Cambridge International AS & A Level

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

INFORMATION TECHNOLOGY **9626/12**

Paper 1 Theory **February/March 2021**

1 hour 45 minutes

You must answer on the question paper.

No additional materials are needed.

INSTRUCTIONS

- Answer **all** questions.
- Use a black or dark blue pen.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do **not** use an erasable pen or correction fluid.
- Do **not** write on any bar codes.
- You may use an HB pencil for any diagrams, graphs or rough working.
- Calculators must **not** be used in this paper.

INFORMATION

- The total mark for this paper is 90.
- The number of marks for each question or part question is shown in brackets [ ].

1 There are many internal hardware devices in a typical personal computer.

(a) Tick the most accurate statement referring to hardware.

	✓
There are two types of hardware: application hardware and system hardware.	
Hardware consists of the programs used to direct the operation of a computer.	
Hardware is the collection of physical components that constitute a computer system.	
A device driver is an example of an item of hardware.	

[1]

(b) RAM is an example of an item of internal hardware.

Tick the most accurate statement referring to RAM.

	✓
A hard disk drive allows quicker access to data than RAM.	
RAM is portable and very easy to move from device to device.	
RAM stores active program data.	
Per unit of memory, RAM is far cheaper to buy than a hard disk drive.	

[1]

(c) (i) Describe the components of the central processing unit and describe their function.

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(ii) A computer contains a number of internal hardware components.

Describe the following:

Motherboard ....

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Sound card ....

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[4]

2 (a) Tick the most accurate statement referring to a gesture-based interface.

	✓
It is easier for users with physical disabilities to use a keyboard or mouse than make gestures.	
It is easier to enter text with a gesture-based interface than with a command line interface.	
Gestures are more accurately interpreted than mouse clicks.	
Some gestures may be unintentional but still initiate a reaction from the device.	

[1]

(b) Tick the most accurate statement referring to a dialogue interface.

	✓
Dialogue interfaces are more difficult to use than command line interfaces.	
A dialogue interface uses less memory than a command line interface.	
A dialogue interface may not operate reliably if there is background noise.	
Dialogue interfaces have unlimited vocabularies.	

[1]

(c) Many software developers use a command line interface (CLI).

Evaluate, by weighing up the advantages and disadvantages, a CLI compared to a graphical user interface (GUI).

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3 A printed newspaper is regarded as a source of static data.

(a) Give **two** other examples of sources of static data.

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(b) Explain why a printed newspaper is regarded as a source of static data.

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4 A sports club secretary has entered data from a source document into a database on his own computer. The original document contains correct data but he made some errors when copying the data into the database. Membership number is text data type and Membership fee paid is currency.

Membership number	Date of birth	Membership fee paid ($)
45237	13/04/1996	35
34859	09/12/1998	46
28695	12/11/1992	43
61892	01/02/2001	12
56123	27/06/1999	15

Source document

Membership number	Date of birth	Membership fee paid ($)
45237	13/04/1996	35
3485	09/12/1998	46
28695	12/12/1992	43
61892	01/02/2001	12
56123	27/06/1999	5

Database

The **three** errors were:

15 has been copied as 5
34859 has been copied as 3485
12/11/1992 has been copied as 12/12/1992

(a) (i) Explain, in detail, why one of the errors could **only** have been detected using verification.

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(ii) Describe the most appropriate method of verification that could be used to trap this error.

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(b) For each of the other **two** errors, describe the most appropriate validation check which would have trapped the error.

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[2]

 [Turn over

5 Joan has written some gaming software in a high-level programming language. She intends to publish and sell copies of the game. She wants to test it on her computer. The software will be converted into a lower-level language.

Evaluate, by weighing up the advantages and disadvantages, the use of a compiler for this purpose.

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6 Some people use modern technology in their everyday lives. Explain how aspects of such modern technology influence the digital divide.

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7   Explain the relationship between the World Wide Web and the internet.

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8   Explain how the reporting feature of a management information system (MIS) helps an organisation in the running of its business.

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9 Describe the format of a mobile phone (cell) network and how it enables the transmission of voice and data.

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10 Analyse the use of real-time processing when used in the computer control of car park barriers.

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11 When creating queries in a database, a function IIf() is often used. IIf is equivalent to the IF function found in spreadsheet software.

Examine the following database query.

IIf([Examdate]>Date(),"not yet",IIf([Examdate]=Date(),"today's the day","you've missed it"))

Date() returns the current date. [Examdate] is written as "Examdate" in some software.

Describe, in detail, what the database query does.

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12

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Data | Outgoings | Income | ... (+) : ◀ | ▶

(a) Explain, using examples from the spreadsheet above and its contents, what is meant by:

(i) cells,

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(ii) rows,

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(iii) columns,

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(iv) worksheets.

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(b) Apart from their structure, explain why spreadsheets are often used to model household finances.

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Please turn over for Question 13.

13 A company stores records of its employees in alphabetical order of name.

Explain what is meant by the indexed sequential access method, describing how it could be used to retrieve the records of employees named Patel.

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