Cambridge IGCSE™

INFORMATION AND COMMUNICATION TECHNOLOGY	**0417/31**
Paper 3 Data Analysis and Website Authoring	**February/March 2021**
	2 hours 30 minutes

You will need: Candidate source files (listed on page 2)

INSTRUCTIONS
- Carry out **all** instructions in each step.
- Enter your name, centre number and candidate number on every printout before it is sent to the printer.
- Printouts with handwritten candidate details will **not** be marked.
- At the end of the examination, put all your printouts into the Assessment Record Folder.
- If you have produced rough copies of printouts, put a cross through each one to indicate that it is not the copy to be marked.
- You must **not** have access to either the internet or any email system during this examination.

INFORMATION
- The total mark for this paper is 80.
- The number of marks for each question or part question is shown in brackets [ ].

This document has **8** pages.

[Turn over

You have been supplied with the following source files:

m21banner.jpg
m21income.csv
m21ocean.css
m21ocean.txt
m21spinner.mp4
m21text.txt
m21whaleshark.jpg

Task 1 – Evidence Document

Create a new word-processed document.

Make sure your name, centre number and candidate number will appear on every page of this document.

Save this Evidence Document in your work area as **m21evidence_** followed by your centre number_ candidate number, for example, m21evidence_ZZ999_9999

You will need your Evidence Document during the examination to place screenshots when required.

Task 2 – Image Editing and File Management

1 Create a new folder called **ocean**

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

> **m21banner.jpg**
> **m21ocean.css**
> **m21ocean.txt**
> **m21spinner.mp4**
> **m21text.txt**
> **m21whaleshark.jpg**

Open the file **m21whaleshark.jpg** in a graphics package. Edit the image by:

- rotating it 90 degrees clockwise
- reflecting (flipping) it horizontally
- cropping it to remove the text
- cropping it so all of the whale shark is visible and the cropped image is 500 pixels wide by 1200 pixels high.

Save this new image in your *ocean* folder, in **.png** format, using the file name **ws_** followed by your candidate number, for example, ws_9999

Display the contents of your *ocean* folder showing the folder name, all file names, file extensions, image dimensions and file sizes.
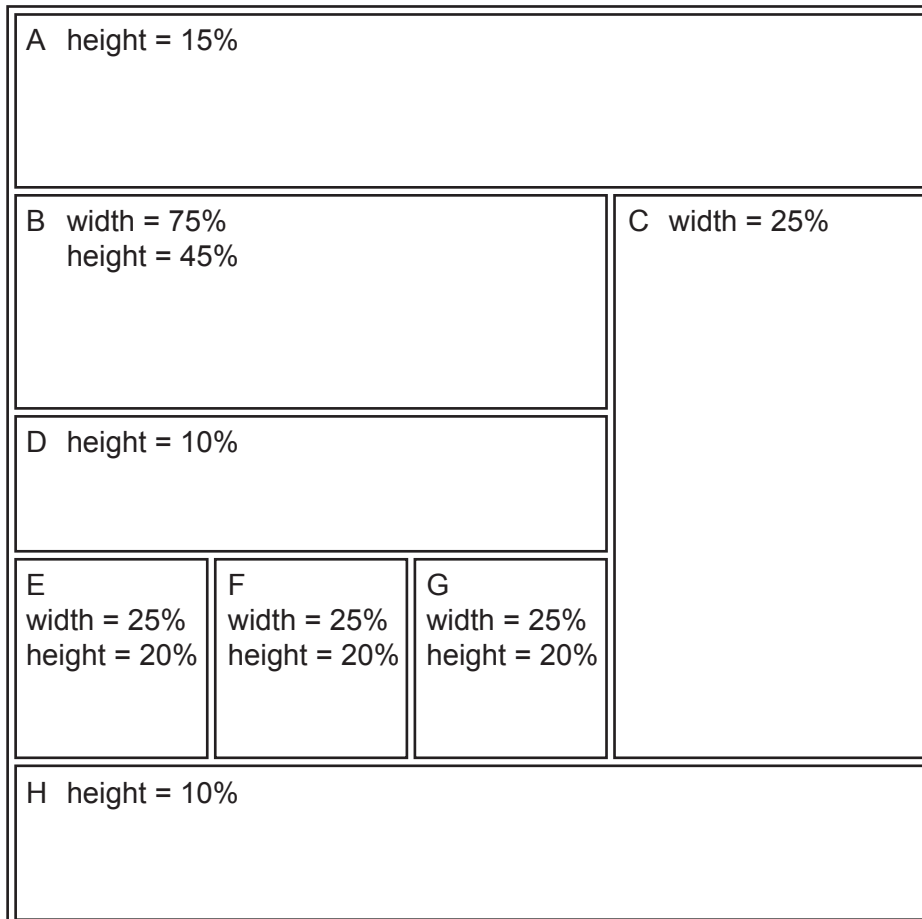
[6]

