

Surname	Centre Number	Candidate Number
Other Names		0

**GCSE**

4101/01



S17-4101-01

DESIGN AND TECHNOLOGY**UNIT 1****FOCUS AREA: Graphic Products**

TUESDAY, 23 MAY 2017 – MORNING

2 hours

For Examiner's use only		
Question	Maximum Mark	Mark Awarded
Section A	1.	15
	2.	10
	3.	10
	4.	25
Section B	5.	10
	6.	15
	7.	20
	8.	15
Total	120	

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010001**ADDITIONAL MATERIALS**

You will need basic drawing equipment, coloured pencils and a calculator for this examination.

INSTRUCTIONS TO CANDIDATES

Use black ink or black ball-point pen.

Write your name, centre number and candidate number in the spaces at the top of this page.

Answer **all** questions.

Write your answers in the spaces provided in this booklet. Where the space is not sufficient for your answer, continue at the back of the booklet, taking care to number the continuation correctly.

You are reminded of the necessity for good English and orderly presentation in your answers.

INFORMATION FOR CANDIDATES

The number of marks is given in brackets at the end of each question or part-question.

Section A

Marked out of 60 60 minutes

1. This question is about Product Analysis. It is worth a total of 15 marks.

The photographs below show innovative sustainable packaging for different types of products. The material used can only be printed on one side or have a label stuck on.



The packaging pictured above is manufactured from recycled card embedded with seeds. The packaging can be disassembled and planted in the ground as shown below.



(a) (i) Give **one** reason why the seeds are embedded on the inside of the packaging. [1]

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(ii) State why the packaging works best when recycled materials are used. [1]

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(iii) Explain why an increasing number of products are being packaged in this way. [2]

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(iv) The packaging is made using inks and recycled papers that are free from harmful chemicals. Explain why these materials are suitable for this type of packaging. [2]

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(v) Explain what disadvantages there may be when using packaging of this type. [3]

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(b) Describe how the changing attitudes of consumers have influenced the way designers think about the way products are packaged. [3]

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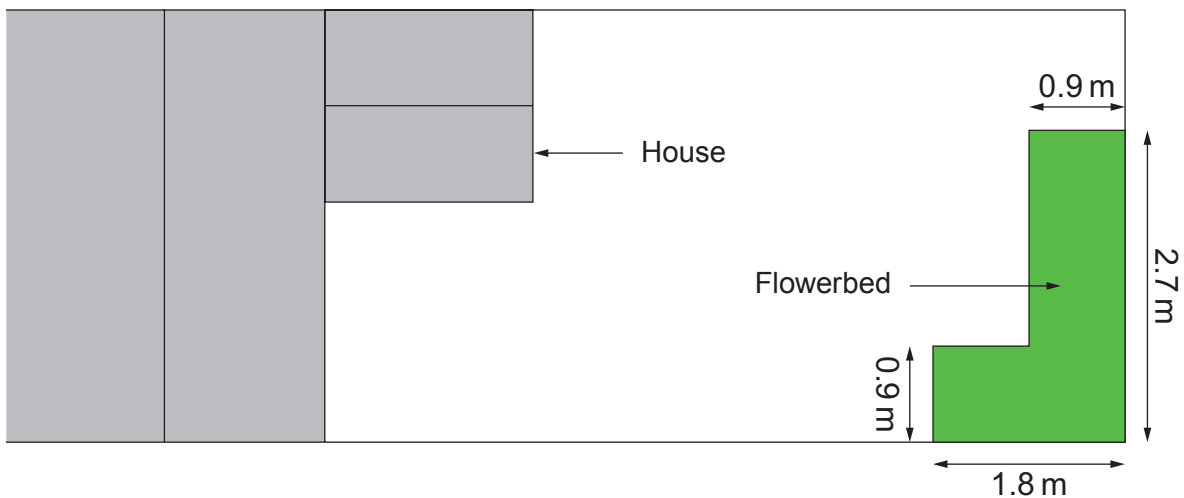
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- (c) An ethical shoe company has decided to package their products using the same sustainable material. When disassembled and planted each shoe box will cover an area of 0.7 m^2 (metres squared).



