

Surname	Centre Number	Candidate Number
Other Names		0



GCSE

4101/01



DESIGN AND TECHNOLOGY

UNIT 1

FOCUS AREA: Graphic Products

WEDNESDAY, 23 MAY 2018 – 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

4101
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 a baby holding the nursery thermometer that is provided as a free gift with the sleeping bag she is wearing.



- (a) (i) State why the thermometer was previously manufactured to the shape shown below. [1]



- (ii) Explain why the thermometer's shape has changed to the new square version that includes feet shown in the main pictures. [2]

(b) Explain why the free thermometer is manufactured from the following materials.

(i) Medium weight duplex board.

[2]

.....

.....

.....

(ii) Thermochromic film.

[2]

.....

.....

.....

(c) (i) Describe the benefit to parents of including the thermometer with the product. [3]

.....

.....

.....

(ii) Describe the benefit to the manufacturer of including the free thermometer with the product. [2]

.....

.....

.....

- (d) (i) Study the close up image of the thermometer below. It shows the recommended tog rating (thickness) of sleeping bag to be worn for the temperatures shown. State the temperature range it should be for the thickest sleeping bag to be used safely. [1]



- (ii) Study the information in the size chart below. Calculate the length of the largest sleeping bag in millimetres.

Show all workings.

[2]

AGE	LENGTH in 'mm'	WIDTH in 'mm'
0-6 months	500	300
6-18 months	600	360
18 mths-3 yrs	720	432
3 yrs +	?	518
Sizes increase by 20% for each age group		

BLANK PAGE

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

(a) (i) Complete the table by adding the correct missing R.

2 × [1]

<i>R</i>	<i>Description</i>
Reduce	Is it possible to use less materials? This will help to protect valuable resources.
Recycle	Could reprocessed materials be used, or is the product made from materials that are easy to reuse?
.....	Is the product easy to fix? This will extend its life.
Rethink	Is there a better way to solve this problem that is less damaging to the environment?
Reuse	Could its parts be used in other products?
.....	Not accepting things that are not the best option for the environment.

(ii) Explain why the 6 Rs are an important tool for designers.

[2]

.....

.....

.....

(iii) Explain why sustainable design has become important to consumers when choosing a product.

[2]

.....

.....

.....

- (b) (i) Draw a circle around the symbol that represents the BSI.

[1]



- (ii) Describe how the packaging essential regulations have changed the relationship between the user and product packaging. [3]

.....

.....

.....

.....

During your course you have studied the work of Neville Brody and Saul Bass.

[2]

	
<p>Designer</p>	<p>Designer</p>

[8]

Marks will be awarded for the content of the answer and the quality of written communication.

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

(a) (i) From the list below state which step in the design process happens first. [1]

Final evaluation

Initial ideas

Plan of manufacture

(ii) State **two** important criteria that should be included in a design specification.

I. [1]

II. [1]

(b) (i) Explain why it is important for a designer to consider the varying needs of different users when designing a product. [2]

.....

.....

.....

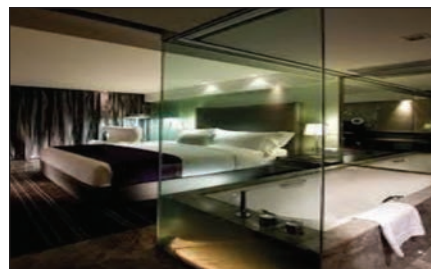
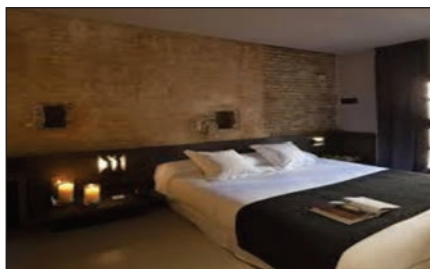
(ii) Explain the relationship between a design specification and a final evaluation. [2]

.....

.....

.....

- (c) A new range of luxury boutique hotels are to open in major cities around the world. The hotels are aimed at young couples and tourists under 30 years of age. The hotels will be called 'the pod' and are to have a very urban, modern and minimalist feel.



The hotels need a brand identity to reflect the company's modern and minimalist approach and that will appeal to the intended target audience. The images above reflect the hotels' urban, modern and minimalist interiors.

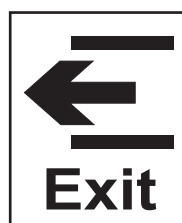
The company states that the brand identity must:

- use no more than 2 colours;
- appeal to the company's target audience.

- (i) Draw your design for the hotels' logo in the box below.

