

Surname	Centre Number	Candidate Number
Other Names		0

**GCSE**

4101/01

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

P.M. FRIDAY, 23 May 2014

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 book, 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

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

The photograph below shows a variety of drinks cartons.
The questions that follow are about the drinks cartons.



- The drinks cartons are available in a variety of sizes.
- The drinks cartons are manufactured from renewable paperboard, a thin plastic laminate and aluminium.
- Some drinks cartons have a plastic cap.

- (a) (i) State **one** reason why the drinks cartons come in a variety of sizes. [1]

.....

.....

- (ii) State the name of a suitable plastic that could be used as a laminate on the drinks cartons. [1]

.....

(b) Write a detailed specification point for **each** of the following design considerations related to the drinks cartons.

(i) The function of the drinks cartons. [2]

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.....

(ii) The safety of the drinks cartons. [2]

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.....

(c) (i) Explain why the manufacturer uses renewable paperboard. [2]

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.....

(ii) The manufacturer's packaging displays the following logo. The logo belongs to the Forest Stewardship Council.



Explain why manufacturers are displaying logos like this on the side of their packaging. [2]

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.....
.....

(d) Explain why the drinks cartons contain a thin layer of aluminium foil.

[2]

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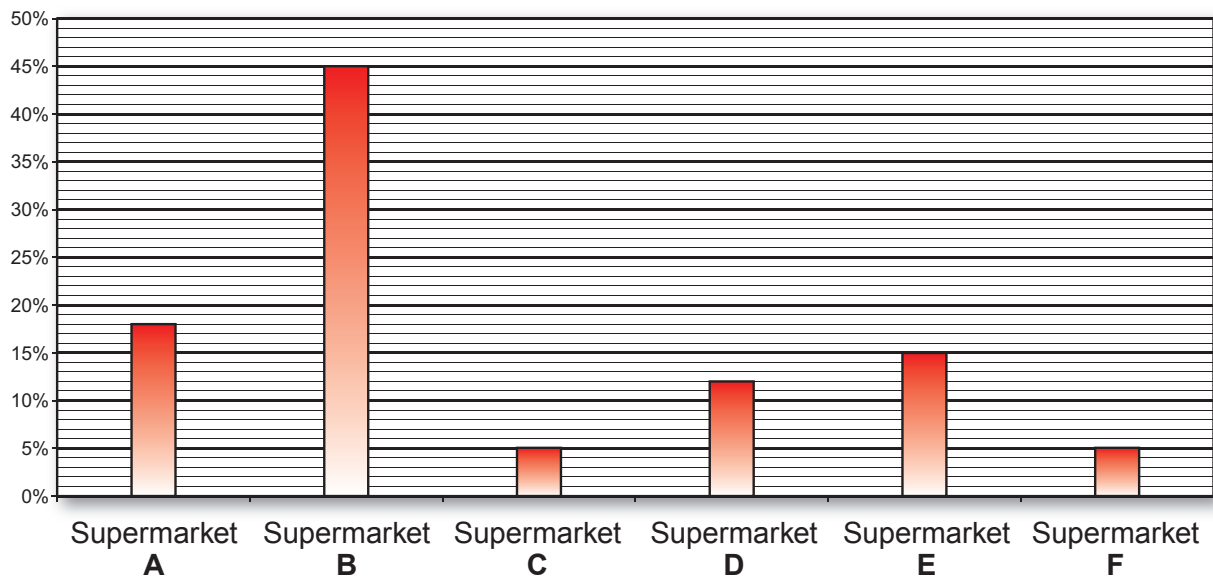
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(e) The graph below shows the percentage sales of the drinks cartons by six leading supermarkets. 5000 litres were sold over a 2 day period. Study the graph and answer the questions that follow.



(i) State which **three** supermarkets' sales combined equal the sales of the highest selling supermarket. [1]

(ii) Calculate how many more litres Supermarket **B** sold than Supermarket **E**.
(Show all your workings.) [2]

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

(a) The six Rs are very important considerations when designing any product.