- (i) State how many m^2 (metres squared) the shoe boxes in the photograph would cover. [1]
-
- (ii) The homeowner of the house pictured below, would like to plant the flowerbed shaded green with the packaging.



- Calculate how many shoe boxes the homeowner would need to plant the flowerbed. (Show all your workings.) [2]

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2. This question is about the general issues of Design & Technology. It is worth a total of 10 marks.

(a) State what a designer can do to determine the environmental impact of a product. [1]

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(b) The products pictured below have been manufactured using recycled paper, recycled plastic and non-toxic organic inks.



(i) Describe why using these materials in Graphic Products is now commonplace. [3]

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(ii) Explain what you understand by the term 'Reuse' when thinking about sustainable design. [2]

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(c) (i) Draw a line to the correct description of the symbol shown below. [1]



The symbol is shown on all products that meet European standards.

The symbol is shown on all products that use rechargeable batteries.

(ii) Describe why the work of the BSI and the CEN is important. [3]

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4. This question is about the Design Process and how it is used. It is worth a total of 25 marks.

(a) (i) State **two** reasons why designers consider a product's target market before designing.

Reason I: [1]

Reason II: [1]

(ii) Explain how analysing an existing product can help a designer. [2]

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(b) Explain why it is important for a designer to write a design specification. [3]

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- (c) A new medical smart phone app has been launched that helps patients remember to take the correct dose of their medication at the correct time.



The app needs an icon like those pictured above, and an 'infographics' instruction page that provides an easy start guide for the user that uses sequence diagrams (illustrations instead of words).

The company states that:

- the icon must represent the app's purpose;
- uses no more than 2 colours;
- be bold enough to be found easily on a screen full of apps.

- (i) Draw your design for the app icon in the box below.

[3]

A large, empty rectangular box with a thin black border, intended for the student to draw their app icon design.

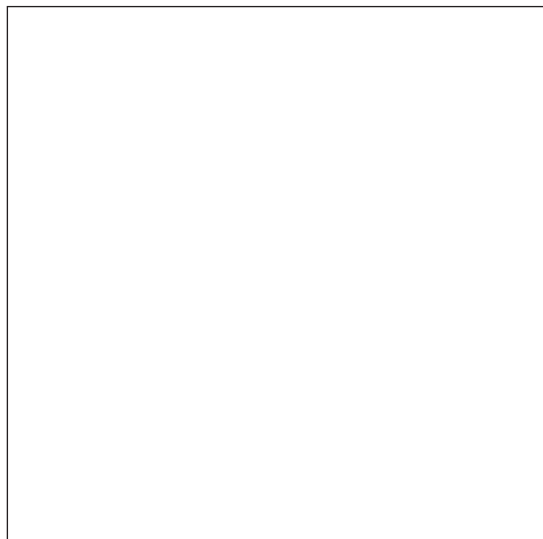
In the spaces provided design your solutions for the easy start 'infographics' guide using sequence diagrams, like the example shown.



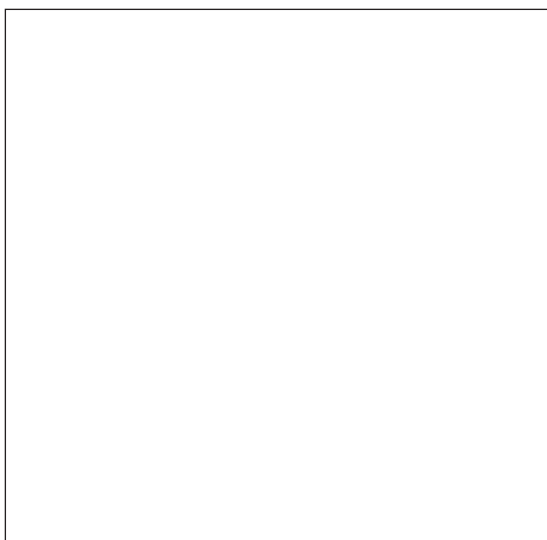
Marks will be awarded for:

- (ii) clear and understandable graphics that represent each step;
- (iii) quality of drawing and presentation.