EVIDENCE 1

Take a screenshot of your *ocean* folder and place this in your Evidence Document. Make sure that the folder name, all file names, file extensions, image dimensions and file sizes are clearly visible.

[Total: 6]

Task 3 – Web Page

You are going to create a web page and stylesheet to promote ocean conservation. The web page and stylesheet must work in any browser. All colour codes except those provided in the source files must be in hexadecimal. Make sure that your stylesheet contains no HTML. Make your HTML and stylesheet as efficient as possible.

2   Create, in your *ocean* folder, a web page called **ocean.htm**

This web page must be created using a single table and work in all browsers. The table must fit 80% of the browser window. The table must have a structure as shown in this diagram:

```
┌────────────────────────────────────────────────────┐
│ A  height = 15%                                     │
│                                                     │
│                                                     │
├──────────────────────────────────┬─────────────────┤
│ B  width = 75%                   │ C  width = 25%   │
│    height = 45%                  │                  │
│                                  │                  │
│                                  │                  │
├──────────────────────────────────┤                 │
│ D  height = 10%                  │                  │
│                                  │                  │
│                                  │                  │
├──────────┬──────────┬────────────┤                 │
│ E        │ F        │ G          │                  │
│ width=25%│ width=25%│ width=25%  │                  │
│ height=  │ height=  │ height=20% │                  │
│ 20%      │ 20%      │            │                  │
├──────────┴──────────┴────────────┴─────────────────┤
│ H  height = 10%                                     │
│                                                     │
│                                                     │
└────────────────────────────────────────────────────┘
```

Each table cell is identified with a letter. Some dimensions are shown. These must be set as percentage values and **not** in pixels.

The cell contents shown in the diagram must **not** appear on your final web page.

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

[14]

3 Place in cell:

- A the image **m21banner.jpg**
- B a placeholder to fill the width of the cell containing the video clip **m21spinner.mp4** Display an automated text-based error message if the browser does **not** support this video type.
- C the image **ws_** that you saved in Step 1.

[10]

4 Place inline style attributes into the HTML so that each image fits the width of the table cell, with its aspect ratio maintained. [3]

5 Place in cell D the contents of the file **m21ocean.txt**

Display this text as two paragraphs.

Add, as a third paragraph, the text:

Web page updated by: followed by your name, centre number and candidate number

Apply style p to all the text in cell D.

[5]

6 Place in cell:

- E the text **Species**
- F the text **Ocean waste**
- G the text **Contact us to help**

Apply style h1 to all this text.

[2]

7 Place in cell H the contents of the file **m21text.txt**

Apply style h2 to this text.

[1]

8 Attach the stylesheet **m21ocean.css** to this web page.

Save your web page.

[1]

9 Open and edit the stylesheet **m21ocean.css** to meet the following specifications:

> Centre align all tables within the browser window.
>
> Set the background for the web page so that it has a colour with a:
>
> - blue component of **d5**
> - red component of **9a**
> - green component of **ab**
>
> Set the font for styles h1, h2 and the paragraph style so that the browser selects and displays the font **Arial**. If this font is not available, the browser selects and displays the font **Verdana**. If neither of these fonts is available, the browser should display its default sans-serif font. Set each of these fonts as black.
>
> Set style h1 to be centre aligned.
>
> Set style h2 and the paragraph style as fully justified.

Add your name, centre number and candidate number as a comment at the start of the stylesheet.

Save this stylesheet in your *ocean* folder.

Take a screenshot to show the file name and all the contents of your stylesheet.