(i) In the table below, state which of the Rs fits the description. 3 × [1]

<i>R</i>	<i>Description</i>
.....	Extending a product's life by replacing parts that may be broken.
.....	Helping to protect valuable resources, by cutting down the amount of materials used.
.....	Is there a better way to answer a brief that is less damaging to the environment?

(ii) Explain why it is important for a designer to use the six Rs. [2]

.....

.....

.....

(b) (i) Place a **tick (✓)** in the box next to the correct number for the standard for drawing practice. [1]

PP8888-1:2007 PP2007-8888 BS:0888-07

(ii) State the function of the organisation British Standards Institution (BSI). [1]



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.....

(c) Explain what happens when designers carry out a Life Cycle Analysis. [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) Place the following stages of the design process in the order you would complete them.
One has been done for you. [2]

Making Developing Ideas Design Specification

- 1.
- 2. **Developing Ideas**
- 3.

- (ii) Explain how identifying a target audience could help a designer when designing a new product. [2]

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- (iii) Describe how the use of new technologies and materials has changed the way designers can design graphic products. [3]

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- (b) 'Fli-Hi' airline have asked you to design their logo and design the packaging for their inflight comfort packs.

The packaging will contain the following items.

 <p>When folded items measure 150mm × 100mm</p>	1 × Neck Cushion
	1 × Eye Mask (In pouch)
	2 × Wet Wipes
	1 × Ear Plugs
	1 × Earphones (In pouch)

Design a logo for the airline that:

- (i) uses the airline's name 'Fli-Hi' and an image that represents air travel; [2]
- (ii) uses no more than **three** colours to keep printing costs low. [1]

Draw your logo in the space provided.

- (c) Draw an innovative solution for the packaging of the comfort pack in the spaces provided below.

Marks will be awarded for:

- | | |
|---|-----|
| (i) a fully detailed innovative solution for the packaging; | [4] |
| (ii) an annotated sketch of the opening/closing mechanism of the packaging; | [4] |
| (iii) suitable sizes and materials; | [3] |
| (iv) an appropriate position of the 'Fli-Hi' logo; | [2] |
| (v) the quality of the drawing and presentation. | [2] |

Your design for the packaging.

Opening/closing method.

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) There are three stages in commercial printing. **Underline** the second stage of the process. [1]

On Press

Finishing

Pre-Press

- (ii) State the method used to cut out the stickers below. [1]



Method:

- (iii) State at which stage of the commercial printing process this would be done. [1]

Stage:

- (b) Below is a table of printing processes. Complete the table to identify a product that is printed using each of the processes named. *The first has been done for you.* [2]

Printing Process	Product
Roto Gravure	Glossy Magazine
Offset Lithography
Flexography

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(c) (i) Explain what you understand by the term 'imposition'.

[2]

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.....

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(ii) Describe what happens during the finishing stage of a commercial printing process.

[3]

.....

