



Oxford Cambridge and RSA

**Wednesday 17 June 2015 – Afternoon**

**GCSE DESIGN AND TECHNOLOGY Graphics**

**A535/01 Sustainability and Technical Aspects of Designing and Making**

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3  
\*

Candidates answer on the Question Paper.

**OCR supplied materials:**

None

**Other materials required:**

None

**Duration:** 1 hour 30 minutes



Candidate forename		Candidate surname	
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Centre number						Candidate number			
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**INSTRUCTIONS TO CANDIDATES**

- Write your name, centre number and candidate number in the boxes above. Please write clearly and in capital letters.
- Use black ink. HB pencil may be used for graphs and diagrams only.
- Answer **all** the questions in Section A and Section B.
- Read each question carefully. Make sure you know what you have to do before starting your answer.
- Write your answer to each question in the space provided. If additional space is required, you should use the lined pages at the end of this booklet. The question number(s) must be clearly shown.
- Do **not** write in the bar codes.

**INFORMATION FOR CANDIDATES**

- The number of marks is given in brackets [ ] at the end of each question or part question.
- The total number of marks for this paper is **80**.
- Your quality of written communication is assessed in questions marked with an asterisk (\*).
- This document consists of **20** pages. Any blank pages are indicated.

**SECTION A**

Answer **all** the questions.

You are advised to spend 40 minutes on this section.

**On questions 1–5 (circle) your answer.**

**1** The process of products, labour and skills becoming more international is known as:

- (a)** Nationalisation
- (b)** Globalisation
- (c)** Economising
- (d)** Enterprising

[1]

**2** The symbol shown means:

- (a)** Keep ears warm
- (b)** Goggles must be worn
- (c)** Headphones are not permitted
- (d)** Ear protection must be worn



[1]

**3** The term disposable means:

- (a)** The product can be consumed
- (b)** The product is not safe
- (c)** The product should be thrown away
- (d)** The product can be regenerated

[1]

**4** Human data in design is called:

- (a)** Eco-design
- (b)** Evolution
- (c)** Carbon Footprint
- (d)** Anthropometrics

[1]

5 Biomass is energy created from:

- (a) The sun
- (b) The sea
- (c) Plant matter
- (d) Chemicals

[1]

6 State what the Green Dot symbol tells you about a product.

..... [1]

7 Name the law that requires employers to control exposure to hazardous substances in the workplace.

..... [1]

8 Which of the 6Rs refers to when a product has been mended?

..... [1]

9 Give **one** benefit of using a low VOC ink.

..... [1]

10 State the term that describes the look and feel of a product.

..... [1]

Decide whether the statements below are **True** or **False**.

Tick (✓) the box to show your answer.

	True	False	
11 Virgin materials have not been recycled	<input type="checkbox"/>	<input type="checkbox"/>	[1]
12 Toxic chemicals are environmentally friendly	<input type="checkbox"/>	<input type="checkbox"/>	[1]
13 Laminated card cannot be recycled	<input type="checkbox"/>	<input type="checkbox"/>	[1]
14 Transportation can create CO <sub>2</sub> emissions	<input type="checkbox"/>	<input type="checkbox"/>	[1]
15 Low pay is beneficial to workers	<input type="checkbox"/>	<input type="checkbox"/>	[1]

16 Fig. 1 shows a poster for a new film.



Fig. 1

(a) Give **two** functions of the poster.

1 .....

2 .....

[2]

(b) (i) Name **one** suitable material for the poster to be printed onto.

..... [1]

(ii) Give **one** environmental benefit of using the named material.

..... [1]

(c) The poster is to be printed in the UK and then shipped worldwide.  
Explain how this might have an impact on the environment.

.....

.....

.....

[2]

(d) The Mobius Loop symbol will be printed onto the poster.  
Sketch the Mobius Loop symbol.

[2]

(e) Explain why the poster will have a limited life cycle.

.....  
.....

[2]

(f) Give **two** examples of primary recycling for the poster.

1 .....  
2 .....

[2]

(g) Describe **one** way that modern technology could be used to rethink the promotion of the film.

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

[2]

(h)\* Discuss the environmental issues caused by disposable products and how they can be addressed by consumers and manufacturers.