[12]

> **EVIDENCE 2**
>
> Place this screenshot in your Evidence Document. Make sure that the contents of your stylesheet can be easily read.

10 Display the HTML source of your web page in your editor.

> **EVIDENCE 3**
>
> Take a copy of the HTML source of your web page and place this in your Evidence Document.

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.

[1]

> **EVIDENCE 4**
>
> Place in your Evidence Document screenshot(s) showing the web page in your browser.

[Total: 49]

Task 4 – Printing the Evidence Document

Save and print your Evidence Document.

PRINTOUT 1

Make sure your **name**, **centre number** and **candidate number** appear on every page of your Evidence Document.

Task 5 – Data Analysis

You are going to use a spreadsheet to analyse the annual donations given by each region. All currency values must be in dollars ($) to 2 decimal places. Use the most efficient method for each task.

11   Open and examine the file **m21income.csv** in a spreadsheet package.

Place the text **Last edited by** followed by a space, your name, centre number and candidate number, centre aligned in the footer.

Save this as a spreadsheet with the file name **m21ocean_**centre number_candidate number, for example, m21ocean_ZZ999_9999

[2]

12   Delete rows 2 and 3 of the spreadsheet.   [1]

13 Format the spreadsheet to look like this:

	A	B	C	D	E	F	G	H	I
1			Save our oceans						
2			Regional Income						
3			North America	South America	Europe	Africa	Asia	Oceania	Total
4	Quarter 1	January	$3,846.68	$9,929.78	$18,445.73	$214.60	$2,155.12	$11,617.92	
5		February	$10,535.28	$4,157.40	$10,134.95	$49.28	$4,750.12	$1,481.32	
6		March	$21,539.28	$11,477.23	$19,250.03	$166.17	$3,643.92	$11,041.55	
7		Total							
8	Quarter 2	April	$23,975.72	$7,846.40	$5,769.50	$8.99	$4,570.40	$5,681.29	
9		May	$17,729.48	$2,439.98	$5,172.10	$264.19	$5,759.48	$11,126.84	
10		June	$36,775.24	$1,305.30	$18,248.70	$265.61	$937.24	$6,443.77	
11		Total							
12	Quarter 3	July	$19,715.28	$2,190.40	$15,568.48	$146.08	$1,119.50	$4,412.56	
13		August	$26,858.00	$8,091.83	$3,264.95	$106.96	$5,180.03	$4,041.08	
14		September	$34,610.60	$10,868.33	$14,827.63	$197.80	$5,094.20	$7,681.46	
15		Total							
16	Quarter 4	October	$1,181.68	$5,791.19	$11,144.48	$14.77	$4,057.46	$8,033.80	
17		November	$10,887.32	$5,971.36	$4,178.03	$227.96	$3,082.91	$6,702.18	
18		December	$39,236.44	$2,319.91	$11,141.73	$77.26	$4,644.15	$2,028.29	
19		Total							
20									
21	Annual Total								
22	Quarterly Average								

Format the merged cell in row 1 to contain black 48 point text on a yellow background.

Format the merged cells in row 2 and the merged cells between A4 and A19 to contain black 18 point text on a grey background.

[10]

14 Enter functions in the appropriate cells to calculate the total income for each quarter for each region. [2]

15 Enter functions in the appropriate cells in column I to calculate the total income for each month and each quarter. [2]

16 Enter formulae in the appropriate cells to calculate the annual total income for each region. [2]

17 Enter functions in the appropriate cells to calculate the average of the quarterly total for each region. [3]

18 Apply appropriate formatting to cells containing numeric values. [1]

19 Save your spreadsheet.

Print your spreadsheet showing the formulae. Make sure the:

- row and column headings are displayed
- page orientation is landscape
- contents of all cells are fully visible and can be easily read.

[1]

> **PRINTOUT 2**
>
> Make sure that you have entered your **name**, **centre number** and **candidate number** on the spreadsheet showing the formulae.

20 Print your spreadsheet showing the values. Make sure the:

- printout fits on a single page
- row and column headings are **not** displayed
- contents of all cells are fully visible and can be easily read.

[1]

> **PRINTOUT 3**
>
> Make sure that you have entered your **name**, **centre number** and **candidate number** on the spreadsheet showing the values.

[Total: 25]