[3]

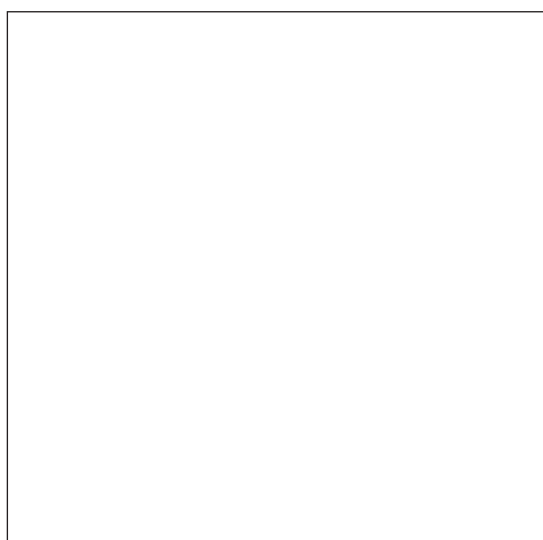
When visiting hotels for the first time it can be difficult to find your way around. Effective signage is an important factor in the hotel guests' enjoyment during their stay. In the spaces provided design your solutions for the modern way finding icons that will be found around the new hotels.



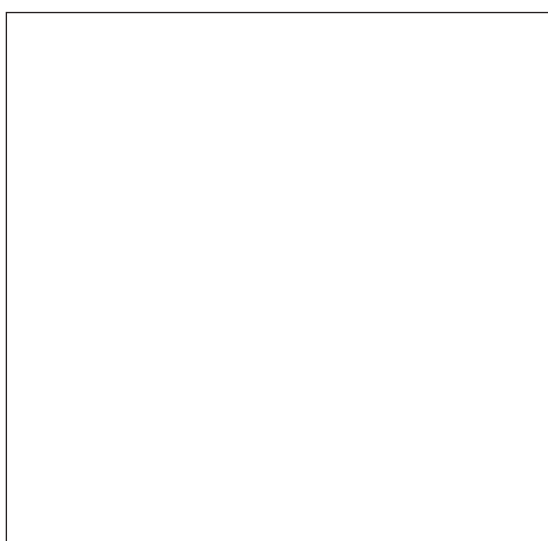
Marks will be awarded for:

- (ii) clear and understandable icons and directions without the use of text
- (iii) quality of drawing and presentation.

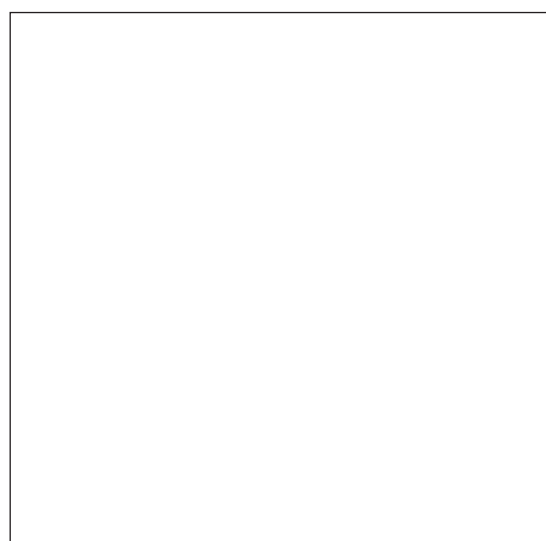
3 × [3]
3 × [2]



Stair icon



Lift icon



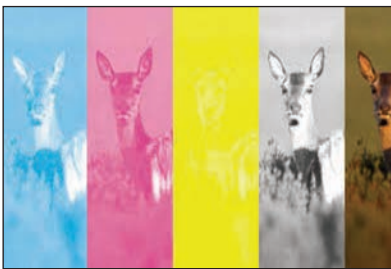
Restaurant icon

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 of commercial printing. Use the images and descriptions below to identify the operation or method that happens at each stage. 3 × [1]

Pre Press



Dividing colours for printing.

On Press



Method of printing used to produce newspapers.

Finishing



Joining all of the pages to produce a finished book.

C

O

B

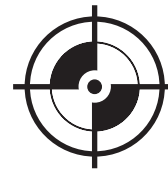
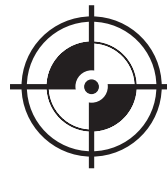
S

L

- (ii) State **two** scales of production used to produce graphic products. 2 × [1]

1. 2.

- (b) (i) State the name of the symbols shown below. [1]



- (ii) Explain what would have happened during the printing process for the symbol to appear as shown below. [2]



.....

.....

.....

- (c) Explain what happens to a product if a part of it has been debossed. [2]

.....

.....

.....

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

- (a) (i) From the list below underline the composite material.

[1]

Watercolour paper

Foam core board

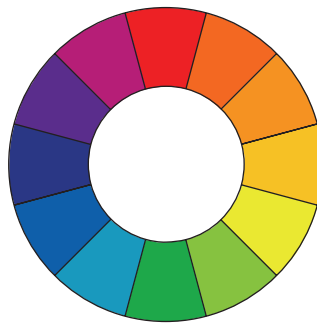
Medium weight card

- (ii) State how a designer could improve the strength and finish of a piece of paper or card.

[1]

.....

- (b) (i) Study the colour wheel below.



Use the colour wheel to name **each** colour system represented by the squares of colour below.

3 × [1]



.....

.....

.....

- (ii) Explain the difference between a tint and a tone.

[2]

.....

.....

.....