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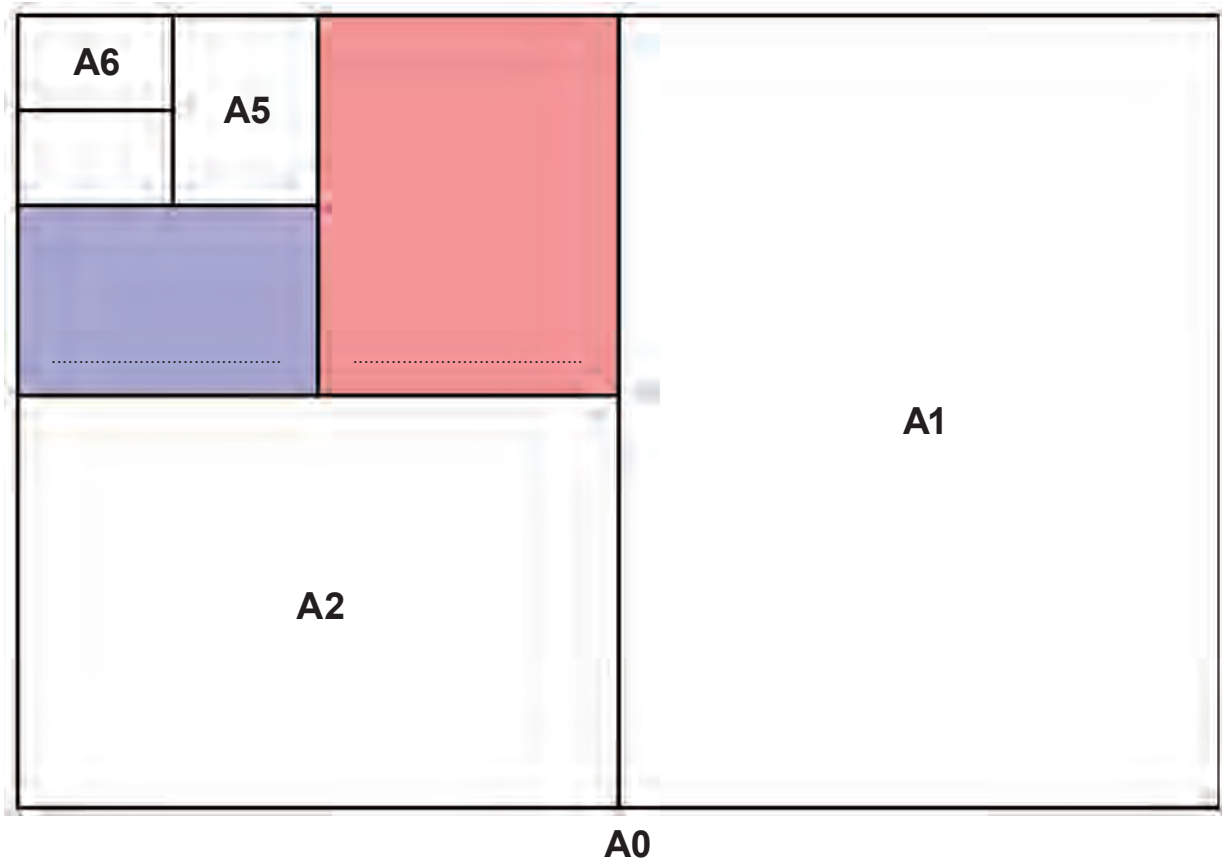
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6. This question is about Materials and Components. It is worth a total of 15 marks.

- (a) (i) Study the image below and label the missing ISO paper sizes in the spaces provided.
Some have been done for you. [2]



- (ii) Paper is measured in GSM. Fill in the blanks to complete the meaning of GSM. [2]

Grams per S **M**

- (b) (i) Draw and label dotted lines on the word below to indicate **both** the x-height and the cap height. [2]

Rhys

(ii) Typefaces are categorised into different groups. Choosing from the words below, label **each** sign to indicate which category of type has been used.

OLDSTYLE

MODERN

SCRIPT

SANS SERIF



..... [1] [1] [1]

(c) (i) State the name of the colour scheme illustrated by the colour wheel below.



Name [1]

(ii) Describe what is meant by the term 'saturation' when referring to colour. [2]

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

(iii) CMYK and RGB are abbreviations of different colour systems.

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Explain, in detail, the difference between CMYK and RGB systems.

[3]

