when minimising waste production?

- A Recycle
- B Reuse
- C Remember
- D Recover

(Total for Question 5 = 1 mark)



6 Which **one** of the following processes was used to print the lettering onto the T-shirt?



- A Offset lithography
- B Gravure
- C Screenprinting
- D Photocopying

**(Total for Question 6 = 1 mark)**

7 What is a 'smart' material?

- A A material made up of two or more materials that are combined by bonding.
- B A material made up of several layers laminated together.
- C A material that has been developed through the invention of new or improved technologies.
- D A material that can respond to differences in temperature or light and change in some way as a result.

**(Total for Question 7 = 1 mark)**



8 Which piece of information is **not** included on a barcode?

- A Manufacturer
- B Country of origin
- C Price
- D Brand

(Total for Question 8 = 1 mark)

9 A personalised invitation to the opening night of a new film is to be sent to guests.

Which **one** of the following printing processes would be suitable for producing the invite?

- A Digital printing
- B Gravure
- C Offset lithography
- D Flexography

(Total for Question 9 = 1 mark)

10 What type of network does Bluetooth use?




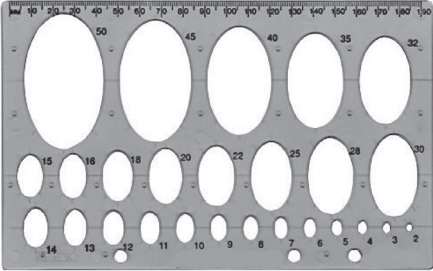
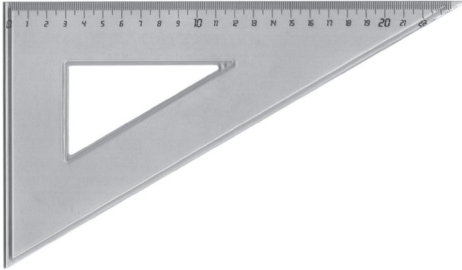

- A Local area network (LAN)
- B Personal area network (PAN)
- C Wide area network (WAN)
- D Virtual private network (VPN)

(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
	Compass	(1)
	(1)	For drawing circles in isometric
	(1)	For drawing in isometric and planometric
	Photocopier	(1)



(b) The diagram below shows a street sign made specifically for a new museum.



(i) The sign is made from aluminium.

Give **one** property of aluminium that makes it suitable for the street sign.

(1)

Property

(ii) Explain **one** reason why steel may not be a suitable material for the street sign.

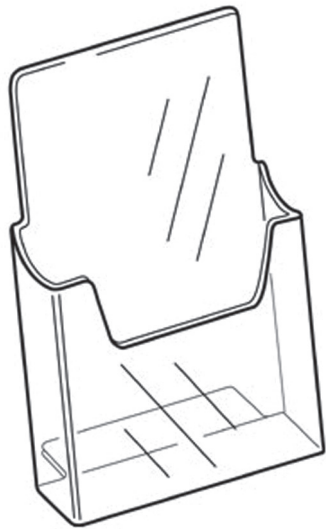
(2)

(iii) Explain **one** reason why a symbol is used in addition to the word on the sign.

(2)



(c) The diagram below shows an acrylic leaflet holder that will be used in the museum.



- (i) Give **one** property of acrylic that makes it suitable for the leaflet holder.  
For your property, give **one** reason for your answer.

(2)

Property

Reason

- (ii) Explain **two** advantages of using a laser cutter to make the leaflet holder compared with traditional cutting methods.

(4)

1 .....

2 .....





(d) A website is used for marketing the museum.



Explain **two** advantages of using the internet for marketing the museum.

(4)

1 .....

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2 .....

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



**12** A new transport museum requires interactive information kiosks to be placed within the building in order for visitors to access information about exhibitions.

**Design specification**

The specification for the interactive information kiosks is that they must:

- Allow for information to be input
- Allow for information to be accessed
- Reflect the theme of the transport
- Be easily recognised from a distance within the museum
- Be suitable for both children and adults to use
- Allow access to the inside of the information kiosk for maintenance
- Use appropriate materials available in a school workshop
- Use manufacturing processes suitable for batch production.

