Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME	

CENTRE NUMBER		CANDIDATE NUMBER	

INFORMATION AND COMMUNICATION TECHNOLOGY **0417/31**

Paper 3 Data Analysis and Website Authoring **February/March 2018**

2 hours 30 minutes

Additional Materials: Candidate Source Files are required.

READ THESE INSTRUCTIONS FIRST

Write your name, Centre number and candidate number in the spaces at the top of this page.
Write in dark blue or black pen.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.
You must **not** have access to either the internet or any email system during this examination.

Carry out **all** instructions in each step. You can track your progress through the examination by crossing out each question number.
Enter your **name**, **Centre number** and **candidate number** on every printout before it is sent to the printer.
Printouts with handwritten candidate details on them will **not** be marked.
At the end of the examination, put this **Question Paper** and **all your printouts** into the Assessment Record Folder.
If you have produced rough copies of printouts, put a neat cross through each one to indicate that it is **not** the copy to be marked.

Any businesses described in this paper are entirely fictitious.

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

Write today's date in the box below.

This document consists of **8** printed pages.

Task 1 – Evidence Document

- Open the file **m1831evidence.rtf**
- Make sure your name, Centre number and candidate number will appear on every page of your Evidence Document by placing these details in the header.
- Save this as a word processed document in your work area with the filename **m1831evidence** followed by your candidate number, for example, **m1831evidence9999**

You will need to place screenshots and answers to questions in this Evidence Document.

Task 2 – Spreadsheet

You will prepare a spreadsheet model to calculate the costs of building brick walls for a construction company called Bobby's Bricks.

Apply the most efficient formulae to this model using the data provided.

All currency values are in pounds sterling (£) to 2 decimal places.

All dimensions must be shown in metres and cubic metres.

Any part bricks must be rounded up to the nearest whole number.

The foundations of a building are called footings.

1 metre = 100 centimetres (1m = 100cm)

1 • Explain in your own words the order in which mathematical operations are performed within a spreadsheet. [4]

> **EVIDENCE 1**
> Type your explanation into your Evidence Document.

2 •   Open the files **m1831calculator.csv** and **m1831bricks.csv** in a spreadsheet package and examine the contents.

•   Format the file *m1831calculator.csv* so that the spreadsheet looks like this:

	A	B	C	D	E	F	G	H
1	*Bobby's Bricks*							
2	**Cost calculator for freestanding brick walls**							
3					Soil code	Soil type	Width of footings	Depth of footings
4	**Data entry**				B	Bedrock	0.6	0.5
5	Thickness of wall - single skin or double skin:		Please enter S or D		C	Clay	0.8	1
6	Code for the type of soil:		Please enter soil code B, C, G, S or T		G	Gravel	0.6	0.8
7	Length of wall:		Please enter length in metres		S	Sedimentary rock	0.6	0.6
8	Height of wall:		Please enter height in metres		T	Sand	0.6	0.8
9	Brick code for choice of bricks:		Please enter brick code					
10								
11	**Foundations - footings**							
12	The footings will be:		metres deep					
13	The footings will be:		metres wide					
14	The footings will be:		metres long					
15	The concrete footings have a volume of:		cubic metres					
16	The concrete for the footings will cost:							
17								
18	**Brickwork**							
19	Type of brick chosen:							
20	Does wall require piers:							
21	Number of piers to be built:							
22	Number of bricks per course:							
23	Number of courses:							
24	You will need to buy:		bricks					
25	Number of packs of bricks required:							
26	Cost of bricks:							

[7]

•   Save this as a spreadsheet with the filename **m1831_** followed by your Centre number and candidate number, for example, **m1831_ZZ999_9999**

> **EVIDENCE 2**
>
> Take a screenshot showing only cells A1 to C26 of your spreadsheet, including the row and column headings. Place this in your Evidence Document.

3 •   Place your name, Centre number and candidate number on the right in the footer.

•   Place an automated filename including the file path in the centre of the header.

[2]

For steps 4 to 18 you may enter test data to help you create your model.

4 •   Restrict the data entry in cell B5 to **S** or **D** or **s** or **d**   [2]

> **EVIDENCE 3**
>
> Take a screenshot showing how you restricted the data entry in cell B5. Place this in your Evidence Document.

5 • Restrict the data entry in cell B6 to accept only entries from the list of soil codes in the soil type table. [1]

> **EVIDENCE 4**
> Take a screenshot showing how you restricted the data entry in cell B6. Place this in your Evidence Document.

6 • Enter a formula in cell B12 which, depending on the soil type, displays the depth of the footings. [4]

7 • Enter a formula in cell B13 which, depending on the soil type, displays the width of the footings. [3]

8 • Enter a formula in cell B14 which calculates the length of the footings.
This is:
             the length of the wall
    plus   the width of the footings
    minus 10 centimetres.
[2]

9 • Enter a formula in cell B15 to calculate the volume of concrete needed for these footings.
This is:
                  the depth of the footings
    multiplied by   the width of the footings
    multiplied by   the length of the footings.
[1]

10 • Enter a formula in cell B16 to calculate the cost of the concrete for these footings.
The price is £120 per cubic metre. [1]

11 • Enter a formula in cell B19 to lookup the *Brick name* using the data from the file *m1831bricks.csv* [5]

If a wall is single skin (only one brick thick) and longer than 1.2 metres and higher than 0.725 metres, it needs supporting with piers.