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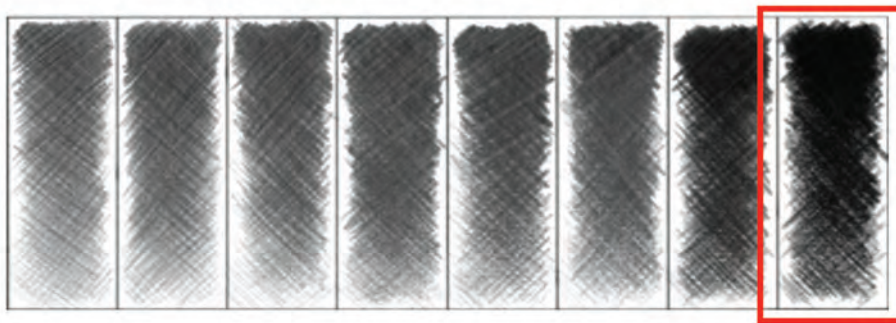
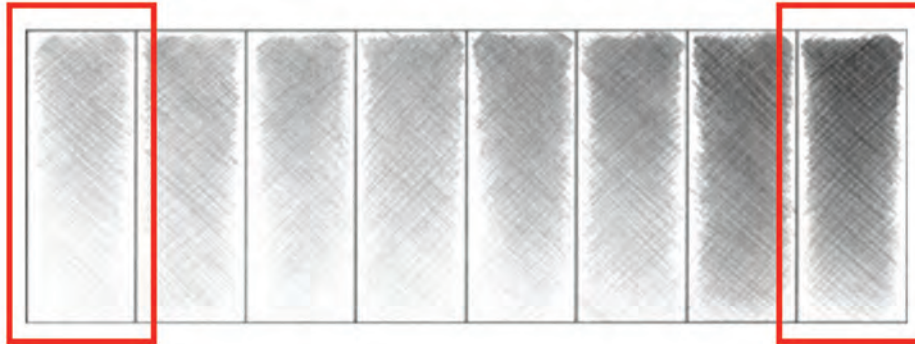
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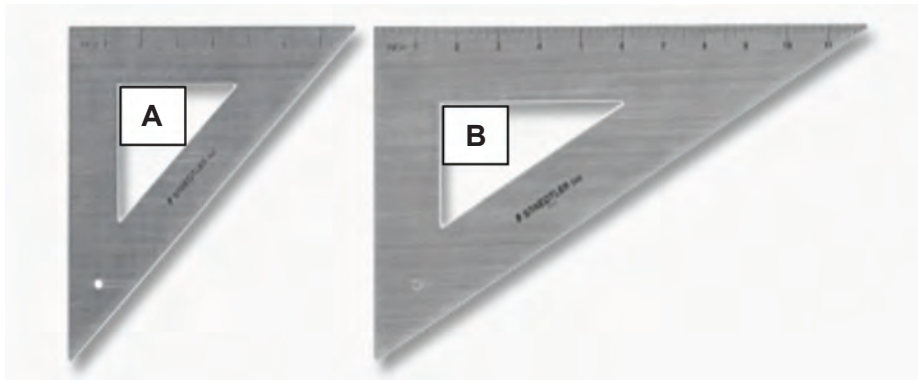
.....

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

(a) Label the illustrations below of different pencil grades. State which of the grades in the red box is the **hardest** grade, the **softest** grade and the **hard black (HB)**. [3]



(b)

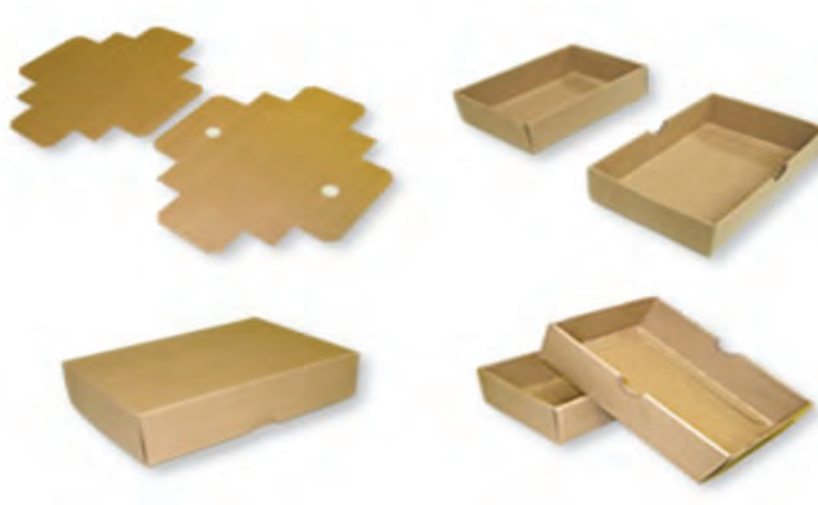


The picture above shows two set squares. Fill in the missing information to complete the table below.

[2]

Set Square	Angles of Set Square
A
B

- (c) The images below show a prototype for a box in net form and folded into shape. The prototype was made out of 500 micron boxboard.



Outline how the following step would be done by hand.

- (i) Scoring and Folding. [2]

.....

.....