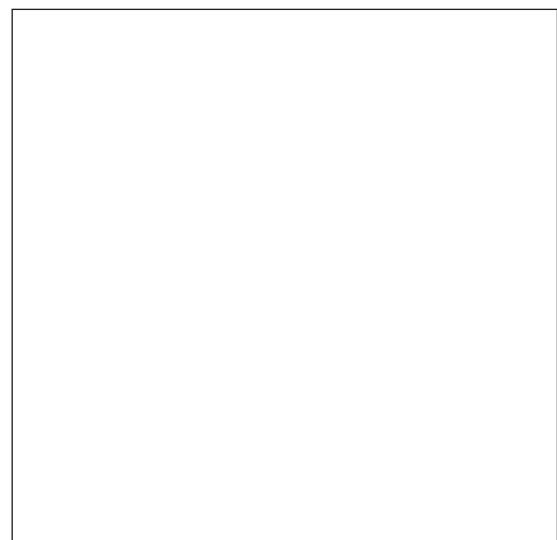
3 x [3]
3 x [2]



Open up the app.



Set the dosage from the drop down menu.



Set the time you need your medicine.

Section B

Marked out of 60 60 minutes

5. This question is about Commercial Manufacturing Processes. It is worth a total of 10 marks.

(a) (i) State the best scale of production used for producing monthly magazines.



Scale of production: [1]

(ii) The publisher needs to organise the pages in order, before it can be printed. Underline the correct word for this process. [1]

Imposition

Reorder

Crop

(b) Using the words below identify the correct printing method for **each** product shown. 3 x[1]

Flexography

Offset Lithography

Rotogravure

Xerography

<p>Newspapers</p>	<p>Book Covers</p>	<p>Plastic Carrier Bags</p>
<p>.....</p>	<p>.....</p>	<p>.....</p>

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(c) Explain what would happen during the finishing stage of the commercial printing process. [2]

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(d) Describe what you understand by the term 'colour separation'. [3]

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6. This question is about Materials and Components. It is worth a total of 15 marks.

(a) State the name of **one** composite material you would use in Graphic Products. [1]

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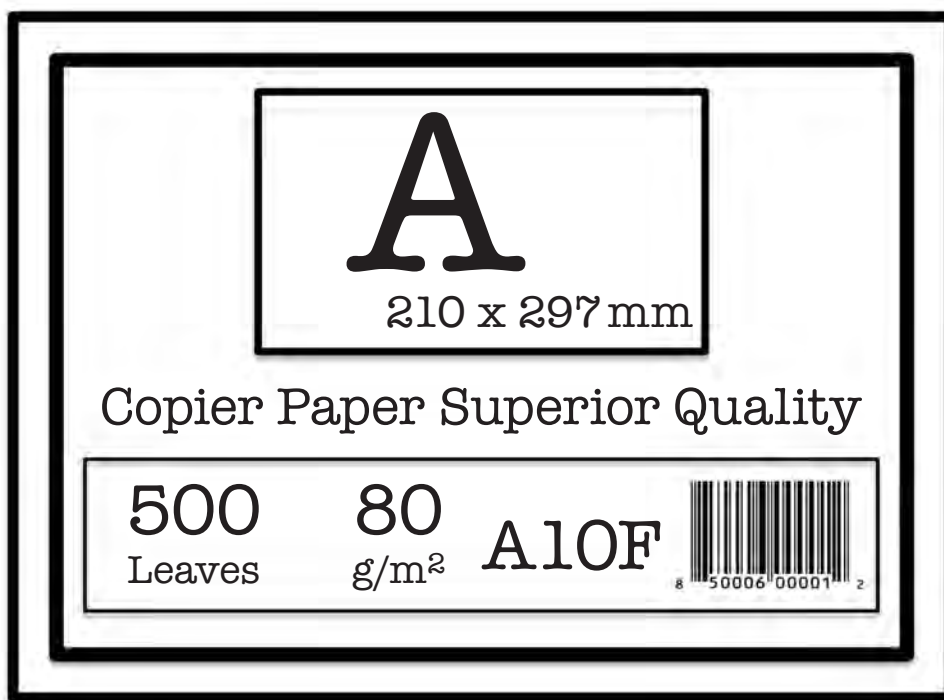
(b) The label below is from a packet of paper.