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

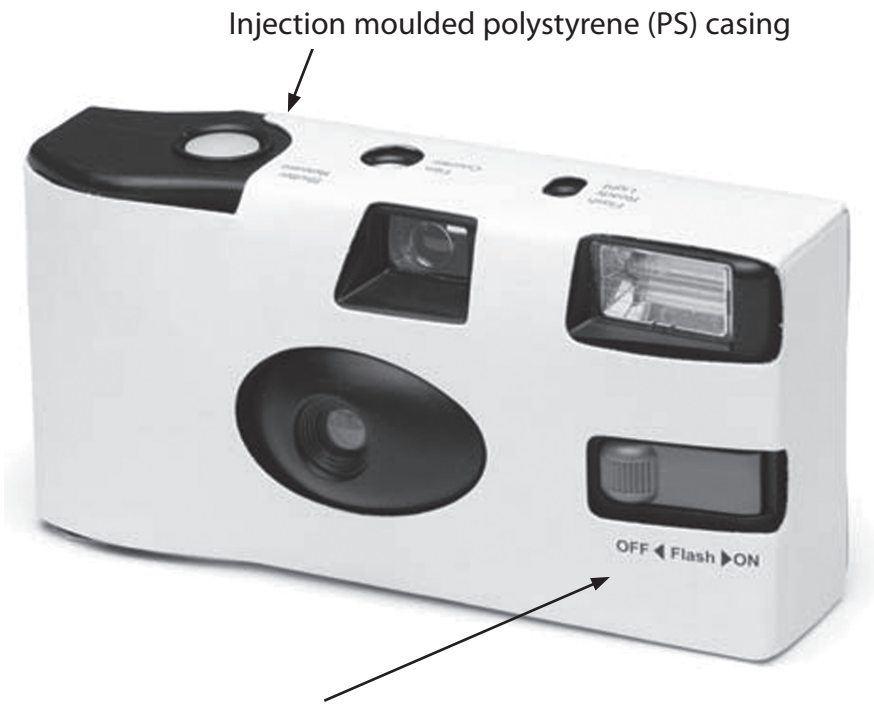
**Design idea 2**

(8)

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



13 The picture below shows a mass produced disposable camera.



Injection moulded polystyrene (PS) casing

Carton board sleeve printed using offset lithography



(a) Give **two** properties of polystyrene (PS) that makes it a suitable material for the casing.

For each property, justify your answer.

(4)

Property 1

Justification

Property 2

Justification

(b) Explain **one** reason why offset lithography is suitable for printing the sleeve.

(2)



(c) Explain why the disposable camera was successful at meeting the following specification points:

(i) Easy to turn on and off.

(2)

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(ii) Capable of being branded for specific events.

(2)

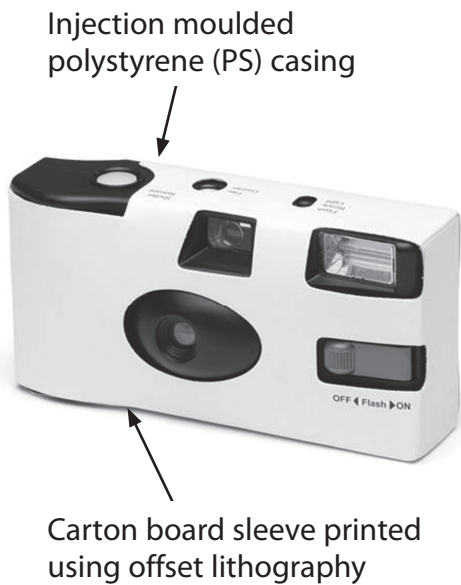
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\*(d) Pictures A and B show two different types of camera.



**A: Disposable camera**



**B: Compact digital camera**





14 The picture below shows a batch produced road bike.



(a) The frame of the road bike is made from carbon-fibre.

(i) Name **one** specific metal that could be used for the frame instead of carbon-fibre.

(1)





(ii) Explain **two** reasons why the frame is made from carbon fibre.

(4)

1 .....

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2 .....

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(iii) Explain **two** advantages of using computer-aided design (CAD) when designing the bike frame.

(4)

1 .....

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P 3 9 4 2 2 A 0 1 7 2 0

(b) Explain **two** reasons why the road bike is batch produced.

(4)

1 .....

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2 .....

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\* (c) The road bike was designed in the USA but made in Taiwan using 'offshore manufacturing'.

Evaluate the use of offshore manufacturing by multinational companies.

(6)

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

**TOTAL FOR PAPER = 80 MARKS**



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