Total [35]

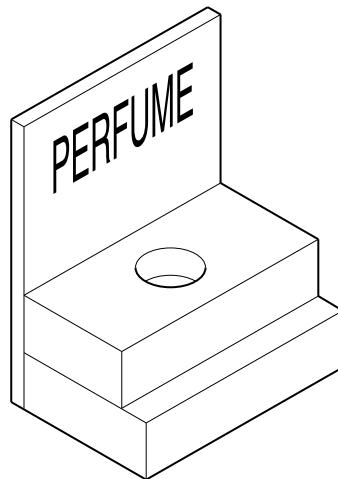
Total [35]

## SECTION B

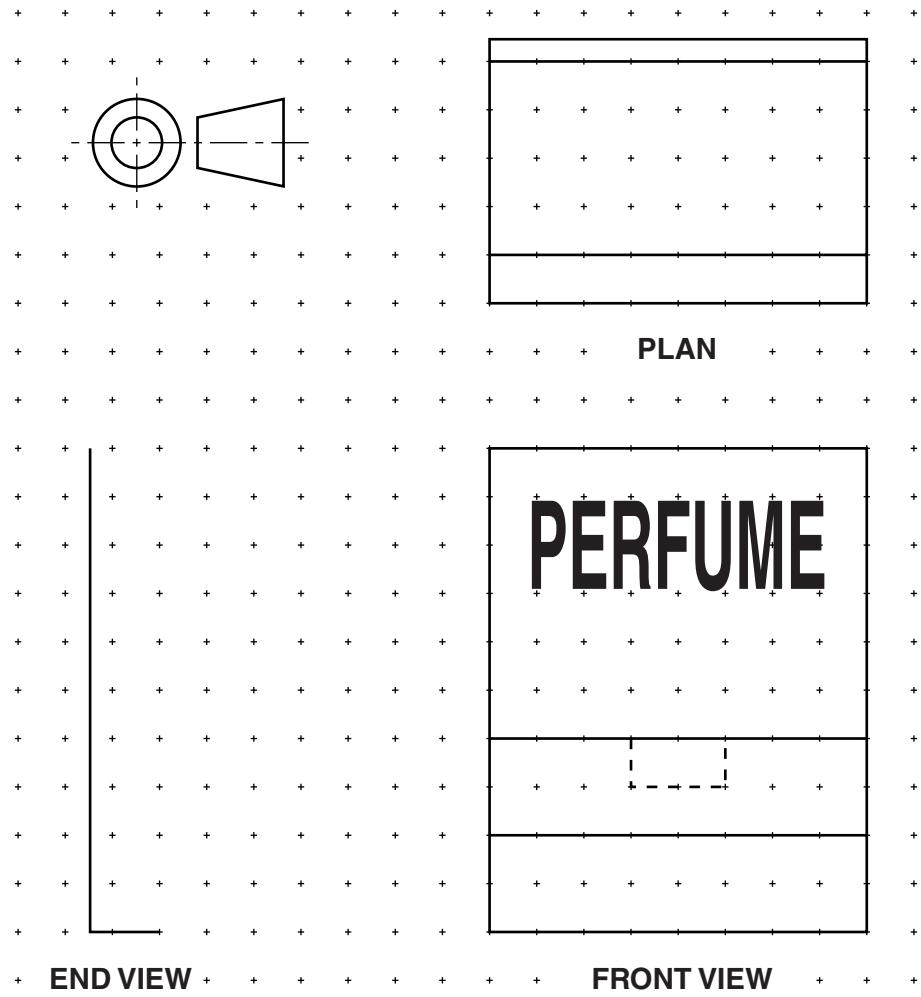
Answer **all** the questions.

You are advised to spend 50 minutes on this section.

17 Fig. 2 shows a point of sale display for a perfume bottle.

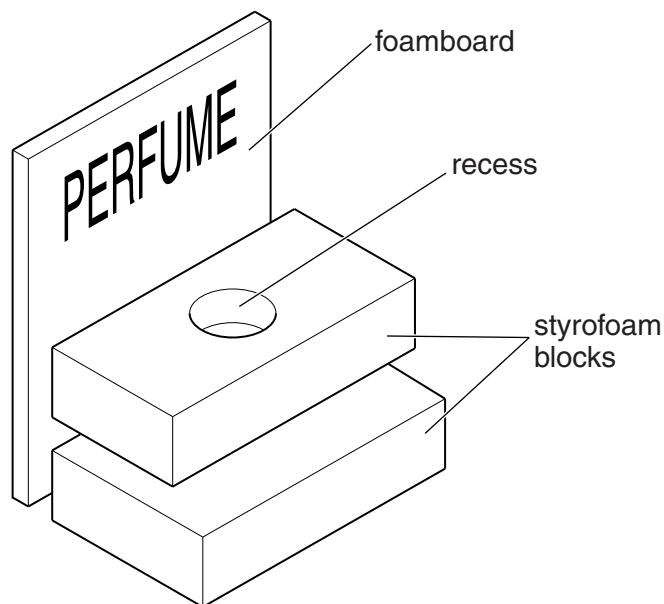
**Fig. 2**

(a) Complete the orthographic view below of the point of sale display shown in Fig. 2.