- (ii) State **three** pieces of equipment needed to cut the net out safely by hand. [3]

1 **2** **3**

- (iii) Describe the benefits of using a template to make multiple prototypes. [2]

.....

.....

.....

- (d) Explain **two** safety considerations when making the prototype using CAM.

Consideration 1: [2]

.....

.....

Consideration 2: [2]

.....

.....

(e) Explain what the following tools are used for when using CAD packages.

(i)  Crop Tool

[2]

.....

.....

(ii)  Clone Tool

[2]

.....

.....

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

- (a) (i) Graphic designers use CAD packages to design items for different tasks. They can be categorised into the following groups below.

Read the tasks in the table and insert the name of the correct programme type.

Image Manipulation Vector Drawing Web Creation Page Layout

<i>Description</i>	<i>Type of Programme</i>
<ul style="list-style-type: none"> Used to draw logos. Works better for typesetting. [1]
<ul style="list-style-type: none"> This type of programme uses pixels or dots of colour. Sometimes called raster packages. [1]
<ul style="list-style-type: none"> Is a form of DTP. Allows multiple editors to develop a document at the same time. [1]

- (ii) The following image is to be saved to the web. State the file format that would be best to save the image to a website.



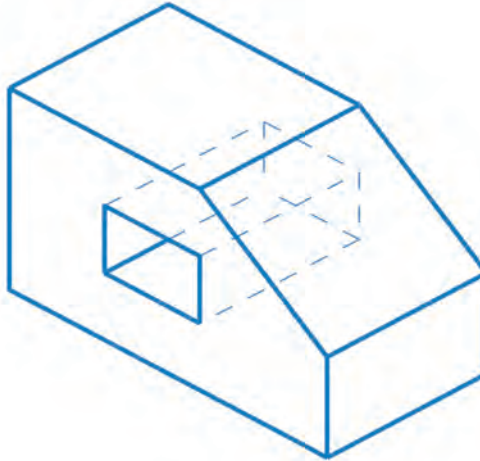
Format [1]

(b) Explain what the term 'duplex' means when associated with printing documents. [2]

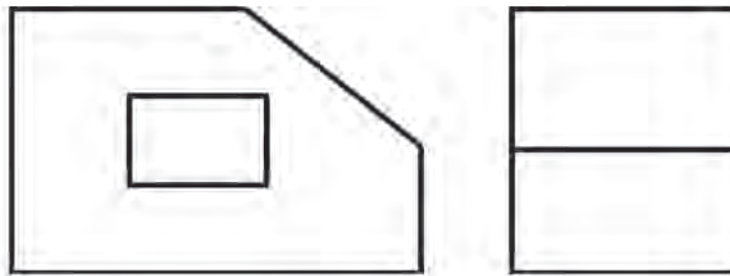
.....

.....

(c) Study the drawing below.

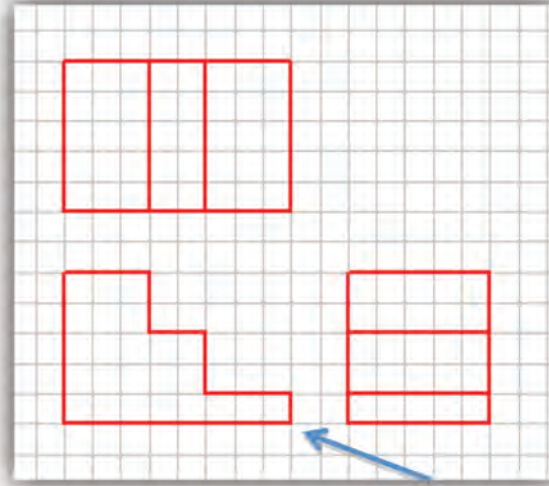


(i) Add the hidden detail to the orthographic drawing below. [2]



(ii) In the space below, draw the symbol that represents third angle projection. [2]

- (d) Study the Orthographic image below. Use drawing instruments to complete a two point perspective drawing of the shape. The drawing has been started for you. (Leave all construction lines visible and estimate any sizes.) [5]

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POINT A



POINT A

END OF PAPER

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For continuation only.

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