(i) Complete the paper size **A**

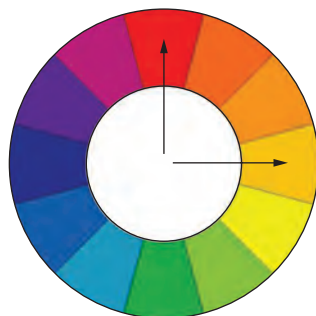
[1]

(ii) State the weight of the paper:

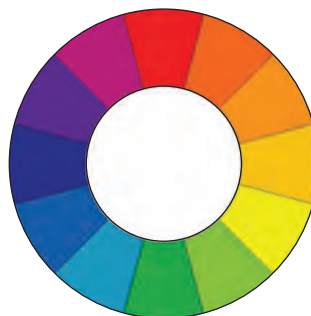
[1]



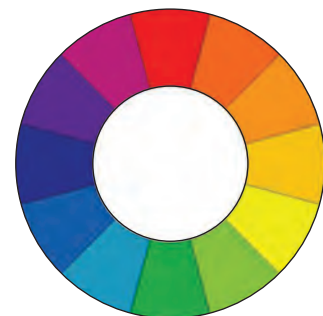
(c) (i) Draw arrows between the colours on the colour wheels that best represent each colour system. The first has been done for you. 2 x [1]



Discordant Colour System



Complementary Colour System



Triadic Colour Palette

(ii) Explain what a monochromatic colour scheme is. [2]

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(iii) Explain what happens to a material that is thermochromic. [2]

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(d) (i) From the list below complete the table by adding the correct category of type for the examples shown. 3 x [1]

Decorative Script Modern Sans Serif Oldstyle

<p>Playbill</p> <p>STENCIL</p> <p>Chalkduster</p> <p>Papyrus</p>	<p>Franklin Gothic</p> <p>Futura</p> <p>Helvetica</p> <p>Century Gothic</p>	<p>Palatino</p> <p>Garamond</p> <p>Baskerville</p> <p>Times</p>
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(ii) Describe in detail a suitable use for a legible typeface. [3]

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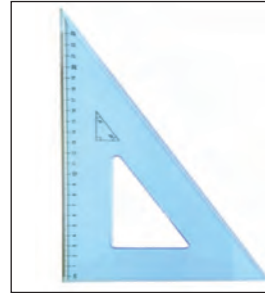
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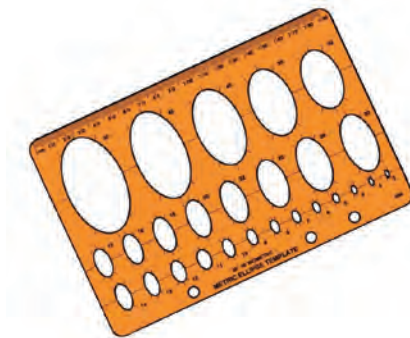
7. This question is about Tools, Equipment and Making. It is worth a total of 20 marks.

(a) (i) Name the **two** pieces of equipment pictured below that you would use to render your work. 2 x [1]



I: II:

(ii) State the correct name of the shapes the template pictured helps you draw. [2]



Name

(b) (i) The prototype luggage tags pictured need to be manufactured by hand.



List the **four** pieces of equipment needed to do this safely. 4 x [1]

1.
2.
3.
4.

- (ii) Other than making manufacturing quicker, explain the benefit of using a template to manufacture the prototype luggage tags. [2]

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- (iii) Twelve of the prototype luggage tags can be cut from one piece of A3 card. Describe **one** advantage to the manufacturer. [2]

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- (c) The image below is made up of two separate photographs blended together.