[5]

The point of sale display is made from separate pieces of foamboard and styrofoam. The pieces are assembled by the shop owner.



(b) State **one** reason why the point of sale display is supplied to the shop owner unassembled.

..... [1]

(c) The table below shows the processes used to manufacture the styrofoam blocks for the point of sale display.

Complete the table by stating **one** tool/item of equipment for each process.

Process	Tool/item of equipment
Marking out the sizes of the blocks	
Cutting the blocks to size	
Smoothing the finish of the blocks	
Joining the blocks together	

[4]

(d) State **one** method of printing the surface graphics onto the foamboard.

..... [1]

10

(e) Smart materials are to be used to make the surface graphics on the point of sale display more appealing.

Explain how the following smart materials work:

Thermochromic inks: .....

.....

.....

Phosphorescent inks: .....

.....

.....

[4]

11

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12

18 Fig. 3 shows a sandwich package made from thin card.

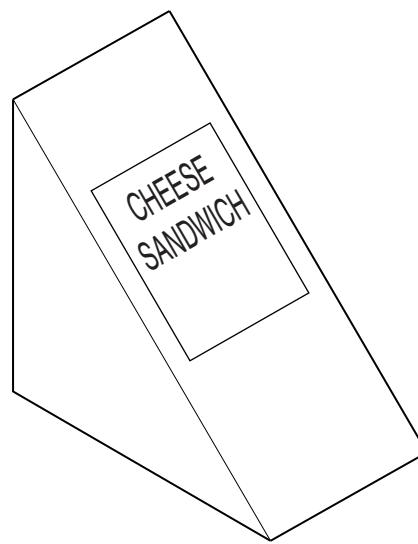
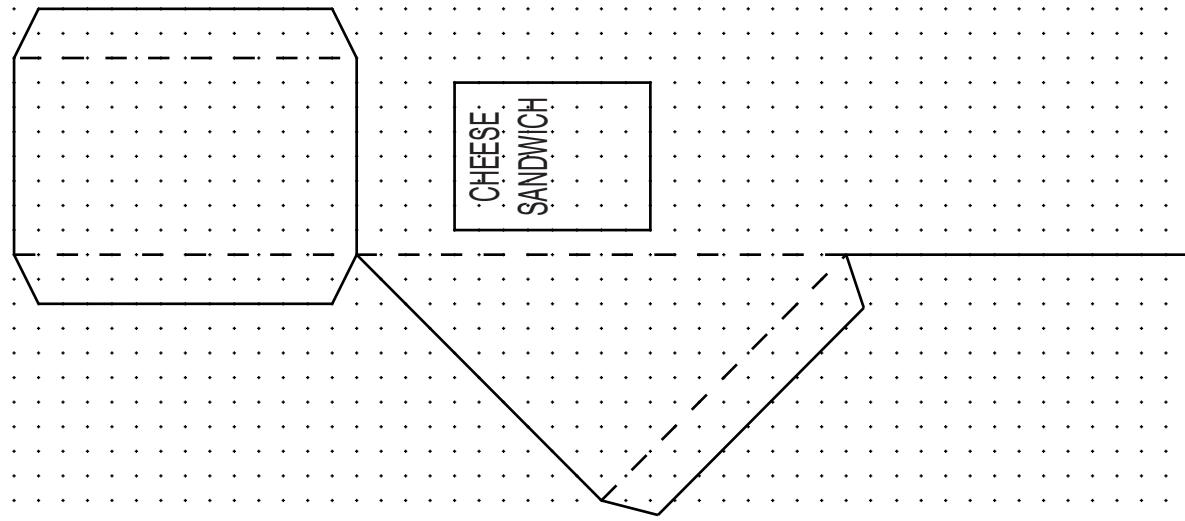


Fig. 3

(a) Complete the development (net) below of the sandwich package shown in Fig. 3.



[5]

13

(b) Give **two** reasons why thin card has been used for the sandwich package.

1 .....

2 .....

[2]

(c) The sandwich package is to be produced in quantities of 5000.

Tick (✓) the most appropriate tool for cutting out the net.

Die Cutter	Laser Cutter	Guillotine

[1]

(d) The card used to make the sandwich package is to have a matt finish.

State what is meant by the term matt finish.