- (c) (i) From the list below choose the word that best describes **each** letter. [3]

Decorative

Script

Serif

Sans Serif

Oldstyle





- (ii) Explain how a typeface can be described as Oldstyle. [2]

.....

.....

.....

- (d) Describe what you understand by the term 'microencapsulation'. [3]

.....

.....

.....

.....

Examiner
only

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

(a) Use the images below to complete the table by matching the correct tool to the description.
3 × [1]



Rule



Compass cutter



60/30 Set squares



Fineliner



Protractor

Tool	Description
.....	Can be used as a straightedge or to draw isometric and right angles accurately.
.....	Used to manufacture accurate circles in a variety of different media including card, paper and vinyl.
.....	Typically used for graphic drawing or sketching purposes, used in technical drawing for adding detail or weighted lines.

(b) (i) The product shown below has been manufactured by hand.



Explain why the following tools were chosen to manufacture the product.

Die cutter

[2]

.....

.....

Bone folder

[2]

.....

.....

- (ii) Explain how a designer could use a jig when working with graphic products. [2]

.....

.....

- (c) (i) State the type of computer software used to create the following images. 2 × [1]



Create a logo

.....



Alter a photograph

.....

- (ii) Colour plays an important part in design. When using computer software explain how a designer can manipulate and work with colours. [3]

.....

.....

.....

.....

- (d) (i) Describe why a designer would use levels when using a CAD package. [3]

.....

.....

.....

- (ii) Describe how a designer could make a digital image clearer and sharper. [3]

.....

.....

.....

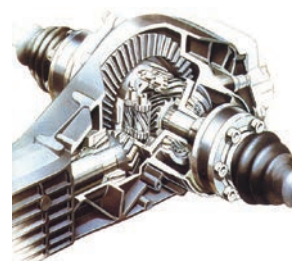
.....

Examiner
only

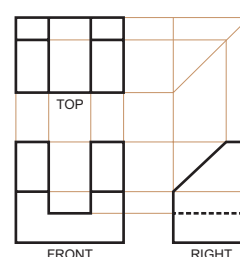
8. This question is about ICT, CAD, CAM, Systems and Processes. It is worth a total of 15 marks.

- (a) (i) Draw a line connecting **each** type of drawing on the left to the correct image on the right.
3 × [1]

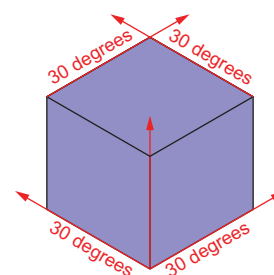
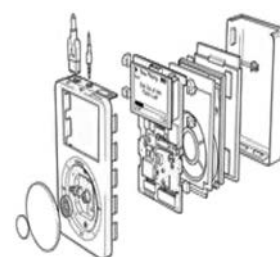
Isometric drawing



Third angle orthographic drawing

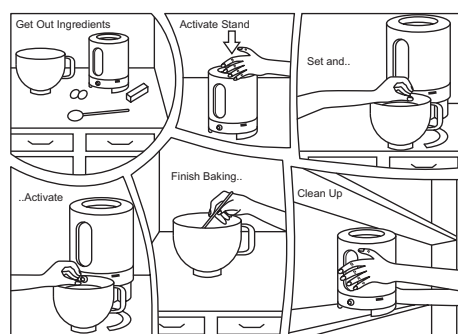
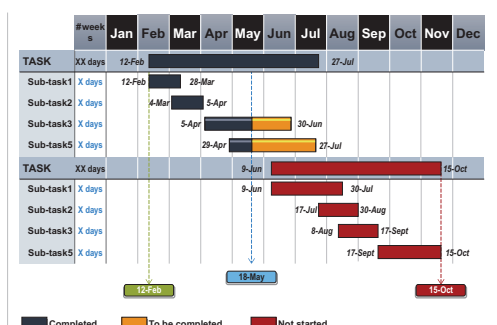


Cutaway drawing



- (ii) State the name of **each** type of graphical presentation method shown below.

2 × [1]



G C

S B

- (b) (i) The following power button has to be redrawn for an instruction leaflet.

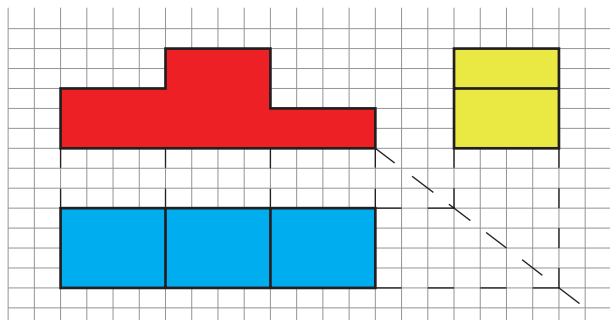


Use drawing tools to construct the power button. The power button must be 100 mm square with 15 mm round at each corner. The symbol is constructed using a 30 mm circle and its weight is 6 mm (6 mm wide). [6]

Marks will be awarded for showing all construction lines.

- (ii) In the space provided draw a one point perspective drawing of the shape shown below. [4]

Marks will be awarded for showing all construction lines.



+ Start Point

END OF PAPER