- (i) State the most suitable type of computer software to do this. [1]

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- (ii) Explain why this is the most suitable type of software to use. [2]

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(d) Explain the purpose of a rollover link.

[2]

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(e) Describe why and how you would use layers in different types of software.

[3]

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8. This question is about ICT, CAD, CAM, Systems and Processes. It is worth a total of 15 marks.

(a) The following image is to be published on a website.



(i) From the list below complete the dialogue box showing the most appropriate resolution to use. [1]

- 250
- 72
- 1500

Document size:

Width	<input type="text" value="136.56"/>	<input type="text" value="mm"/>	▼	}	®
Height	<input type="text" value="91.42"/>	<input type="text" value="mm"/>	▼		
Resolution	<input style="border: 2px solid red;" type="text" value="....."/>	<input type="text" value="pixels/inch"/>	▼		

(ii) Explain why it is important to use the correct resolution when saving an image to a website. [2]

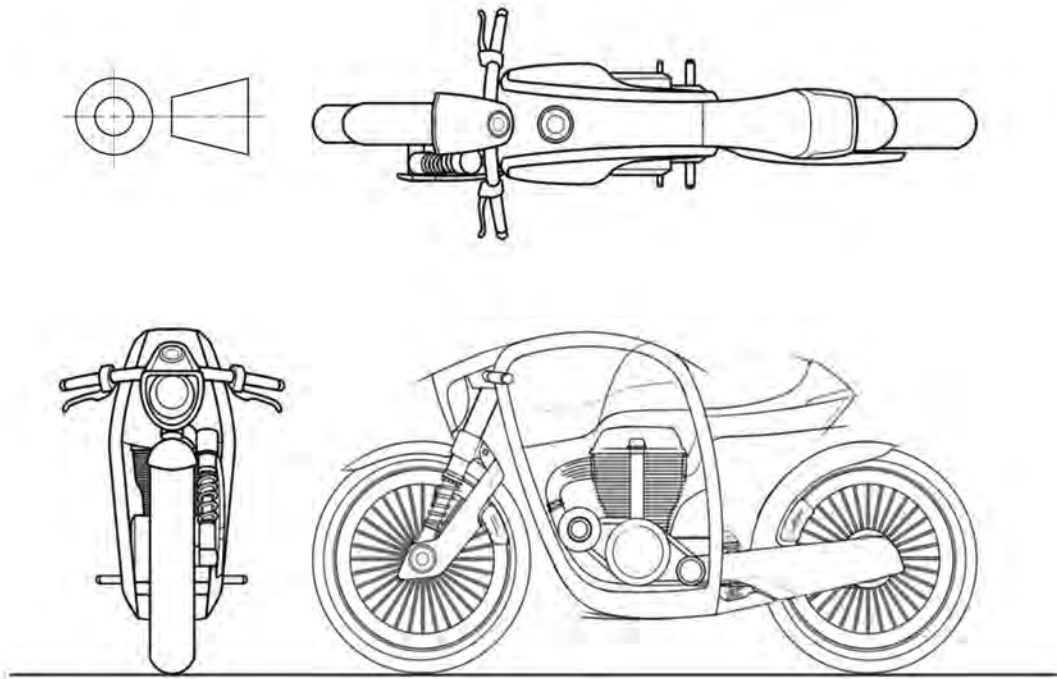
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(b) State the full name of the type of drawing pictured below.

[2]



Drawing name:

(c) In the spaces provided below make a sketch of an A4 leaflet folded to **each** of the named folds. 2 x [2]

Barrel Fold	Accordion Fold

- (d) A tissue company has released a range of decorative and seasonal boxes in unusual shapes. Examples are pictured below.



In the space below accurately draw the most cost effective net for the box. [6]

Marks will be awarded for showing all gluing tabs, fold lines and perforated openings, overall sizes should be estimated.

END OF PAPER

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A series of horizontal dotted lines for writing, spanning the width of the page.