..... [1]

**(e)\*** Fig. 4 shows two sandwich packages.

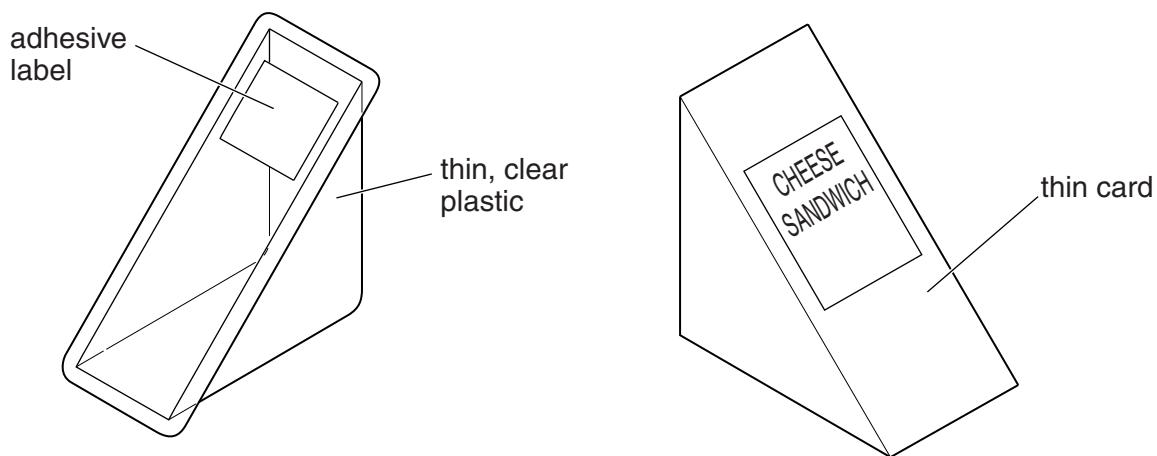


Fig. 4

Compare the different manufacturing processes used to mass produce the two sandwich packages.

. [6]

19 Fig. 5 shows a blister pack for a battery.

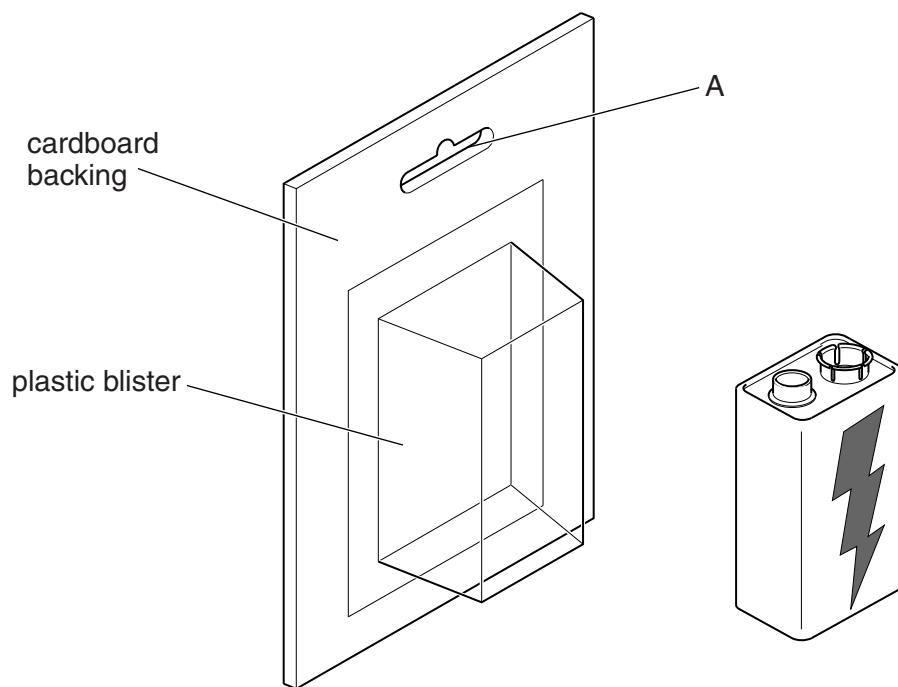


Fig. 5

(a) Name feature A and explain its purpose.

Name: ..... [1]

Purpose: .....  
.....  
..... [2]

(b) State **one** suitable material for the plastic blister.

