Cambridge International AS & A Level

INFORMATION TECHNOLOGY **9626/02**

Paper 2 Practical **February/March 2021**

2 hours 30 minutes

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

INSTRUCTIONS
- Carry out **every** instruction in **each** task.
- Save your work using the file names given in the task as and when instructed.
- You must **not** have access to the internet or any email system during this examination.
- You must save your work in the correct file format as stated in the tasks. If you save work in an incorrect file format, you will **not** receive marks for that task.

INFORMATION
- The total mark for this paper is 110.
- The number of marks for each task or part task is shown in brackets [ ].

[Turn over

You have been supplied with the following source files:

m21ops.csv
m21voice.mp3

Tawara Health Service stores personal data in the cloud. A programming language is used to encrypt this data. A spreadsheet is being developed to check that the data encryption program works as expected.

All data is stored as a text string. Each character that is stored has a unique numeric code which is shown using the CODE function.

You must use the most efficient method to solve each task. All documents produced must be of a professional standard and suit the business context.

1   Create a new spreadsheet that looks like this:

	A	B	C	D	E	F	G	H	I	J	K	L	M
1					**Tawara Health Service**								
2													
3					**Encryption test spreadsheet**								
4													
5	Stored text string:	Fred Amarta											
6	Text string length:	11											
7	Number of character:	1	2	3	4	5	6	7	8	9	10	11	12
8	Characters from text string:												
9	Codes from text string:												
10	Code in binary:												
11	Flip nibble:												
12	New code in decimal:												
13	Encrypted data:												
14	Encrypted text string:												

Rows 1 and 3 have merged cells, a pale blue background and dark blue text. The text in row 1 is 48 points high and the text in row 3 is 20 points high.

Merge cells B5 to M5.

Centre align cells B7 to M13.

Insert on the left in the header an automated file name with no file path.

Insert on the right in the header the text **Created on:** followed by a space, then the date, then a space, then the text **at**, then a space, followed by the time.

Save your spreadsheet as **THS1_** followed by your centre number_candidate number

e.g. THS1_ZZ999_9999   [15]

2 Enter a formula in cell B6 to calculate the length of the string in cell B5.

Place replicable formulae in all appropriate cells in rows 8 to 13. Each formula must trap out possible errors that may occur when a *Stored text string* does not contain 12 characters.

- In row 8 extract each of the 12 characters from the stored text string.
- In row 9 extract the code for each character (hint: use the CODE function).
- In row 10 convert the code for each character from decimal into binary so that all 8 binary digits are visible (hint: use the DEC2BIN function).
- In row 11 transpose the binary digits for each nibble. This involves moving the first 4 digits so that they become the last 4 digits, e.g.
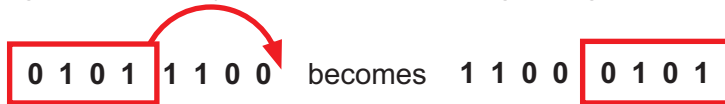
All 8 binary digits must still be visible.
- In row 12 convert the code of each character from binary into decimal (hint: use the BIN2DEC function).
- In row 13 display the character for the new code (hint: use the CHAR function).

Enter a formula in cell B14 to compress all the *Encrypted data* characters into a single string. Save the file. [28]

3 Test the spreadsheet with the *Stored text string*:

13 Lime Lane

Save the new file as **THS2_** followed by your centre number_candidate number

e.g. THS2_ZZ999_9999 [3]

4 Edit your spreadsheet to allow a *Stored text string* with more characters and test it with:

Angela Pollard, 42 Acacia Avenue, Tawara, F67412

Save the new file as **THS3_** followed by your centre number_candidate number

e.g. THS3_ZZ999_9999 [5]

The Encrypted text string must be changed back into the original Stored text string.

5 Place the *Encrypted text string* in cell B18. Place in rows 18 to 27 appropriate labels, formatting and formulae (using rows 5 to 14 to help you) to decrypt this. Place the result in cell B27, which should match the contents of cell B5.

Test this using data copied from cell B14.

Save the new file as **THS4_** followed by your centre number_candidate number

e.g. THS4_ZZ999_9999 [19]

Task 6 starts on page 4.

Tawara Health Service wants to summarise and present data in chart format to the directors. The data is for 6 departments. Each department specialises in one part of the body.

6 Open and examine the file **m21ops.csv** in a spreadsheet. More data will be added to this each month.

Place a **single** replicable formula to calculate the average number of patients seen in each calendar month by each department. This formula must also round to the nearest whole day and allow for extra data to be added in the future.

Replicate this formula for the 12 months of the year and for all departments. Apply appropriate labels to this section of the spreadsheet.

Save your spreadsheet as **THSops_** followed by your centre number_candidate number

e.g. THSops_ZZ999_9999 [13]

7 Create and label an appropriate chart to compare the percentage of all patients who were seen for the upper body (shoulder, elbow and wrist) and the percentage of patients who were seen for the lower body (hip, knee and ankle). [6]

8 Create an appropriate chart to compare the total number of patients seen by each department. Set the axis maximum value to 10000.

Add a second data series to this chart to show the average number of days' waiting time for each department.

Add appropriate labels to your chart.

Save your spreadsheet. [13]

9 Create a new document with appropriate titles and layout for the target audience. Place both charts in this document.

Save this in portable document format (.pdf) as **THScharts_** followed by your centre number_ candidate number

e.g. THScharts_ZZ999_9999 [3]

You will edit a short audio clip that will be used as part of an advertising campaign.

10 Open the file **m21voice.mp3** in an audio editing package. Change the speed of the clip ×2.

Trim the clip so that the first 4.5 seconds are removed. Add reverb to the clip so that the voice sounds like it is echoing within a room. Export the file in .mp3 format with medium quality (between 128 and 185 kbps) as **THSvoice_** followed by your centre number_candidate number

e.g. THSvoice_ZZ999_9999 [5]