12 • Enter a formula in cell B20 to display "Yes" if the wall needs piers and "No" if it does not need piers. [7]

If piers are needed, they should be placed at each end of the wall and every 1.2 metres along the wall.

13 • Enter a formula in cell B21 to calculate the number of piers needed for the wall. [4]

A course is a single layer of bricks. A wall is built with many courses.

14 • Enter a formula in cell B22 to calculate the number of bricks per course.
This is the length of the wall divided by **0.225** [1]

15 • Enter a formula in cell B23 to calculate the number of courses.
This is the height of the wall divided by **0.066** [1]

16 • Using these statements, enter a formula in cell B24 to calculate the number of bricks you will need to buy.

The number of bricks for a single skin wall is the number of bricks per course multiplied by the number of courses.

Twice as many bricks are needed for a double skin wall.

For both double skin and single skin walls an extra 10% is always added, as some bricks will be damaged.

If piers are used extra bricks are needed. This is calculated by adding the number of courses multiplied by the number of piers.

[5]

17 • Enter a formula in cell B25 to calculate the number of packs of bricks that must be bought. You can only buy bricks in full packs of 390. [1]

18 • Enter a formula in cell B26 to calculate the cost of buying the bricks using the data from the file *m1831bricks.csv* [2]

19 • Apply appropriate formatting to all cells. [1]

20 • Save the file and print only cells A1 to C26 of the spreadsheet showing the formulae. Make sure:

○ it is in landscape orientation

○ row and column headings are displayed

○ the contents of all these cells are fully visible.

[1]

PRINTOUT 1
Make sure that you have entered your **name**, **Centre number** and **candidate number** on your spreadsheet showing the formulae.

---

21 • Enter data to build a single skin wall with:

   ○ the soil code **B**

   ○ the brick code **R**

   ○ a length of **400** centimetres

   ○ a height of **60** centimetres

• Print only cells A1 to C26 of the spreadsheet showing the values. Make sure:

   ○ the printout fits on a single page

   ○ the contents of all cells are fully visible.

[1]

PRINTOUT 2

Make sure that you have entered your **name**, **Centre number** and **candidate number** on your spreadsheet showing the values.

[Total: 56]

Task 3 – Web Page

You work for Hothouse Design and will develop a web page for the block paving department of Bobby's Bricks.

Efficient markup and stylesheets must be used. All colour codes must be in hexadecimal.

• Create a new folder called **Blocks_html**

• Locate the following files and store them in your *Blocks_html* folder.

   BBlocks.css

   BlockImage.jpg

   BlockLogo.jpg

22 ● Create a web page called **blocks.htm**

This web page must work in all browsers and will have a table structure as shown below:

```
┌─────────────────────────────────────────────────────┐
│ A                                                     │
│                      900 × 300                        │
├──────────────────┬────────────────────────────────────┤
│ B                │                                    │
│   300 × 200      │                                    │
├──────────────────┤                                    │
│ C                │                                    │
│   300 × 200      │  F                                 │
├──────────────────┤                                    │
│ D                │      600 × 810                     │
│   300 × 200      │                                    │
├──────────────────┤                                    │
│ E                │                                    │
│   300 × 210      │                                    │
└──────────────────┴────────────────────────────────────┘
```

● Each table cell is identified with a letter and all dimensions are in pixels. The letters and dimensions shown in the table must **not** appear on your final web page.

● Table and cell borders must **not** appear on the final web page.

[10]

23 ● Place in cell A the image **BlockLogo.jpg**

This is the logo of the company which appears on the company vehicles, letterheads, etc.

[1]

24 ● Place in cell F the image **BlockImage.jpg** [1]

25 ● Evaluate the image placed in step 24 for use within this web page and edit the markup to improve the image. [5]

┌───┐
│ **EVIDENCE 5**   │
│ Type your evaluation into your Evidence Document using no more than 100 words. │
└───┘

26 ● Place the text:
  ○ **Bricks** in cell B
  ○ **Blocks** in cell C
  ○ **Bobby's Bricks Homepage** in cell D
  ○ **Web page edited by** followed by your name, Centre number and candidate number in cell E
  ○ **Return to the top** as a new line of text in cell E.
● Set all this text as style h1.

[2]

27 ● Place an anchor called **top** at the top of the web page.
● Make the text *Return to the top* a hyperlink to this anchor.

[3]

28 ● Centre align the table in the browser. [1]

29 ● Attach the stylesheet **BBlocks.css** to your web page.
● Save the web page in your *Blocks_html* folder.

[1]

EVIDENCE 6

Display the web page in your browser. If necessary, resize it so that:

- all the page can be seen
- all text can be easily read
- the address bar is visible.

Take a single screenshot of the browser window and place this in your Evidence Document.

EVIDENCE 7

Take a copy of the HTML source and place this in your Evidence Document.

EVIDENCE 8

Take a copy of the stylesheet used and place this in your Evidence Document.

● Save and print your Evidence Document.

PRINTOUT 3

Make sure that you have entered your **name**, **Centre number** and **candidate number** on your Evidence Document.

[Total: 24]