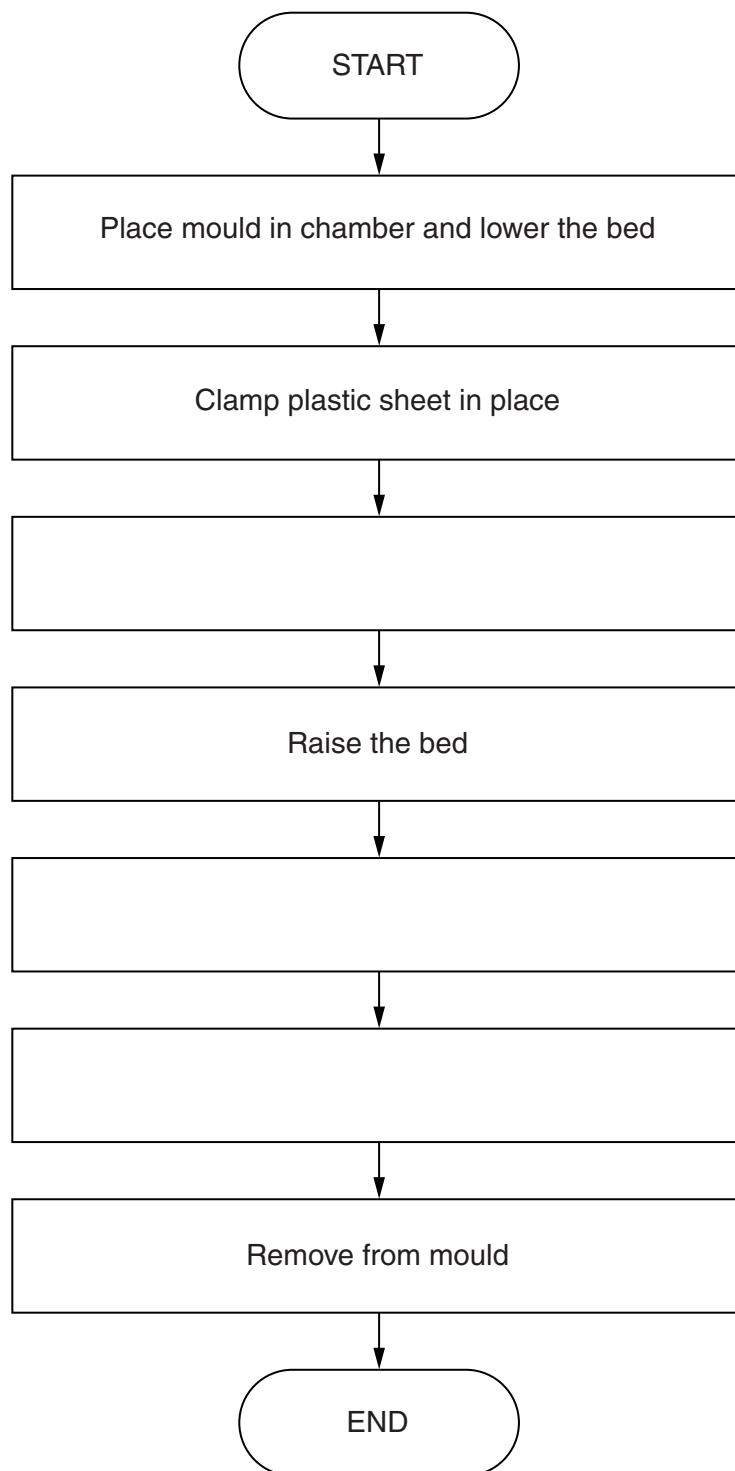
..... [1]

(c) Sketch below a sectional view of the plastic blister.

[2]

(d) Vacuum forming is used to form the plastic blister.

Complete the flowchart below to show the vacuum forming process.



[3]

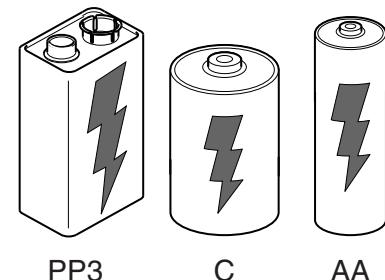
18

(e) A toy shop requires a mechanical sign to show customers the type and number of batteries a toy will need.

Use sketches and notes to show **one** idea for a mechanical sign.

The sign must:

- be made from one A4 sheet of thin card
- include the 'lightning' battery logo in the design
- show the type of batteries the toy takes (AA, C or PP3)
- show the number of batteries it takes (1, 2 or 4)
- include a mechanical method of changing the sign



[6]

**END OF QUESTION PAPER**

**ADDITIONAL ANSWER SPACE**

If additional answer space is required, you should use the following lined page(s). The question number(s) must be clearly shown in the margins.

The page contains a vertical line on the left side and 20 horizontal dotted lines for writing. The lines are evenly spaced and extend across the width of the page.



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